

Kansas 4-H Sheep Leader Notebook

Leader's Introduction, Level I, Level II, Level III, Level IV

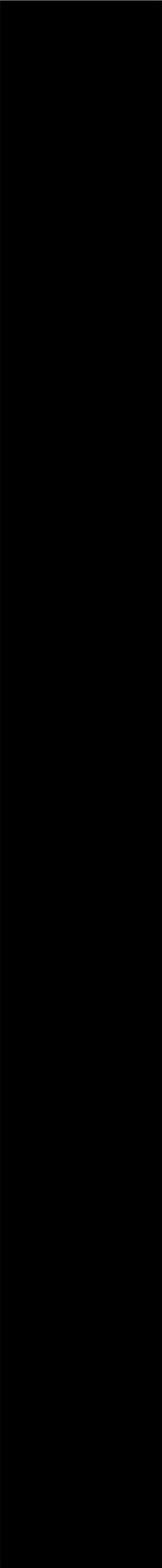
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This notebook is designed to help you as a Sheep project leader do the best job that you can to make the project a fun, interesting, and valuable experience for the 4-H youth that you teach. The Sheep project is one of several projects within the Animal Sciences 4-H Curriculum Division. It is important to 4-H, because Kansas youth learn responsibility and patience. The Sheep project, then, becomes the vehicle through which we can teach Sheep production practices and necessary life skills to the youth who enroll. Other 4-H project areas such as veterinary science, meat science, computer, health and safety are incorporated where appropriate.

OBJECTIVES

The objectives of the Sheep project are as follows:

1. Learn and apply recommended principles of sheep production.
2. Learn to use accepted practices for mental, physical and emotional health, and to respect yourself and others.
3. Demonstrate a knowledge of sound breeding, feeding, and management practices.
4. Develop skills, knowledge and attitudes for lifelong use.
5. Identify breeds of animals and employ efficient marketing methods.
6. Practice leadership skills and roles, take part in community affairs, and demonstrate citizenship responsibility.
7. Develop integrity, sportsmanship, decision-making capability, and public speaking skills through participation in demonstrations, tours, judging, and/or exhibits.
8. Learn the value of scientific research and its influence upon the Sheep industry.
9. Explore career, job and productive leisure opportunities.

MAJOR CONCEPTS

To help meet the above objectives, 12 general project concepts or topics were identified by the Sheep Design Team. Each of the specific lesson plans falls under one of these major 12 concepts—Economics and Records, Facilities, Breeding and Genetics, Management, Health, Nutrition, Fitting and Showing, Selection, Reproduction, Meats and Meat Marketing, Wool and Wool Marketing, or Miscellaneous.



LIFE SKILLS

Kansas 4-H life skills have been articulated to help define the youth development outcomes of our 4-H program. It is the goal of 4-H to develop youth who are contributing, productive members of society. Youth may achieve this goal when these five life skills are developed and applied.

1. Positive self-concept
2. Sound decision-making
3. Positive interpersonal relationships
4. Desire for lifelong learning
5. Concern for community

These five life skills are incorporated throughout the lesson plans and in the educational design of the project meetings. The “Dialogue for Critical Thinking” Section leads the group through the experiential learning process.

AGES AND STAGES

Leaders can best achieve these desired outcomes with their members when they have well-prepared leader material and understand how to structure a stimulating learning environment for the age of youth they are leading. We know and believe that each child is unique, yet we also know that there are generalities about certain age groups that help us program more effectively.

These lesson plans have been developed to target four general age groups:

- Level I—ages 7 and 8
- Level II—ages 9, 10, 11
- Level III—ages 12, 13, 14
- Level IV—ages 15 and older

A review about the physical, mental, social and emotional characteristics of these age groups will prepare the leader for a successful project experience. It should be understood by the leader that the levels are also based on corresponding skill levels of youth. Thus, a 12-year-old youth enrolling in the project for the first time should probably begin with lessons in Level I, and not take Level III until the member has mastered some basic knowledge and skills.

Ages 7 and 8

Physical growth can be described as slow and steady. Mastering physical skills is important to self-concept. This includes everything from printing with a pencil to large muscle skills like catching a ball. Activities need to be just that—active! Provide opportunities to practice skills, but use projects that can be completed successfully and quickly by beginners.

Typical second or third graders think in concrete terms. If they have never seen it, heard it, felt it, tasted it, or smelled it, they have a hard time thinking of it. Leaders should show and tell, rather than giving instructions verbally. Early elementary children are learning to sort things into categories. This makes collecting things important and fun at this age. Most are more interested in the “process”—what? why? how?—than in the resulting product.

As children move away from dependence on parents at this age, they need to transfer that dependence to another adult, so the leader may become very important in their eyes. Building friendships occurs easily and generally by the end of this period, boys prefer playing with boys and girls with girls. Peer opinion now becomes very important. Small group activities are effective, but children still need an adult to share approval.

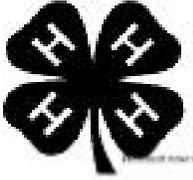
Seven and 8-year-olds need and seek the approval of adults, because they are not yet confident enough to set their own standards. Play or making believe is one way they increase their ability to imagine what other people think and feel. Rules and rituals are important, but it is very hard for children this age to lose. This is why success needs to be emphasized, even if it is small. Failures should be minimized. Cooperative games and activities are especially enjoyable. When an activity fails, the leader should help children interpret the reasons behind the failures, which teaches that failing is not bad. Learning to cope with problems is a skill the 4-H leader can encourage for all members. **The usual practice of awarding competitive ribbons should be minimized or avoided for this age.**

Ages 9, 10, 11

Physically, most children at this age are in a holding pattern, although puberty may be starting for some very early-maturing girls. Activities should encourage physical involvement, because 9- to 11-year-olds are anything but still and quiet.

Hands-on involvement with objects is helpful. Children this age like field trips, but only if they are not expected to stay confined or to do one thing for a long period of time. Upper elementary children need opportunities to share their thoughts and reactions with others. They are still fairly concrete thinkers and will give more attention if they are seeing and doing things.

Children at this stage are beginning to think logically and symbolically and are beginning to understand abstract ideas. As they consider ideas, they think it is either right or wrong, great or disgusting, fun or boring. There is very little middle ground.



The role of the leader is most crucial at this stage, as these children look to the adult for approval and follow rules primarily out of respect for the adult. Individual evaluation by adults is preferable to group competition where only one can be the best. They want to know how much they have improved and what they should do to be better next time. Encouragement from an adult can have remarkable accomplishments.

This is the age of the “joiners.” They like to be in organized groups of others similar to themselves. If you have both boys and girls of this age in your project groups, you will do best if small group work is done in same-sex groups. They generally are concerned with immediate self-reward; however, the satisfaction of completing a project comes from pleasing the leader or parent rather than from the value of the activity itself.

Toward the end of this age range, children are ready to take responsibility for their own actions. Giving these youth opportunities to make decisions should be encouraged. Leaders should move from dictating directions to giving reassurance and support for members’ decisions.

Nine, 10- and 11-year-olds have a strong need to feel accepted and worthwhile. School and other pressures become demanding. Successes should continue to be emphasized. Comparison with the success of others is difficult for these children. It erodes self-confidence. Instead of comparing children with each other, build positive self-concepts by comparing present to past performance for the individual.

Ages 12, 13 and 14

This is a time of developmental variety among peers. Growth spurts beginning with adolescence occur at a wide range of ages, with girls maturing before boys. These rapid changes in physical appearance may make teens uncomfortable. Slower developing teens may also be uneasy about the lack of changes.

Young teens move from concrete to more abstract thinking. Playing with ideas is as much fun as playing sports. Ready-made solutions from adults often are rejected in favor of finding their own solutions. Leaders who provide supervision without interference will have a great influence on these youth.

Small groups provide the best opportunity for young teens to test ideas. Justice and equality become important issues. Judging of projects is now viewed in terms of what is fair, as well as a reflection of the self-worth of the individual.

These youth enjoy participating in activities away from home as they begin to develop independence. Opinions of peers become more important than opinions of parents or other adults. Close friendships begin to develop, and group experiences provide opportunity for social acceptance.

As puberty approaches, emotions begin a roller coaster ride. Young teens begin to test values and seek adults who are accepting and willing to talk about values and morals. This period seems to present the biggest challenge to a young person's self-concept. These youngsters face so many changes that they hardly know who they are. Adults can help by providing self-knowledge and self-discovery activities such as the "dialogue for critical thinking" portion of these lesson plans.

Continue to avoid comparing young people with each other, being careful not to embarrass them. They want to be a part of something important that provides opportunity to develop responsibility.

Ages 15, 16 and 17

Most teens of this age know their own abilities and talents. In most cases, they have adjusted to the many body changes by now. Many develop athletic talent and devote hours to training and competition. Learning to drive a car further moves the teen from family into the community as independent people.

Mid-teens begin to think about their future and make realistic plans. Their vocational goals influence the activities they select. Teens set goals based on feelings of personal need and priorities. **Any goals set by others are generally rejected.** As they master abstract thinking, they can imagine new things in ways that sometimes challenge adults.

These teens can initiate and carry out their own tasks without supervision. A leader can be helpful by arranging new experiences in areas of interest to teens, but must be sure to allow for plenty of input from them. Leader-member relations should change from director/follower to that of advisor/independent worker.

Mid-teens tend to be wrapped up in themselves. Relationship skills are usually well-developed. Dating increases and acceptance by members of the opposite sex is now of high importance. Sports and clubs are important, but these teens now want to be recognized as unique individuals within that group.

Two important emotional goals of the middle-teen years are independence and identity. Time is precious. If activities are perceived as busywork, teens soon will lose patience and interest. Middle teens are learning to cooperate with others on an adult level. They will pride themselves on increased ability to be responsible in the eyes of themselves, peers, and adults.



Ages 18 and 19

These young adults are completing their 4-H careers and moving on to college, jobs, marriage, and other adult responsibilities. If continuing involvement at the local level, they will be self-directed learners or assume adult leadership roles.

This information on child development has been taken from the North Central Regional Extension Publication No. 292, *Ages and Stages of Child and Youth Development: A Guide for 4-H Leaders*, written by Jeanne Karns, graduate assistant and Judith Myers-Walls, Extension Specialist, Human Development, Purdue University.

YOUTH DEVELOPMENT

Some child development specialists and educators have noted every child of the '90s is vulnerable because of the complex social forces affecting our country since the early 1950s. In 1991, The National Commission on Children estimated that fully one-quarter of all children are “at severe risk” in relation to substance abuse, school failure, delinquency, etc., and another quarter are “moderately at risk.” H. Stephen Glenn and Jane Nelsen document these changes in their book, *Raising Self-Reliant Children in a Self-Indulgent World*. Four major factors necessary for the development of capable young people have been identified that are generally missing from our culture—networks, meaningful roles, on-the-job training, and parenting resources. 4-H project meetings can help restore these vital missing pieces.

Glenn’s definition of a network, in the simplest sense, defines the 4-H project meeting: “two or more individuals who engage in dialogue about the world and the life they are living and who occasionally collaborate to achieve some mutually desirable end.” The dialog for critical thinking portion of these lesson plans directly address this definition.

Many youth today are growing up in families and communities without any significant role to play. They just don’t seem needed until they become an adult. Research indicates that a primary cause of decline in motivation, discipline, and achievement is this perceived lack of need or value. Glenn and Nelsen challenge us to deal with youth actively in ways that affirm their contributions. **We must treat youth as contributors and assets rather than passive objects to be done for or to.** As 4-H project leaders, when we listen to members, we must take them seriously and treat them as significant, we will begin to restore the dialogue and collaboration necessary to link youth with the larger society.

On-the-job training with “hands-on” involvement has been the cornerstone of 4-H project work. It is important for youth to have this opportunity because that is where they learn patience, personal initiative, hard work, and deferred gratification. If they don’t learn about real life in this way, they receive its impressions passively from the media, generally through five hours of television each day.

“Learning by doing” is one of the primary reasons why 4-H has been recognized in the field of informal education. If we, as parents or leaders, think we are helping when we do their work for them, we need to stop and consider that, “The best way to destroy self-esteem and a sense of worth in young people is to do too much for them. This robs them of a sense of personal capability. The greatest gift of all is to help them validate themselves as agents in their own lives.” (Glenn and Nelsen, pg. 47)

Today’s parents need all the help they can get. According to the Ewing Marion Kauffman Foundation report, *Reweaving the Tattered Web—Socializing and Enculturating our Children*, by Basil J. Whiting in June 1993, “Three generations and extended families in the same house are not so common. Grandparents and aunts and uncles live longer distances away, and often alone (only five percent of American children now see a grandparent regularly)... Divorce is common. Half of those who remarry will experience a second divorce. Half of all children will spend some of their childhood with a divorced parent.” As a 4-H project leader, you become a parent resource, both to the child and the child’s parent.

Today’s parents are concerned and fearful for their children. Why? Dr. Bruce Baldwin, nationally known psychologist and author says, “They wonder if their kids have what it takes to succeed as they have. Parents know that in the future, even menial positions will require well-developed cognitive skills: reading, writing, math, computer literacy, and the ability to process information quickly and efficiently.” (*TEAM, The Early Adolescence Magazine*, Vol. IV, No. 5, May-June 1990)

The same magazine noted that a large metropolitan education trust reported the types of requirements for employees comparing the past with the future:

<u>PAST</u>	<u>FUTURE</u>
Doers	Thinkers
Single repetitive functions	Quality circle approach
Individual piecework	Team centered
Autocratic	Participatory
Single job in lifetime	Flexible learners
Familiar with simple machines	Technology knowledgeable
Single task orientation	Information processors

The January 1990, issue of *Prevention Forum* magazine offers hope for today’s youth when it reports that research on youth who have become healthy adults in spite of adversity have had the opportunity, somewhere in their lives, to experience a caring, nurturing environment that



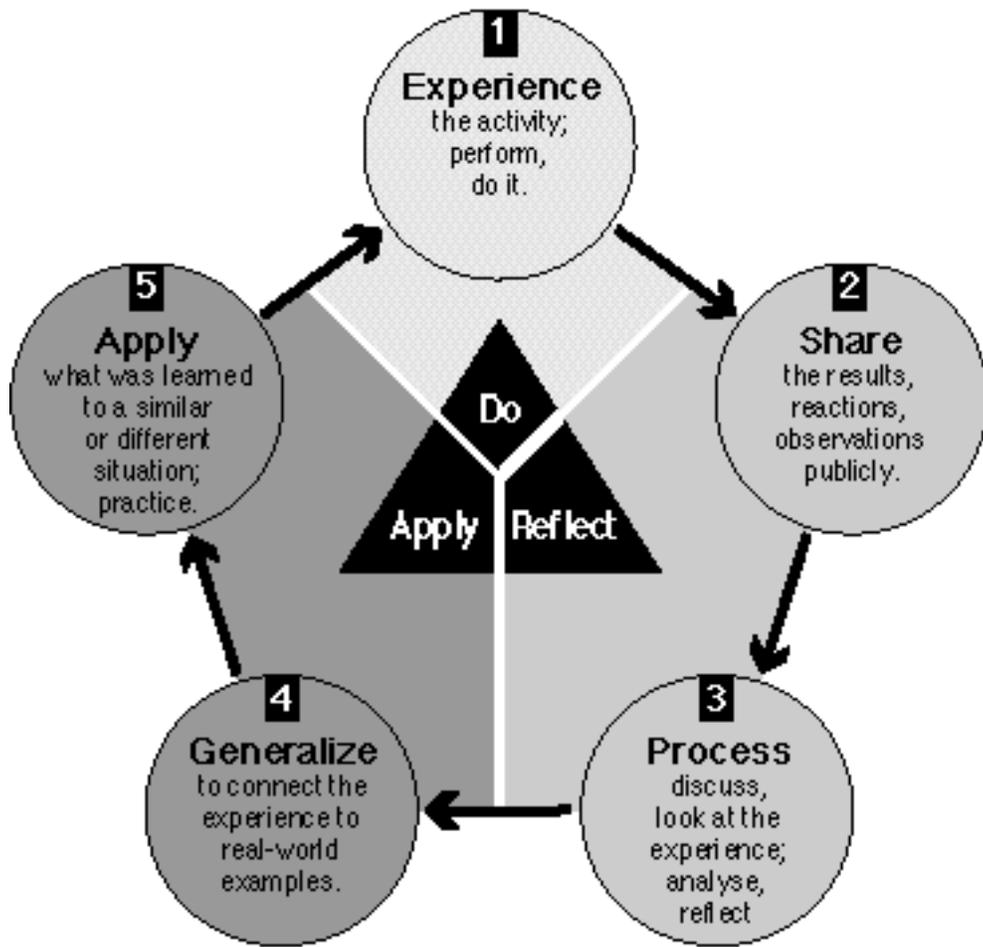
encourages their active participation in problem-solving, decision-making, planning, goal-setting, and helping others in meaningful activities.

According to the Kauffman Foundation report, “child and youth development by natural osmosis is no longer an effective strategy. We can rely no longer on child development to occur as a natural by-product of family and community functioning because too many families and communities no longer function the way they used to.

This means reweaving the web to do what the family and community no longer do, and perhaps no longer can do adequately. It means constructing new institutions and new ways for children and youth to sustain relationships with a variety of caring adults.... Yet this must be supplementation, not replacement. We dare not leave out strands of parent-strengthening services in the many ways and places where traditional parenting is, at bottom, the still-to-be-preferred approach.”

The project lesson plans contained in this leader’s notebook have been designed to incorporate the components critical to the development of capable, contributing young people. By following these plans, leaders will help prepare their members to function and live productively in the world which they will soon inherit and direct. They are also designed to help you, as the leader, quickly and easily prepare for the lesson, conduct the activity, and facilitate the discussion and dialogue.

EXPERIENTIAL LEARNING MODEL



Example questions used to complete the Experiential Learning Model

A. Share (*what happened*)

1. What did you do?
2. What happened? What did you see? Hear? Touch? Taste?
3. How did you feel?
4. How did it feel to...?
5. What was most difficult? Easiest?

B. Process (*what's important*)

1. What problems or issues seemed to occur over and over?
2. What similar experiences have you had?
3. What was most important?
4. Why was that significant?
5. Why do you think it happened?
6. What caused you to feel that way?

C. Generalize (*so what?*)

1. What did you learn about yourself through this activity?
2. What did you learn about a life skill?

3. How do the major themes or ideas relate to real life and not just the activity?
4. How did you go about making your decision?

D. Apply (*now what*)

1. How can you apply what you learned (life skill) to a new situation?
2. How will the issues raised by this activity be useful in the future?
3. How will you act differently in the future as a result of this activity?
4. How can you do it differently for different results?



APPLYING THE EXPERIENTIAL LEARNING PROCESS

Hands-on involvement (learning by doing) is the most effective method for learning this material. It helps youth learn personal initiative, hard work, patience and deferred gratification. By doing the work for the youth, parents, teachers and leaders may destroy the young person's self-esteem and sense of worth. They may rob youth of learning by trial and error, practicing skills and becoming competent and capable. The greatest gift leaders can give is to help youth validate themselves as capable people. These lessons were designed using a model known as the *experiential learning process* which was adopted as the national curriculum development model for Extension Youth Development in 1992.

Experiential learning takes place when a person is involved in an activity, looks back and evaluates it, determines what was useful or important to remember, and uses this information to perform another activity.

The Experiential Learning process encourages youth involvement through dialogue and strengthens adult-child relationships. To enhance the goal of learning an atmosphere of friendliness, trust, and unconditional acceptance is required.

In each lesson, the "Dialogue for Critical Thinking" questions help complete the experiential learning steps. Except for the content review questions, most of these leading questions do not have a "right" or "wrong" answer. In addition to providing feedback to the leader, their purpose is to affirm and validate the perceptions of the members.

Take time to begin to feel comfortable with this process. It may seem awkward at first, but remember, Latin for "to teach" means to draw forth through dialogue and understanding. When the Experiential Learning process is used to help youth share the process of discovery, leaders will be developing them as critical thinkers, concerned for others, with the wisdom to function successfully in their future world.

FORMAT OF EACH LESSON PLAN

Each lesson plan in this notebook follows the same general outline which includes:

TITLE—generally descriptive of the skill to be learned.

LEVEL—describes which age level it is written for.

What Members Will Learn...

ABOUT THE PROJECT—indicates what subject matter will be learned.

ABOUT THEMSELVES—indicates what personal or life skills will be learned. These specific objectives can be used to evaluate if the lesson was successful and learning goals accomplished by the members.

MATERIALS NEEDED—tells the leader what equipment, supplies, visuals or handouts will be needed in preparation for the lesson.

ACTIVITY TIME NEEDED—gives the approximate time needed to complete the activity. Most lessons can be completed in 30 to 60 minutes.

ACTIVITY—information is what the leader needs to know to teach the activity. This portion can be used as a leader’s script for the leader if necessary.

LEADER NOTES—give directions or instructions for the leader which go with the “Activity” information. Space is available for leaders to write their own notes also. Member activity sheets or handouts are provided for the leader to copy and give to members to work on at the meeting or take home so parents can reinforce the learning.

DIALOGUE FOR CRITICAL THINKING—questions are provided for the leader to help enhance life skill development and generalize the subject information to the real world of the youth participant.

GOING FURTHER—ideas such as tours, demonstrations, handouts, and things to do at home, are for the leader and members to consider if they want to learn more about this particular lesson content.

REFERENCES—credit the source used to develop this lesson activity in addition to the author.

AUTHOR—is the source of information plus names of Kansas State University faculty who reviewed and adapted this lesson including specific ideas from volunteers.

The Sheep project is one of several Kansas 4-H projects to undergo a major change in the way the project materials have been designed and used. Leaders need to realize that members will no longer receive member resource books or materials through the County Extension Office. Members will receive a “Member Guide and Annual Report” which outlines how to set learning goals, describes learning opportunities, describes the recognition system, suggests where they can find more information, and provides a



year-end Sheep summary record. All other printed materials for members will be given to them by their project leader.

In order for members to have a successful project experience, it is **imperative** that a leader meet with members. These lessons work best with an adult and/or teen leader working with a small group of members. Several youth in the group will stimulate the discussion and dialogue, which is so important to the success of this process. If members are unable to meet in a group, the parent may serve as a leader to his/her child by requesting copies of the appropriate lesson plans from the Extension office and completing them at home.

The project has been restructured to feature a series of sequential learning experiences based on members' age and skill level, which will challenge them with new skills each year they remain in the project. Our goal is to make them knowledgeable of the entire industry rather than specialize in one type of project exhibit. In fact, owning an animal and exhibiting at a show need not be required. It is possible for a member to participate in many group lessons without owning an animal. Owning, caring for, and exhibiting an animal should be considered a special bonus to the total project experience.

The project exhibit should be decided by the member, parent and leader, based on member's age, skill level, facility and financial needs, and what local exhibit opportunities have been identified. Most counties provide county fair classes for market lambs and breeding sheep. This approach to the materials provides maximum flexibility for counties to establish exhibits that meet the needs of their members. Statewide opportunities offer market lamb and breeding ewes, plus quiz bowl and show and share opportunities.

Ideally, members should progress through all levels in order, but it is not necessary. If project members vary in age and skill levels and the group is large enough, splitting into like age groups with additional leaders is recommended. Older members might be used as assistant leaders with beginning levels which then allows teens to be self-directed learners for advanced skills, or teens might meet together as a multi-club or county-wide group.

ROLE OF THE 4-H PROJECT LEADER

Your major roles are that of teacher, facilitator and encourager.

Your Role as Teacher:

- Help members set goals.
- Share your knowledge of the project through meetings, tours and home visits. Having five to 10 meetings works well. Set meeting dates and times with the participants. Remind participants of upcoming meetings.
- Invite and involve parents and other leaders when appropriate.
- Keep your skills current through trainings, consultations, and reading. Ask for help or advice as needed.

Your Role as Facilitator:

- Use techniques to facilitate (assist) learning. See “Teaching with Discussion.”
- Be sensitive and respond to individuals’ needs, beliefs and family circumstances. Do not judge.
- Help members find additional learning opportunities and resources. (Using “Going Further” in the lessons.)
- Relate project to everyday life and career possibilities.

Your Role as Encourager:

- Recognize the personal growth of members and help them celebrate their successes.
- Lead (not push) participants into new skills and new ways of thinking. Encourage and challenge them to become better persons, yet always accept them and love them as they are now.

Your classroom is wherever the member must be in order to learn—in the home, meeting room, or on a field trip. Your subject matter, what you teach, is Sheep production plus youth development.



TEACHING WITH DISCUSSION

Why Use Discussion?

Discussion is part of every lesson. Discussion questions appear in the “Dialogue for Critical Thinking” section. Discussion is most effective when you want to:

1. Give participants practice thinking in terms of the subject matter.
2. Help participants evaluate their beliefs.
3. Stimulate participants to apply principles.
4. Help participants learn to anticipate or solve problems.
5. Use the resources of the group members.
6. Gain acceptance of new information.
7. Develop motivation for further learning.
8. Get feedback on how well participants learned the material.

How Can I Get People to Talk?

Discussion can be difficult at first simply because few participate. Sometimes, all that is necessary to improve the situation is time, your smiles and encouragement, and practice. Many participants are used to being talked **at**, not **with** in educational situations. The fear of being embarrassed is another major factor. Not knowing the other participants, being unsure of one’s idea, being afraid of sounding silly—these make participants feel that the safest thing to do is remain silent.

How Can I Help Them Overcome Their Fear?

The first step is making sure participants become acquainted with each other and with you. Begin by having get-acquainted activities at the organizational meeting. Continue by providing games, refreshments, time to talk, and other opportunities for friendship building throughout the project meeting period. Get to know each participant personally. Take a special interest in them; they will come to trust you.

When asking a question, call on participants by name. This seems to promote freer communication.

Sitting in a circle encourages exchange.

Eliminate the fear of being wrong. (This is a tremendous barrier to discussion.) Avoid questions where there is only one right answer. Do not judge participants’ answers about beliefs and preferences. Do not allow any participant to make unkind comments about another’s answer.

At times, give participants opportunities to talk in small groups to work out answers together. If your group seems to have difficulty responding to questions, allow them to write out their answers first. This seems to give them added confidence to share their thoughts

with others. As much as possible, ask questions that can have no wrong answers: How do you feel about this? What do you think?

What if Someone Talks Too Much?

There are several effective ways to work with a person who monopolizes the discussion. You might ask this person and at least one other to observe the discussion and report their observations to the group; for example: Did we solve the problem? Did everyone get a chance to participate? Another option is to divide into smaller discussion groups. Ask one person from each group to report the results of the discussion. Do not choose the monopolizer to report. You also could talk to this person privately. Explain that you appreciate the participation and insights, but you believe other people also should be given the opportunity to learn how to talk in a group. Ask this participant to help the group by allowing others more time for discussion and perhaps saving personal insights for more difficult questions.

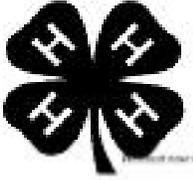
Reference: *Teaching Tips* by Wilbert J. McKeachie (1986)

THE FIRST MEETING

The first meeting is usually an organizational one to plan for the project year. It is a good idea to have parents attend this first meeting with the members. Parents should be encouraged to take part in any or all activities.

As members arrive, plan something for them to do. Perhaps a teen leader can be prepared with a get-acquainted game or activity. Make sure every member knows everyone else. Do not assume this is the case. Taking time now to build group trust will have payoffs later in commitment, discipline and encouraging discussion. Share some of the broad objectives you have for the project. Set dates with members and parents for future meetings. Schedule any demonstrations with members and discuss other special activities for the entire year. Discuss your expectations for recovering costs of materials, copying, etc.

Young people deserve to be treated as contributors and assets instead of passive objects to be done for or to. Your job is to involve your participants and challenge them toward learning and personal growth. They should be involved in the planning and preparation of meetings. A map helps to give us direction, keep us on track and know when we've reached our destination. We've designed a MAP—Member Achievement Plan—to help you and your members plan, as a group and as individuals, what they want to learn, make and do in this project. This is called goal-setting. It also teaches decision making.



■ MAP STEP 1

At the project meeting, or at home with their family, members identify two things they would like to learn in their sheep project this year.

■ MAP STEP 2

List three to five steps that will help you complete your first goal.

■ MAP STEP 3

List a date or deadline that shows when you plan to complete each step toward your goal.

■ MAP STEP 4

As you complete a step or meet a deadline, give yourself a boost, energizer or reinforcer for your success. List one energizer for each step accomplished toward a goal.

■ MAP STEP 5

After finishing a step, record the “date completed.”

■ MAP STEP 6

Repeat Map Steps 2 through 5 for your second goal.

■ MAP STEP 7

Share with a project friend what you have planned. Talking helps generate new ideas to improve your plans. After explaining your goals ask your friend to sign your plan as well as your leader. This will help confirm your plans and be a source for assistance.

■ MAP STEP 8

Take notes in the journal to help remember your project experiences. Tell what you did, what you learned, and how you felt about each project activity (meeting, trip, demo, etc.). Note: Leader may want to keep journals and plan for each member to make an entry as part of each activity. Journals may be kept on a computer, calendar, notebook, diary, or other convenient form.

■ MAP STEP 9

At the end of the year take time to reflect with your project friend and leader. Record your thoughts and ideas. How did the goals work? What was learned? What needs to be accomplished next? Members may not have accomplished what they set out to do, but they may have learned many things in the process. Setting a goal to reach a partial number of total goals isn't a bad idea, since it enables the younger member to feel successful.

The member and the leader, or in the case of the parent leader, the member and the parent, should complete Step 7 of the MAP as soon as the member has completed his/her short-term plans. All members who complete this step should be given immediate recognition

for their project goal-planning accomplishments. The Kansas Recognition Model provides for recognition for: participation, progress toward goals, standards of excellence, peer competition, and team cooperation efforts.

When properly used, incentives can be an effective way to encourage good project work and enhance personal development of the members. One of the strongest human incentives is that inner feeling of accomplishment and achievement.

Public recognition in news articles or at meetings, a word of encouragement or pat on the back from leaders are also effective in promoting desirable performance.

Group recognition should be used at the end of the project to recognize the accomplishments of each member who completed the project, attended a certain number of meetings, demonstrated certain acquired skills, etc. Recognize not only the member who might have won the championship, but use your imagination to recognize the most helpful member, the most reliable, the most prompt, the most improved trainer, etc.

REFERENCES

Portions of this introduction section have been adapted from the *Beef Cattle Leader Guide* published by the Texas Agricultural Extension Service, and from *Celebration!*, Nebraska Cooperative Extension Service, 4-H publication 262.

Reweaving the Tattered Web—Socializing and Enculturating our Children, by Basil J. Whiting, is published by Ewing Marion Kauffman Foundation, 4900 Oak, Kansas City, MO 64112-2776.

Raising Self-Reliant Children in a Self-Indulgent World, by H. Stephen Glenn and Jane Nelsen, Ed. D., is published by Prima Publishing and Communications, P.O. Box 1260SR, Rocklin, CA 95677, (916) 624-5718, and can be ordered from St. Martin's Press, 175 Fifth Avenue, New York, NY 10010 (212) 674-5151.

A video presentation by Stephen Glenn, which summarizes much of *Raising Self-Reliant Children in a Self-Indulgent World*, can be requested through your county Extension office. Ask for the video, *Developing Capable Young People*, available from Kansas State University, Department of Communications, Production Services/Instructional Media.



PLANNING HELPS

The following forms may be used by the leader to help in planning for their Sheep project experience.

- Project Member Enrollment Record
- Project Leader Meeting Record
- List of Members and Their Goals
- Volunteer Support Form
- Project Meeting Checklist

PROJECT LEADER MEETING RECORD

Name of Project		Phase(s)								Project Leader	
Project Members		Attendance at Project Meetings								Presentations Made by Members	
Name	Phone	1	2	3	4	5	6	7	8	Demonstrations	Talks
1.											
2.											
3.											
4.											
5.											
6.											
7.											
8.											
9.											
10.											
11.											
12.											
13.											
14.											
15.											
16.											
17.											
18.											
19.											
20.											

LIST OF MEMBERS AND THEIR GOALS

1. **Name** _____

Plans or wants to do: _____

Assistance, resources, or materials needed: _____

2. **Name** _____

Plans or wants to do: _____

Assistance, resources, or materials needed: _____

3. **Name** _____

Plans or wants to do: _____

Assistance, resources, or materials needed: _____

4. **Name** _____

Plans or wants to do: _____

Assistance, resources, or materials needed: _____

5. **Name** _____

Plans or wants to do: _____

Assistance, resources, or materials needed: _____

6. **Name** _____

Plans or wants to do: _____

Assistance, resources, or materials needed: _____

7. **Name** _____

Plans or wants to do: _____

Assistance, resources, or materials needed: _____

VOLUNTEER SUPPORT FORM

Volunteer I name _____

Volunteer II name _____

Address _____

City _____ Home phone _____

Volunteer I Occupation _____ Business phone _____

Volunteer II Occupation _____ Business phone _____

Other Volunteer obligations _____

I would be willing to assist the 4-H program by:

Volunteer I

Volunteer II

Helping members with demonstrations.

Helping members with project talks or public speaking.

Helping provide transportation to project meetings.

Assisting members with project records.

Helping provide transportation for project tours or field trips.

Assisting with project meetings when needed.

Special skills I have _____ .

Help bring refreshments.

Develop a "calling tree" for meeting reminders.

Making my home available for a project meeting if needed.

Helping provide special supplies if needed.

Others, please explain: _____

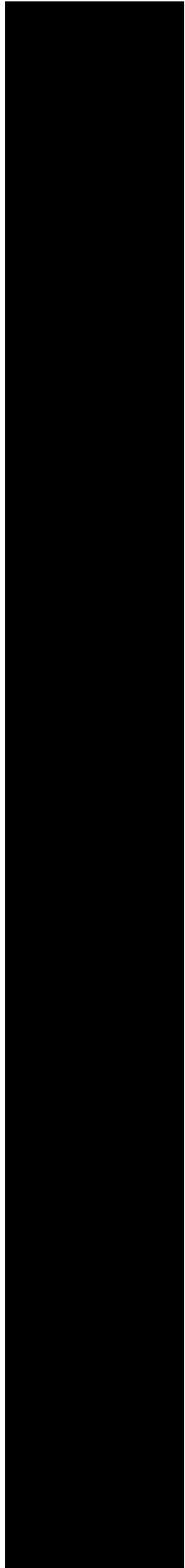
PROJECT MEETING CHECKLIST

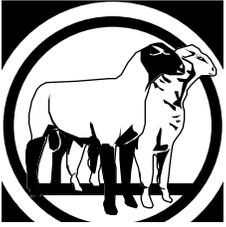
A Meeting Evaluation Instrument

After your project meeting, take a few minutes to consider each of the following questions. This checklist should also serve as a reminder of ideas to incorporate in future project meetings.

	Meetings Held					
	1st	2nd	3rd	4th	5th	6th
1. Were the objectives of the meeting clear to members?						
2. Did I give each member a chance to actively participate? (sharing ideas, assisting, presentations)						
3. Did I commend or encourage each youth in some way?						
4. Did I plan for differences in ages, abilities, and interests of members?						
5. Did I observe progress of individual members:						
6. Did I involve other volunteers in some way? (planning, leadership assistance, transportation, refreshments)						
7. Did I give members a chance to assume responsibility when it was appropriate?						
8. Did I incorporate some fun activity or game into the project meeting?						
9. Did I summarize the new information shared and skills learned at the close of the meeting?						
10. Most of all, did I enjoy working with the young people involved?						

**Seven or more positive responses denotes an excellent meeting rating!*





SHEEP MEMBER GUIDE AND ANNUAL REPORT

Welcome to the 4-H Sheep Project! The purpose of this Member Guide and Annual Report is to help you journey through your project. This guide will:

- Identify how to set goals and begin your project
- Identify 4-H learning opportunities
- Identify the 4-H recognition system
- Provide you with an annual summary for your Kansas 4-H Sheep Project

EXAMPLES OF GOALS OR THINGS TO LEARN

- Level I -Identify seven parts of a lamb
-How to show a lamb
- Level II -How to judge sheep
-How to read a feed tag
- Level III -How to give medicines
-How sheep digest their food
- Level IV -How to conduct a skillathon
-How to balance a ration

In addition, there is a note to your parents/guardian at the bottom of this page, so they can help you with your project.

LEARNING OPPORTUNITIES IN 4-H

- Attending project meetings, workshops, or fieldtrips
- Learning record keeping skills
- Giving presentations at club meetings, county 4-H Days, State Fair, school or civic groups
- Attending judging clinics and contests to observe, evaluate, and make decisions
- Exhibiting at local, county, or state shows and fairs

4-H RECOGNITION SYSTEM

4-H's recognition system is diverse and provides many learning opportunities through:

- Participation: attending meetings, helping others at project meetings, show and share at State Fair
- Progress towards goals: meeting the deadlines set on your MAP Sheet (see page 2)
- Standards of excellence: meeting a high percentage of learning goals for each project level
- Peer competition: judging and showmanship contests at shows and fairs
- Team/cooperative efforts: community service activities

NOTE TO PARENTS/GUARDIANS:

The Sheep Project is one of several projects in the Animal Sciences Division of Kansas 4-H projects. It is an ideal project for both rural and urban youth, as well as all age groups. Lambs are a good beginning project because they adapt to many different environments, require a small investment and teach responsibility.

If your youth does not have a group leader, check with your local K-State Research and Extension office to see if your youth can participate in a neighboring club. If this is not available, you will need to act as the leader or helper. The K-State Research and Extension office has a copy of the Sheep Leaders Notebook you may wish to use.

Insert all member handouts and activity sheets in the 4-H Record Book after this Member Guide and Annual Report. These records are a recording of what was done. List costs, hours spent, etc, on the journal page created in MAP Step 8. Financial and performance records may be found in: Level II pages 51–56 and 63–68; Level III pages 79–92; Level IV pages 33–38 and 93–98. Using records before the youth is capable of understanding the concept or doing the math computations is strongly discouraged!

HOW TO SET GOALS AND BEGIN YOUR SHEEP PROJECT USING THE MEMBER ACHIEVEMENT PLAN—MAP

This is your **Member Achievement Plan—MAP**. This plan will help you begin to decide what goals, deadlines and energizers you want to use for the upcoming year.

MAP STEP 1

Identify as goals two things you would like to learn this year. Your leader will give you a list that might help you think about what you want to learn in your sheep project.

Goal 1: _____

Goal 2: _____

MAP STEP 2

After you identify each goal, let's break them into steps. You can list 3 to 5 steps for each one of your goals.

Steps for Goal 1:	MAP STEP 3 Deadline	MAP STEP 4 Energizer	MAP STEP 5 Date Completed
1st _____	_____	_____	_____
2nd _____	_____	_____	_____
3rd _____	_____	_____	_____
4th _____	_____	_____	_____
5th _____	_____	_____	_____

MAP STEP 3

Now that you've put Goal 1 into steps, go back and put a deadline next to each step. The deadline shows when you plan to complete the step. Every step should have a different deadline or date.

MAP STEP 4

Sometimes goals are hard to stick to. It takes a long time to see results. So as you complete a step and meet a deadline you need to give yourself a boost. Let's call this boost an energizer or reinforcer. An energizer can be anything that you like and enjoy: going to a movie with a friend, talking on the phone, listening to a CD, taking your dog for a walk, eating a healthy snack, playing ball, etc.

What are other things you might use as energizers? List them here: _____

Now, place one energizer for each step under the column marked, "Energizer."

MAP STEP 5

When you've finished a step in your goal, place the date completed in the column marked, "Date Completed."

MAP STEP 6

Now that you've identified your steps, deadlines and energizers, do the same for Goal 2.

Steps for Goal 2:	MAP STEP 3 Deadline	MAP STEP 4 Energizer	MAP STEP 5 Date Completed
1st _____	_____	_____	_____
2nd _____	_____	_____	_____
3rd _____	_____	_____	_____
4th _____	_____	_____	_____
5th _____	_____	_____	_____

MAP STEP 7

Your goals, steps, deadlines and energizers are written. It's time to share with one of your project members. When we talk to others about our goals, it helps us get a better idea of what we are going to do. Sometimes talking will help us get a better idea, so don't worry about changing any part of your MAP if you want to. After you've explained your goal to a project friend, ask him/her and your Project Leader to sign below.

Project Friend's Signature _____ Date _____

Project Leader's Signature _____ Date _____

MAP STEP 8

Keep a journal of everything you do in the project to help you remember these experiences. (Create a page with these headings and add it to this record.)

Example:

Date	What you did, learned, how you felt, costs, time spent, etc.
Nov. 5	Attended a project meeting and learned parts of a lamb.
Feb. 6	Visited a farm flock and observed a newborn lamb.
Apr. 20	Purchased a feeder lamb for \$125.

MAP STEP 9

You have spent a whole year on your sheep project. You should have learned many new things. Take some time to think back and review your journal (MAP STEP 8). Write one or two main things you have learned about sheep. What is something you have learned about yourself while studying sheep? (Add a page if you need more space.)

KANSAS 4-H LIVESTOCK SUMMARY

Year _____

(If you have more than one animal, change answers to totals or averages.)

Name of project _____ Type of animal to exhibit _____

Name _____ Age _____ Years in 4-H _____

Club _____ County _____

Breed _____ Sex of animal: Male Female

Describe your animal's color _____ Name _____

Other _____

What is your animal's eartag number? _____

How much did your animal weigh when you bought it? _____

How much did it cost? _____ When did you get it? _____

How much did it weigh when you sold it? _____

How much did you sell it for? _____ When did you sell it? _____

How many pounds did it gain? (subtract purchase weight from sold weight) _____

What did you feed your animal each day when it was young? _____

What did you feed your animal each day as it grew bigger? _____

What equipment did you need to care for your animal? _____

Not required for 7 and 8-year-olds, due to math skills needed

1. How many dollars did you get when your animal was sold? \$ _____
2. How many dollars did you pay for it? \$ _____
3. Total income (subtract line 2 from line 1) \$ _____
4. Total feed cost \$ _____
5. Other expenses (veterinarian, rent, equipment) \$ _____
6. Total expenses (add line 4 and 5) \$ _____
7. Profit or loss on project (subtract line 6 from line 3) \$ _____

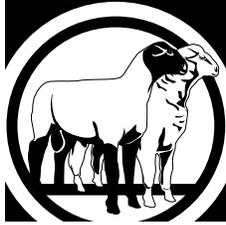
Kansas State University Agricultural Experiment Station and Cooperative Extension Service

MG-37

July 2000

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File code: 4-H and Youth-2

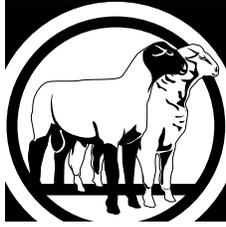


Sheep Leader Notebook

Level I

Color the Lamb Parts	3
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Is Your Lamb Sick or Well?	27
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Color the Lamb Parts

Sheep, Level I

What Members Will Learn . . .

ABOUT THE PROJECT:

- Recognize the body parts of a lamb
- Identify at least five parts of a lamb from memory

ABOUT THEMSELVES:

- Appreciate differences and similarities

Materials Needed:

- Activity Sheet 1, Lamb Parts
- Leader's Key, Activity Sheet 1, Lamb Parts
- Activity Sheet 2, Lamb Part Match
- Leader's Key, Activity Sheet 2, Lamb Part Match
- Colored pencils, crayons or markers

ACTIVITY TIME NEEDED: 30 MINUTES

ACTIVITY

Knowing the parts of a lamb is important when learning about the sheep project. Knowing parts and correct terminology will increase your knowledge of sheep. Knowing the parts of an animal is important when participating in judging contests, answering questions, selecting your own animals, talking to a veterinarian about an injury or visiting with other producers.

Leader Notes

Hand out Activity Sheet 1, Lamb Parts. Let members work in groups of 2 or 3 to identify parts before coloring. After 15 to 30 minutes, review some of the main parts. Have members name parts in unison as you point to them or let one member point to a part while others name. Hand out Activity Sheet 2, Lamb Part Match to see how well they have learned some of the main parts.

Remind members to keep Activity Sheets in their record book.

Leader Notes

ACTIVITY

DIALOGUE FOR CRITICAL THINKING:

Share:

1. What parts of the lamb are the smallest? Biggest?
2. What parts of the lamb are hard/easy to remember?

Process:

3. How many lamb parts can you name?
4. Why do you think you need to know the parts of a lamb?

Generalize:

5. Have you or someone you know ever judged sheep? How important was it to know the parts of the lamb and the general shape of each part?
6. What shapes do some parts have?

Apply:

7. As the lamb grows, do these parts or shapes change? Why or why not?
8. What parts of the lamb are similar to parts of other animals? Discuss.

GOING FURTHER:

- Design your own lamb drawing and label each part.
- Share Activity Sheet 1, Lamb Parts, with a parent or sibling and identify parts.
- Visit a meat locker and identify parts.
- Place velcro part labels on a live lamb.

ACTIVITY

Leader Notes

REFERENCES:

Author:

Jeremey Geske, former Extension Assistant, Kansas State University
James P. Adams, Extension Specialist, 4-H and Youth Programs, Kansas
State University

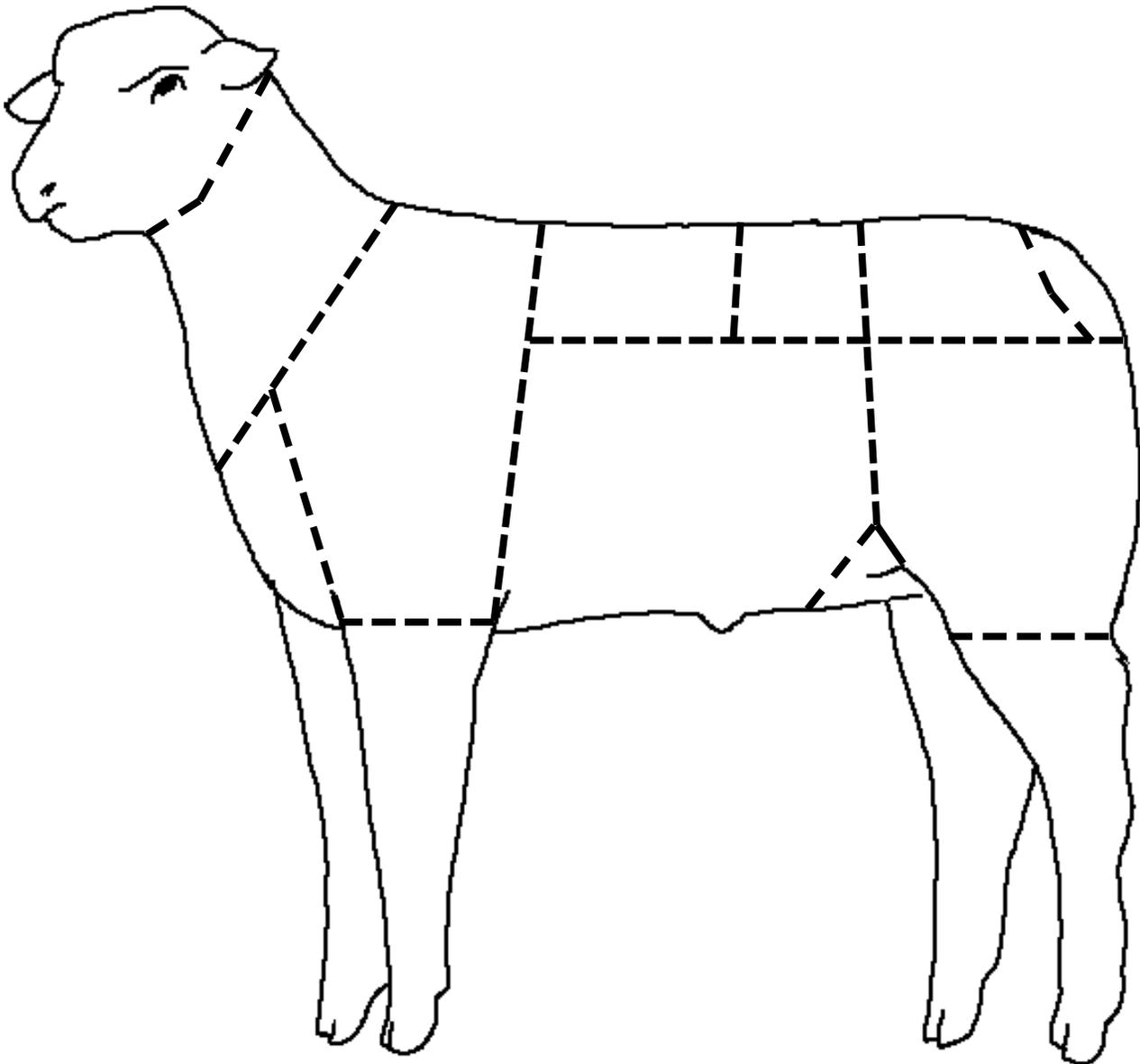
Reviewed by:

Dr. Clifford Spaeth, Extension Specialist, Animal Sciences and Industry,
Kansas State University
Sheep Design Team

COLOR THE LAMB PARTS
SHEEP, LEVEL I
Activity Sheet 1, Lamb Parts

Color each of the parts the designated color.

- | | | |
|----------------------|---------------------|----------------------|
| 1. Head—Orange | 6. Rib—Red | 10. Dock—Blue |
| 2. Neck—Pink | 7. Flank—Blue | 11. Rump—Purple |
| 3. Shoulder—Purple | 8. Rear Legs—Orange | 12. Loin—Orange |
| 4. Breast—Green | 9. Leg—Brown | 13. Back or Top—Blue |
| 5. Front Legs—Yellow | | |



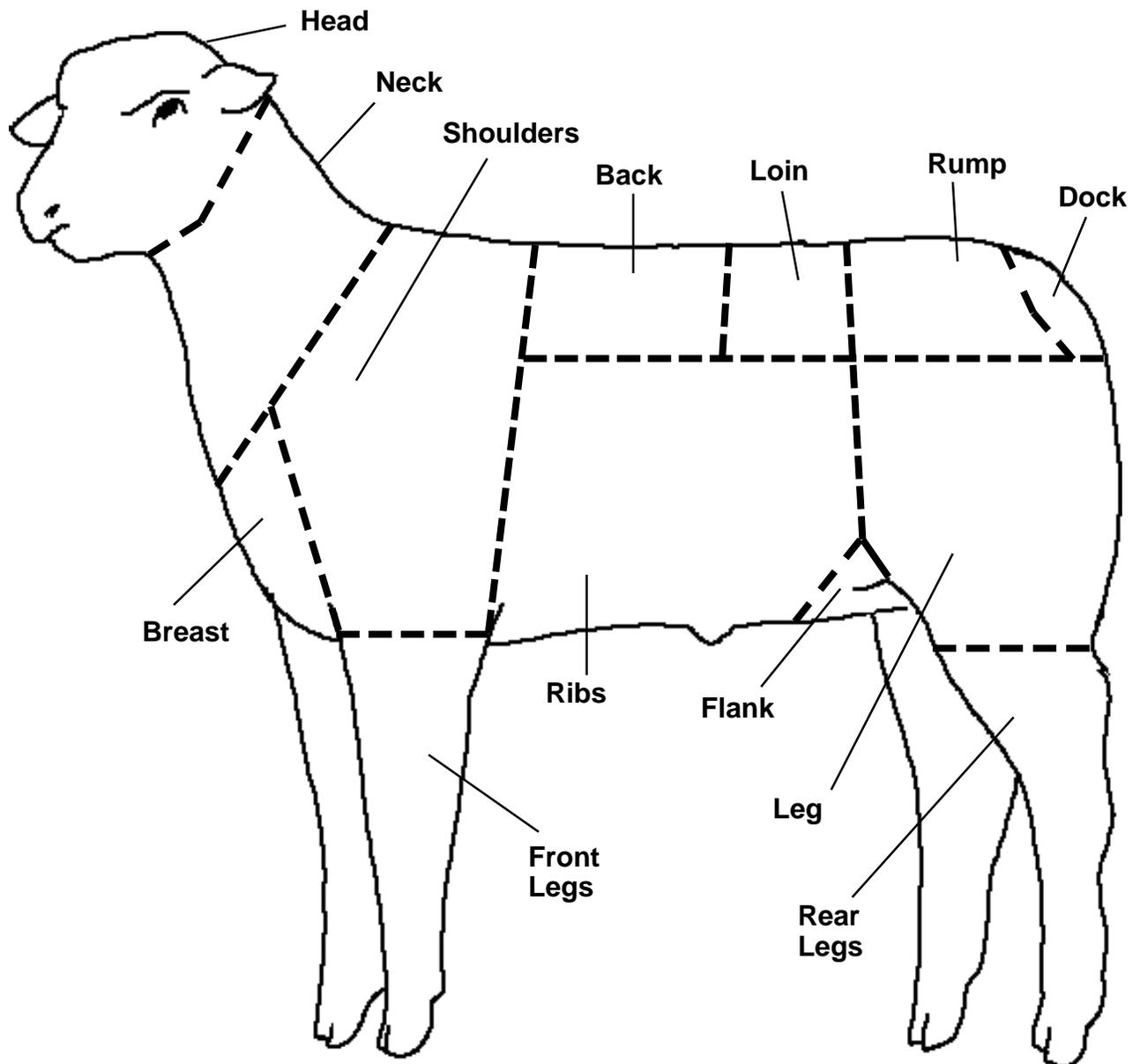
COLOR THE LAMB PARTS

SHEEP, LEVEL I

Leader's Key, Activity Sheet 1, Lamb Parts

Color each of the parts the designated color.

- | | | |
|----------------------|---------------------|----------------------|
| 1. Head—Orange | 6. Rib—Red | 10. Dock—Blue |
| 2. Neck—Pink | 7. Flank—Blue | 11. Rump—Purple |
| 3. Shoulder—Purple | 8. Rear Legs—Orange | 12. Loin—Orange |
| 4. Breast—Green | 9. Leg—Brown | 13. Back or Top—Blue |
| 5. Front Legs—Yellow | | |

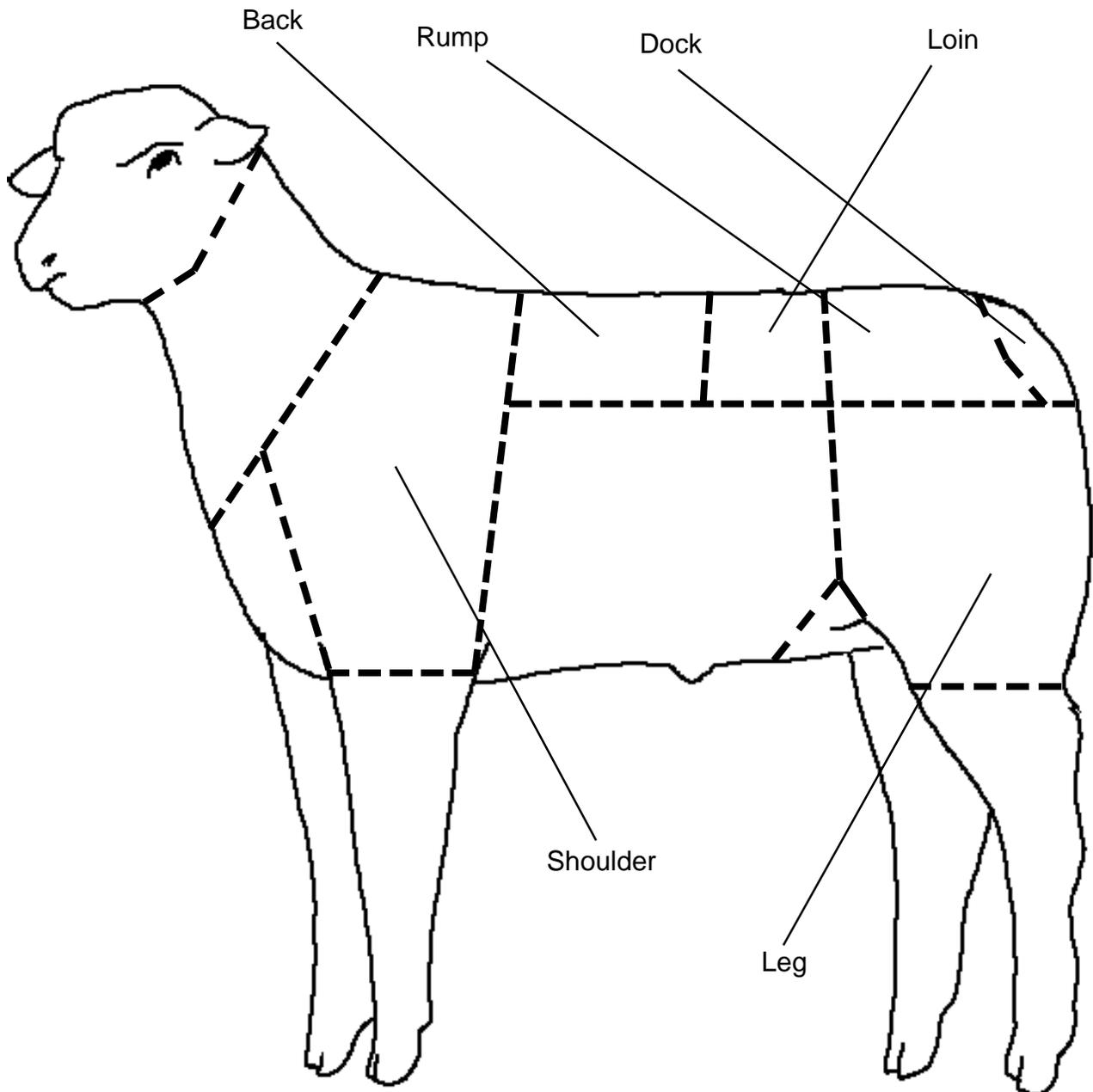


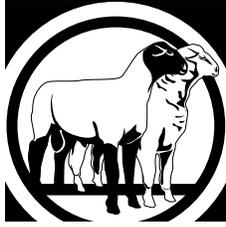
COLOR THE LAMB PARTS

SHEEP, LEVEL I

Leader's Key, Activity Sheet 2, Lamb Part Match

Draw a line from the word to the correct part of the lamb.





Sheep Breed Groups

Sheep, Level I

What Members Will Learn . . .

ABOUT THE PROJECT:

- How breeds of sheep are classified
- What type of lamb they own
- The purpose of some breeds of sheep

ABOUT THEMSELVES:

- Organizational skills
- Things they can classify or group

Materials Needed:

- Slides or pictures of the following sheep breeds:
Suffolk, Hampshire, Dorset, Rambouillet, Merino, Columbia,
Corriedale
- Activity Sheet 3, Breed Matching Game
- Leader's Key, Activity Sheet 3, Breed Matching Game

ACTIVITY TIME NEEDED: 45 MINUTES

ACTIVITY

Let's start by looking at some common sheep breeds. How would we know the breed if we had a pen full of sheep? A **breed** is a group of sheep that look alike and have the same ancestors or relatives. If all the sheep in the pen had parents of the same breed, they would be **purebred** sheep. A **crossbred** lamb has parents of different breeds.

Sheep can be classified (grouped) in three ways:

1. by the product they produce → meat, wool, dual-purpose
2. by their wool type → fine, medium, long or hair
3. by their commercial use → ram, ewe or dual-purpose

First, let's talk about the products. **Meat type** sheep are those breeds raised for the production of meat with very little consideration for anything else. Common meat breeds include Suffolk, Hampshire and Dorset. **Wool breeds**, such as Rambouillet and Merino, produce a fine, high quality fleece but place less emphasis on growth and muscle. **Dual-purpose breeds** are generally those that try to place some emphasis on both meat and wool; such as the Columbia and Corriedale.

Leader Notes

Show a picture, ask what is significant or can help identify that breed—color of head and legs, ear shape or color where wool is, etc. Compare and contrast the pictures. Identify the breeds. Point to a picture and have the members name the breed in unison or see if they can match names with pictures.

Show two breed pictures to illustrate crossbreeding.

Develop a flannel board or chart as you talk about the three groups. After discussing mix the labels and see if members can match correctly.

Leader Notes

Wool breeds in Level II lesson.

Talk about most prevalent system for your location. Most show lambs are meat breeds or crosses of meat breeds. Use flannel board again to add “Ewe Breeds,” “Ram Breeds,” or “Dual Purpose” (Ram or ewe breed). Use Activity Sheet 3, Breed Matching Game as a review and record piece.

ACTIVITY

Next, sheep can be grouped by their wool type. Fine wool is the most valuable, followed by medium wool, then long wool and finally, hair being the least valuable. We have already talked about Merino and Rambouillet which are fine wool breeds. Other wool breeds will be talked about later.

Most commercial sheep operations use a crossbreeding system. That is the mating of ewes of one breed to a ram of another breed. Typically the shepherd will emphasize wool quality in the ewes while stressing meat production in the lambs. Because of that, fine wool breeds (generally white faced) such as Rambouillet and Merino are called “ewe” breeds. “Ram” breeds are those that will sire meaty, growthy market lambs, such as Suffolks and Hampshires. Some breeds, like the Columbia, are considered dual-purpose breeds because they can be used as ram breeds in some flocks and ewe breeds in others.

DIALOGUE FOR CRITICAL THINKING:**Share:**

1. What breed of lamb do you have or plan to buy? Why?
2. What is the main use of your breed?

Process:

3. How is a breed of sheep defined?
4. What is a crossbred lamb?
5. What are the three major groups of sheep?
6. What are some sheep breeds in each sheep group?

Generalize:

7. What are other things do you collect or put into groups? (ball cards, stamps, etc.)
8. How does grouping things help you learn about them?

Apply:

9. How do you use groups of things at home? School?

GOING FURTHER:

- Visit a purebred sheep farm and ask what type of sheep they raise and why.
- Visit a grocery store to see if they sell lamb.
- Visit a wool buyer and compare different types of wool.

ACTIVITY

Leader Notes

REFERENCES:

SID Sheep Production Youth Guide
SID Sheep Production Handbook
Directory of US sheep breeds

Author:

Jeremy Geske, former Extension Assistant, Kansas State University
James P. Adams, Extension Specialist, 4-H and Youth Programs, Kansas
State University

Reviewed by:

Dr. Clifford Spaeth, Extension Specialist, Animal Sciences and Industry,
Kansas State University
Sheep Design Team

SHEEP BREED GROUPS

SHEEP, LEVEL I

Activity Sheet 3, Breed Matching Game

Draw a line from the breed to the correct classification.

PRODUCT PRODUCED

Suffolk

Wool

Merino

Meat

Columbia

Dual Purpose

COMMERCIAL USE

Rambouillet

Ram Breed

Corriedale

Ewe Breed

Hampshire

Dual Purpose

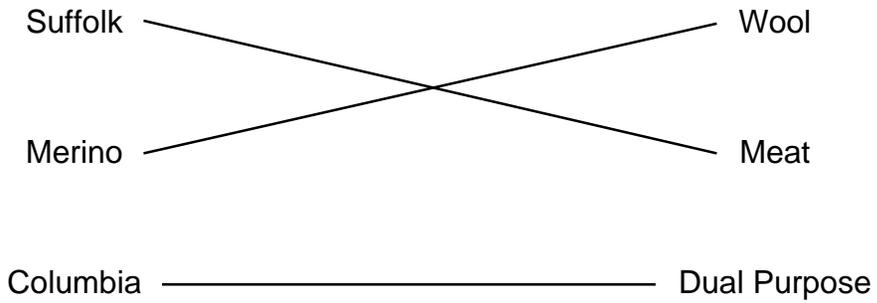
SHEEP BREED GROUPS

SHEEP, LEVEL I

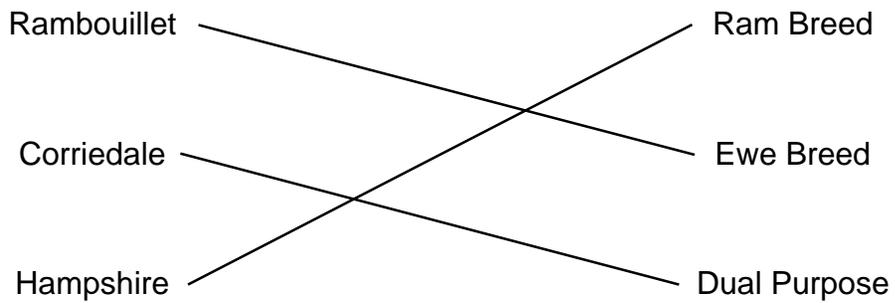
Leader's Key, Activity Sheet 3, Breed Matching Game

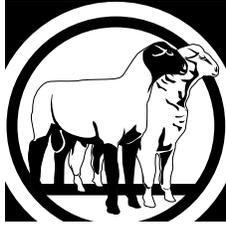
Draw a line from the breed to the correct classification.

PRODUCT PRODUCED



COMMERCIAL USE





Beginning to Set Goals in Your Sheep Project

Sheep, Level I

What Members Will Learn . . .

ABOUT THE PROJECT:

- How to set project goals

ABOUT THEMSELVES:

- The importance of setting goals

Materials Needed:

- Chalkboard or flip chart
- Sheep Member Guide and Annual Report (MG-37)
- Member Handout 1, Learning Topics

ACTIVITY TIME NEEDED: 30 MINUTES

ACTIVITY

Each year you will set several goals to accomplish during the project year. Goals help you get where you want to go.

If this is your first year, you might want to have just one goal, to select your project lamb. Remember that before you select a lamb, you must decide the purpose of the project (meat, wool, show, etc.)

List one or two goals (MAP Step 1) on page 2 for this project year.

Breaking a goal into steps (MAP Step 2) helps you better understand the action needed to make that goal a reality. Some goals have many steps, some have a few.

With each step you need to set a deadline (MAP Step 3). Deadlines are when you expect to have that step of your goal done. As you meet the deadline you set for each step, you need to use an energizer (MAP Step 4). Energizers encourage you to move toward your goals by offering a small reward for meeting your deadline.

Now complete MAP Steps 6 to 7. You have set your goals for Year 1 of your sheep project.

Leader Notes

Put participants into groups of three or four. Mix new project members with youth who have had some experience with sheep or other animal projects. Hand out Member Guide and Annual Report (MG-37) plus Member Handout 1, Learning Topics. Let them help each other decide what their goals for the year will be.

Assist members in breaking goals into steps by talking about what they will have to do to reach a goal.

Allow time for them to share their goals with a project friend and sign each other's MAP Worksheets.

Leader Notes

ACTIVITY

DIALOGUE FOR CRITICAL THINKING:

Share:

1. What is your first goal for the project year?
2. What goal do you like best? Why?

PROCESS:

3. Why are these goals important?
4. Why is it important to set goals?

GENERALIZE:

5. What are the advantages of working in a group when setting goals?

APPLY:

6. What other groups have you worked in where you needed to set goals to help you make decisions? (school, family, etc.)

GOING FURTHER:

- Use the goal setting process to set group goals

REFERENCES:

Lessons on:

- Color the Lamb Parts
- Sheep Breed Groups

Author:

James P. Adams, Extension Specialist, 4-H and Youth Programs, Kansas State University

Reviewed by:

Dr. Clifford Spaeth, Extension Specialist, Animal Sciences and Industry,
Kansas State University
Sheep Design Team

BEGINNING TO SET GOALS IN YOUR SHEEP PROJECT
SHEEP, LEVEL I
Member Handout 1, Learning Topics

Place a check mark next to five of the most interesting topics you would like to learn about in your sheep project.

- Color the Lamb Parts
- Recognizing Sex Differences
- Sheep Breed Groups
- Is Your Lamb Sick or Well?
- The Five Food Groups
- Washing Your Lamb
- Training Your Lamb for Show
- Lamb Taste Test

Think Back:

Please write one or two things you have learned about sheep so far. What is something you have learned about yourself while studying sheep?

Learned about sheep:

1. _____

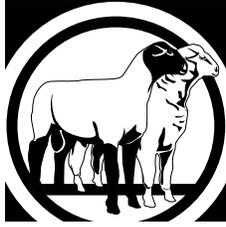
2. _____

Learned about self:

1. _____

2. _____

BEGINNING TO SET GOALS IN YOUR SHEEP PROJECT



Recognizing Sex Differences in Sheep

Sheep, Level I

What Members Will Learn . . .

ABOUT THE PROJECT:

- Recognize the different sex characteristics of sheep
- Name three basic sex types of sheep

ABOUT THEMSELVES:

- Improve observation skills

Materials Needed:

- Sheep pictures (or live animals)
- Sheep model (or live lamb)
- Member Handout 2, Ram
- Member Handout 3, Wether
- Member Handout 4, Ewe

ACTIVITY TIME NEEDED: 20 TO 30 MINUTES

ACTIVITY

Leader Notes

We all recognize there is a difference between males and females in animals. In humans, boys and men are males and girls and women are females. But sometimes it's difficult to tell what sex an animal is unless you know what you are looking for. We can use the reproductive organs of the animal to identify the sex. These are the parts of the body used in mating and having babies. One of the first things a member who wants to raise sheep should learn is how to tell a ewe from a wether or a wether from a ram.

Let's talk about rams and wethers. These are the males in sheep. When a male lamb is born, it is a ram lamb. When a ram lamb becomes one year old, it may be called a ram or a buck. The male organs are the testes that are located in the scrotum (a sack-like structure that hangs between his back legs), and the sheath located on the underside of his belly. The sheath contains the penis and this is what the ram uses to breed a ewe and to urinate.

But, members do not show rams in a market show. So, how does a ram become a wether? Let's look at the difference between a ram and a wether. The wether has a scrotum, but it is smaller than the ram's scrotum. This is because the testes have been removed. This process is called castration and can be done a number of ways, but when the ram is castrated, he is then considered a wether.

Use Member Handout 2, Ram. Show a picture of a ram or use a live ram. Point out the structures.

Leader Notes

Use Member Handout 3, Wether. Show a picture of a wether or a live wether. Point out the scrotum.

Use Member Handout 4, Ewe. Show a picture of a ewe or a live ewe. Compare that to the wether.

Ask parents to help members practice identifying sex differences with live sheep or pictures.

ACTIVITY

Now, let's talk about the differences between a wether and a ewe lamb. This has nothing to do with which one has horns. Either sex may have horns in some breeds. Ewe lambs are young female sheep. Most of a ewe lamb's reproductive organs are on the inside of her body, so you can't see them. That is an easy way to tell the difference between the male and female. Also, remember, the wether has a sheath on the underside of his belly where urine leaves the body. But the ewe lamb has no sheath. She urinates from her vulva which is located under her tail or dock. This is also the opening to the reproductive organs located inside the ewe lamb.

After a ewe lamb becomes one year old or has had a baby lamb it is simply called a ewe. Until you have had some practice it is hard to tell the difference between a ewe lamb and a ewe, but it can be done.

DIALOGUE FOR CRITICAL THINKING:

Share:

1. What is a male lamb called when it is born?
2. What are the two most visible sexual parts of a ram?
3. What is a female lamb called when it is born?

Process:

4. How does a ram become a wether?
5. Why is it important to make a ram a wether when it is young?
6. When does a ewe lamb become a ewe?

Generalize:

7. Why is it important to know the difference between a ram and a wether? Ewe lamb and ewe? or ewe lamb or wether?
8. What is the main use of wethers?
9. What is the main use of ewes?

Apply:

10. Why is the sex of the lamb important when choosing your project animal?

GOING FURTHER:

- Visit a local sheep flock to see the differences between ewe lambs and ewes.
- Study the reproductive organs of both sexes.
- Observe ram lambs being castrated.

ACTIVITY

Leader Notes

REFERENCES:

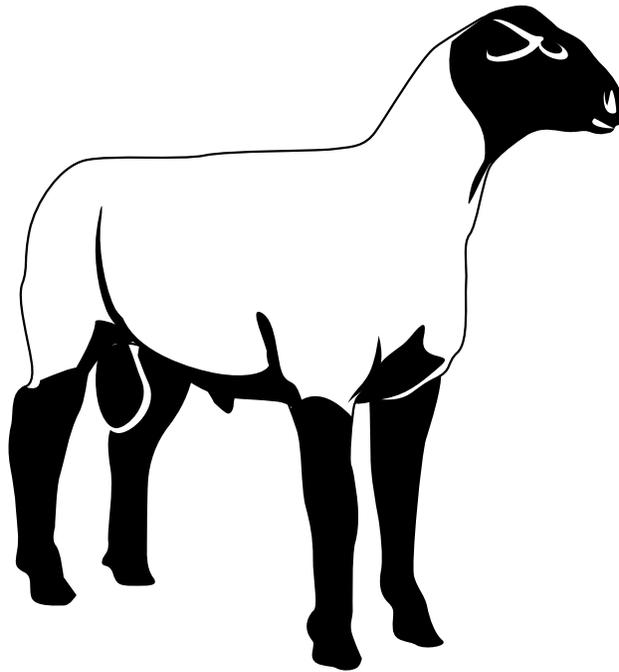
Author:

This lesson was modified from beef material authored by Brian A. Swisher, County Extension Agent, 4-H, Kansas, and Deborah K. Lyons-Blythe, former County Extension Agent, Agriculture, Kansas, with adaptation by:
James P. Adams, Extension Specialist, 4-H and Youth Programs, Kansas State University

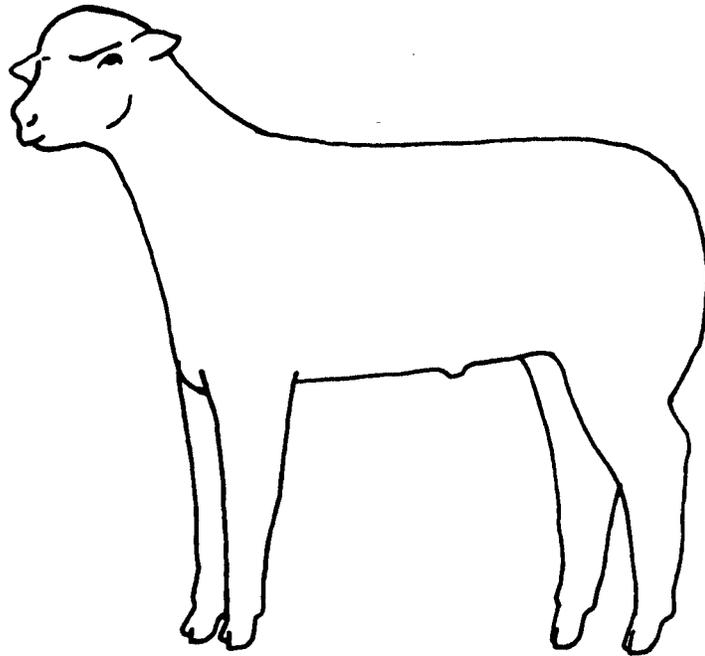
Reviewed by:

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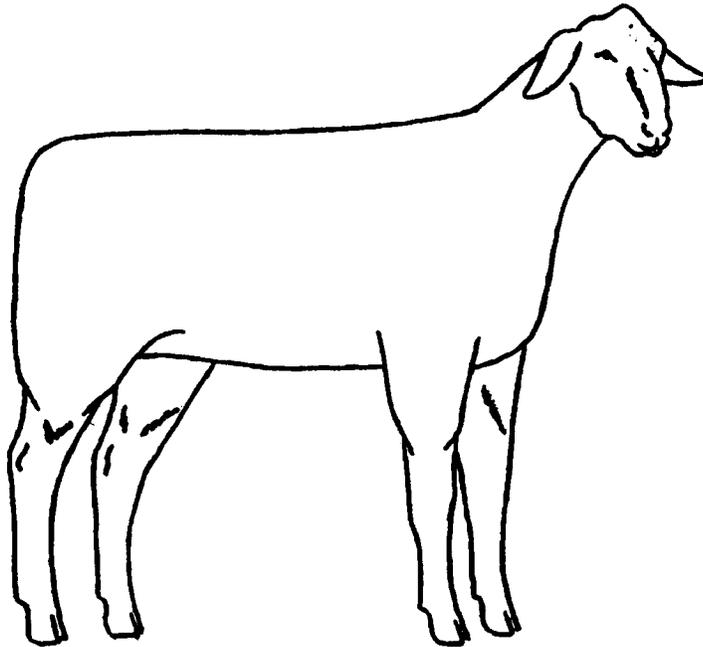
RECOGNIZING SEX DIFFERENCES IN SHEEP
SHEEP, LEVEL I
Member Handout 2, Ram

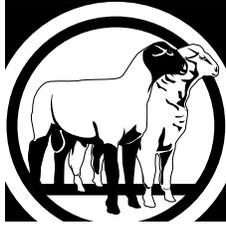


RECOGNIZING SEX DIFFERENCES IN SHEEP
SHEEP, LEVEL I
Member Handout 3, Wether



RECOGNIZING SEX DIFFERENCES IN SHEEP
SHEEP, LEVEL I
Member Handout 4, Ewe





Is Your Lamb Sick or Well?

Sheep, Level I

What Members Will Learn . . .

ABOUT THE PROJECT:

- Recognize early signs of a sick lamb
- Develop good diagnostic skills
- Recognize a normal animal
- Observe closely and make comparisons

ABOUT THEMSELVES:

- Improve observation skills

Materials Needed:

- Activity Sheet 4, Sick Signs Puzzle
- Leader's Key, Activity Sheet 4, Sick Signs Puzzle
- Slips of paper with characteristics of sick animals
- Flip chart and markers

ACTIVITY TIME NEEDED: 45 MINUTES

ACTIVITY

Today we are going to talk about how to recognize a sick lamb, and how to tell if a lamb looks healthy. To be able to care for your lamb, or any other animal, you must know its behavior so well that you can tell if the lamb is not acting normally. You should become very good at watching your lamb, and understanding what you see. It's a good idea to spend a little time each day observing your lamb. A good time to do this is after the lambs have been fed; because you are already out doing chores anyway.

Healthy animals act differently from sick animals. Have you ever seen a sick animal? How does a sick animal look?

Let's compare some possible characteristics of a sick sheep to those of a healthy one. Remember, a sheep does not have to have all the symptoms to be sick. What are some symptoms of a sick lamb?

Leader Notes

Begin lesson by role playing a person that "feels sick" and a healthy energetic person.

List symptoms of sick and healthy sheep on a flip chart. Contrast any signs the members think of with the behavior of a healthy lamb. Go through the list provided for any signs that the members missed and relate those to the healthy lamb. If pictures or illustrations of the sick vs. normal sheep are available, they should be used so members can get a visual idea of the signs.

Leader Notes

ACTIVITY

Play charades! On slips of paper that you have already prepared, write normal or abnormal behaviors on each piece of paper. (omit diarrhea) Have each member draw a behavior to act out. The rest of the group attempts to identify the behavior, if it is normal or abnormal, and what it might mean about the lamb. Give each member Activity Sheet 4, Sick Signs Puzzle, as a review and a record for their record books.

Sick lamb

1. droopy ears
2. down headed
3. dull, watery eyes
4. coughing
5. loss of appetite, not eating
6. slow moving, listless
7. labored breathing
8. gaunt (off feed and water)
9. diarrhea
10. foaming at the mouth
11. falls or stumbles frequently
12. kicks at stomach, strains
13. snotty nose

Healthy

- erect, alert ears
- head up, observant
- clear, attentive eyes
- not coughing
- eats with other sheep
- active
- easy, quiet breathing
- full stomach
- solid feces
- not foaming
- coordinated
- acts comfortable
- dry nose

DIALOGUE FOR CRITICAL THINKING:

Share:

1. What are some of the signs of a sick lamb?
2. What are some of the signs of a healthy lamb?

Process:

3. When is a good time to watch your lamb to see if it is sick?
4. Why is it so important to observe your lamb even when it is healthy?

Generalize:

5. What other things do you do that require good watching skills?

Apply:

6. How and when will your watching skills help you in the future?

GOING FURTHER:

- Ask each member to make a sick/healthy symptoms chart for a pet or a farm animal.
- Visit a farm or zoo.
- Visit a veterinarian.

ACTIVITY

Leader Notes

REFERENCES:

Kansas 4-H Beef Leader Notebook (LN-1), 2nd ed.

Author:

Jeremey Geske, former Extension Assistant, Kansas State University
James P. Adams, Extension Specialist, 4-H and Youth Programs, Kansas
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Sheep Design Team

IS YOUR LAMB SICK OR WELL?

SHEEP, LEVEL I

Activity Sheet 4, Sick Signs Puzzle

Fill in the blanks to form the signs of a sick sheep. Some of the letters have been provided.

DULL W _ _ _ _ _ E _ _ S

LABORED B _ _ _ _ _ I _ _

C _ _ G _ _ _ G

KICKS S _ _ _ _ _

SLOW M _ V _ _ _

DOWNH _ _ D _ _

D _ _ R _ _ E _

NOT E _ T _ _ _

_ _ _ _ P _ EARS

IS YOUR LAMB SICK OR WELL?

SHEEP, LEVEL I

Leader's Key, Activity Sheet 4, Sick Signs Puzzle

Fill in the blanks to form the signs of a sick sheep. Some of the letters have been provided.

DULL WATERY EYES

LABORED BREATHING

COUGHING

KICKS STOMACH

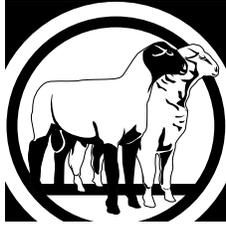
SLOW MOVING

DOWNHEADED

DIARRHEA

NOT EATING

DROOPY EARS



The Five Food Groups

Sheep, Level I

What Members Will Learn . . .

ABOUT THE PROJECT:

- Identify the five major types of feed nutrients
- Categorize feeds into roughages or concentrates
- Identify feed nutrient sources

ABOUT THEMSELVES:

- Identify five to eight human foods and whether they are a primary source for protein, energy, mineral, vitamin or water
- The importance of a balanced diet

Materials Needed:

- Five paper plates
- Various index cards with feed ingredients written on them
- Samples of feed ingredients in small jars or plastic bags
- Chalkboard, flip chart or overhead projector
- Activity Sheet 5, Sheep Feed Match
- Leader's Key, Activity Sheet 5, Sheep Feed Match
- Pencils and paper

ACTIVITY TIME REQUIRED: 60 MINUTES

ACTIVITY

Proper animal nutrition is the key to a successful livestock business and a livestock project. Animals also require proper nutrition for growth and development. In the same way, if we don't get the proper nutrition by eating right, we can have health problems and our growth and development may be affected in a negative way.

Members in the sheep project should know the types of feed ingredients and how to identify various samples. Learning about the basic feed nutrients is an excellent way to prepare members to learn more about animal feed requirements.

Generally, feeds are classified into two broad categories: roughages and concentrates. Roughages are typically the leafy green plants such as alfalfa and grasses, crop residues like straw from the production of grains, and silages which are green leafy plant materials that have been chopped and stored wet. Roughages are higher in fiber and less digestible than concen-

Leader Notes

As members arrive for the project meeting, have four different samples of feed set out on a table. Ask them to work together to decide what the feeds consist of and to what animal(s) they might be fed. Encourage them to discuss their opinions together and come to some consensus as a group.

Show samples youth looked at previously and discuss which are concentrates and which are roughages.

Leader Notes

ACTIVITY

trates—meaning it takes longer for the material to pass through the animal’s stomach. But young and rapidly growing animals do not have the capacity to consume enough low-quality roughage to achieve normal growth and, thus, need other nutrient sources.

Concentrates include grains (corn, wheat, barley, oats and milo), oilseed meals, (like soybean meal, linseed meal, and cottonseed meal), fish meal, molasses, and dried milk products. Concentrates are high in energy, low in fiber, and highly digestible—easily used by the lamb.

Regardless of feed type, all feeds are sources for some of the six basic types of nutrients: protein, energy sources (carbohydrates and fats), minerals, vitamins, and water. Knowing what combination of these nutrients your feed supplies is critical to a good feeding program.

Show an example of a protein source.

Proteins supply the materials necessary to make body tissues. They are the building blocks of which lamb bodies are made. Proteins make up muscle, internal organs, bones and the blood. They also make up the skin, wool, hooves, and horns of a lamb’s body. If you feed more protein to your lamb than it needs, the extra protein is used as energy—for body heat, cooling, movement, producing milk in females or for other functions. Grains such as corn, oats, and milo supply part of the protein your lamb needs to grow. **Protein supplements** such as soybean, cottonseed, or linseed meal are used to balance your lamb’s ration. (what they eat each day).

Show an example of an energy source.

Energy is supplied to your lamb from two types of feed nutrients—**carbohydrates** and **fats**. These nutrients are to a lamb what gasoline is to a car. They provide energy for growth and maintenance. These nutrients also help the animal produce heat to keep the body warm. Energy fed in excess of what the animal needs for maintenance is stored as fat until the body needs it.

Show an example of a mineral source.

Minerals build bones and teeth and support other life functions in the lamb. Livestock need a total of 16 different minerals in their diet. Calcium, phosphorus and salt make up the largest percentage of the minerals needed by the lamb. Calcium and phosphorus are usually added to the lamb ration for growth of bones and teeth. Many producers use ground limestone, bone meal or dicalcium phosphate as feed ingredients to supply these necessary minerals. Sodium, chlorine, and iodine are also critical minerals for your lamb and are usually added in the form of iodized salt. Minerals that are needed only in very small amounts are called **trace minerals** and are often added to salt.

Show a good vitamin source.

Vitamins are just as important as other feed nutrients, but they are needed in smaller amounts. Vitamin A is required for the health of skin, eyes, nose, and lungs. For strong bones and healthy blood, vitamin D is needed. Other vitamins are required for numerous body functions. The lamb’s body produces some vitamins while others must be added to the ration.

ACTIVITY

Water is not always considered to be a nutrient, but without it, life would not be possible. Many people consider water to be the most important part of the lamb's diet. Moreover, it is the cheapest part of an animal's diet, but it is often the most neglected part, too. Water is also necessary in digestion and for carrying food nutrients to the rest of the body. Water carries away waste products through the urine, functions as the body's built-in cooling system, and helps joints move. Your lamb can live longer without feed than without water.

Now that we have learned something about the two feed categories (concentrates and roughages) and nutrients, let's see how well you can classify some of the major feed ingredients according to their type.

On this table are five paper plates, each one labeled as either **PROTEIN**, **ENERGY**, **MINERALS**, **VITAMINS**, or **WATER**.

Alongside these paper plates are index cards with the names of various feed ingredients written on them. As a group, I would like you to work together to sort through these various feed ingredient cards and decide which plate they should be placed on. When you have finished, let me know and we will discuss your classification.

Primary Protein Sources: Cottonseed meal, soybean meal, linseed meal, corn gluten meal.

Primary Energy Sources: corn, milo, wheat, oats, barley.

Primary Mineral Sources: bone meal, dicalcium phosphate, salt, trace mineralized salt, ground limestone.

Primary Vitamin Sources: vitamin supplements, green pasture, alfalfa hay.

Primary Water Sources: cool, clean water. (Snow does not provide enough water to meet an animal's daily needs for water.)

Energy and protein are required in large amounts and are found in varying degrees in all feedstuffs. Vitamins and minerals are also found in most feedstuffs and are required in low amounts. A mixture of grain and roughage that contains energy, protein, vitamins and minerals is called feed. If a feed contains all the nutrients that a lamb needs, then it is considered a balanced ration. The amount of feed a lamb needs depends on the concentration of nutrients in that feed. As a general rule of thumb, a 100 pound lamb will eat approximately 2 to 4 pounds of feed per day.

Water consumption is usually 2 to 3 times as much as feed consumption. Good drinking water is important to maintain healthy, productive sheep. Lambs do their best when clean, fresh drinking water is available at all times.

Leader Notes

Ask members what makes "good" water? Emphasize the importance of clean, cool and fresh water by having one glass of good water, one glass of dirty water and one glass of warm water. Which one would they want to drink? Why?

Optional: You may want to get some actual feed samples from either your own supply or ask your feed dealer for some samples and have the members classify these rather than the index cards.

Following their efforts, review their classifications with them. Remember to ask questions about the reasons for their choices rather than being critical of their decisions. Try to discover why they placed the feed ingredients the way they did. At the same time, you can also ask them which are concentrates and which are roughages.

Pass out Activity Sheet 5, Sheep Feed Match, for review.

Leader Notes

ACTIVITY

DIALOGUE FOR CRITICAL THINKING:

Share:

1. What does your lamb eat each day?
2. How much water does your lamb drink each day?

Process:

3. What are two feed types?
4. What are the five food groups?
5. What is the purpose of each food group?

Generalize:

6. Which food groups do you need for your diet?

Apply:

7. How can you make sure you eat a balanced diet everyday?

REFERENCES:

Author:

This lesson was modified from original material adapted from *Identifying and Classifying Feed Ingredients*, Thomas D. Zurcher, University of Minnesota, by Kirk A. Astroth, Extension Specialist, 4-H Youth Programs, Montana State University, with further adaptation by : Gerry L. Kuhl, Extension Beef Nutrition Specialist, Kansas State University

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Sheep Design Team

THE FIVE FOOD GROUPS
SHEEP, LEVEL I
Activity Sheet 5, Sheep Feed Match

Match the term with the correct statement.

Roughage

Carbohydrates and fats that provide for body growth and maintenance.

Proteins

Grains that are high in energy, low in fiber and easily used by the lamb.

Concentrates

Leafy green plants such as alfalfa and grasses.

Energy

The building blocks of which most lamb body tissues are made.

Minerals

Just as important as other feed nutrients, but are needed in smaller amounts.

Vitamins

The most important part of a lamb's diet.

Water

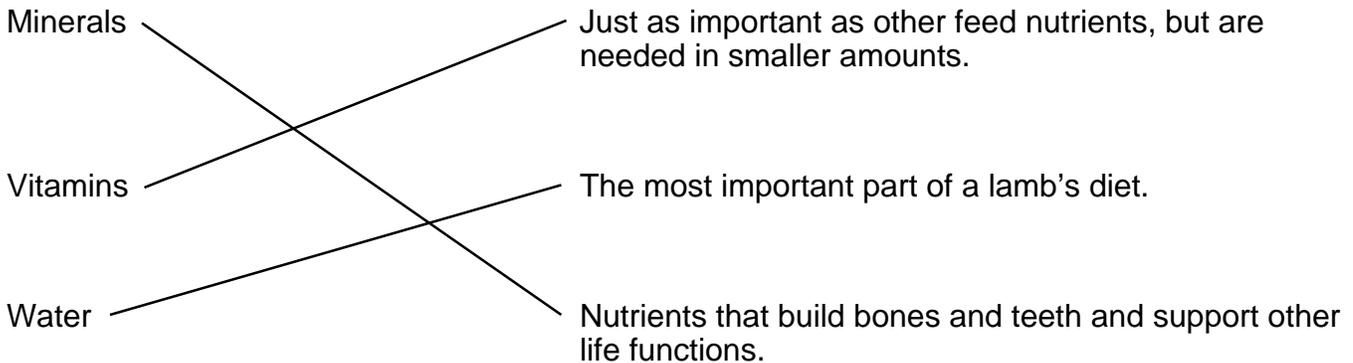
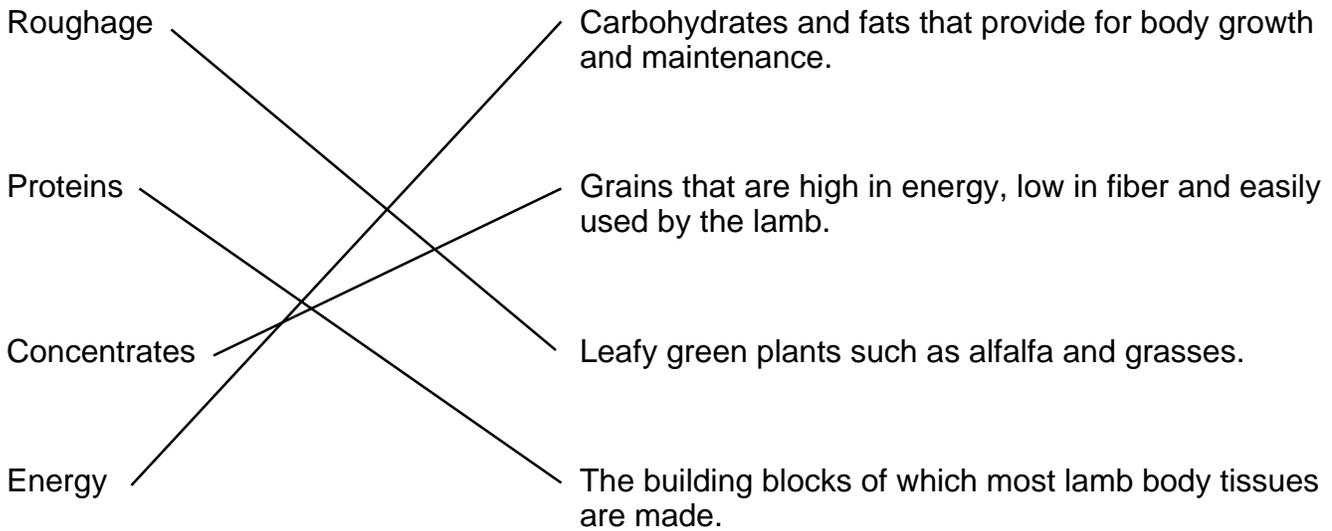
Nutrients that build bones and teeth and support other life functions.

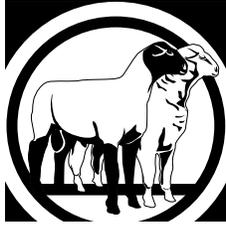
THE FIVE FOOD GROUPS

SHEEP, LEVEL I

Leader's Key, Activity Sheet 5, Sheep Feed Match

Match the term with the correct statement.





Training Your Lamb for Show

Sheep, Level I

What Members Will Learn . . .

ABOUT THE PROJECT:

- Methods to use in halter breaking a lamb
- How to teach a lamb to lead
- How to set up a lamb for show

ABOUT THEMSELVES:

- Patience is needed when working with animals
- Differences between positive and negative re-enforcement

Materials Needed:

- Member Handout 5, Setting up a Lamb
- Halters
- Gentle, well trained lamb

ACTIVITY TIME NEEDED: 60 MINUTES

ACTIVITY

The idea behind showing a lamb is to make the lamb look it's best at all times. To accomplish this takes hard work in three areas. The first step is training the lamb to act properly when shown. The second step is the proper fitting of the lamb, which will be discussed in another lesson. And third is for you, the member, to know the proper technique for showing a lamb.

The purpose of training a lamb is to be able to show the lamb to it's best advantage. The lamb must be willing to let the judge handle it. The judge will not favor a lamb that doesn't stand still. It takes a lot of patience to train a lamb properly.

Training the lamb should begin shortly after the lamb is weaned. The lamb will need time to get used to you. If the lamb is in a small pen, stand quietly in the corner. If you don't scare the lamb, it will become curious and come up and sniff you. After a few days of spending time with the lamb, it will get used to you and not be nervous when you are around.

Next, halter break the lamb and teach it to lead. A common method of halter breaking is to tie the lamb to a post in the fence line. Height of the tie should be lamb eye level. As the lamb pulls back, the halter tightens, and as the lamb moves forward, the halter releases pressure. The lamb

Leader Notes

The leader or a parent should demonstrate the proper methods of haltering, leading and showing a lamb. Then have the members participate in a simulated show with the leader playing the role of the judge. The leader can coach the members on how to respond to a judges requests and questions.

Leader Notes

ACTIVITY

learns that in order to stop the pressure on the back of it's head, it must move forward. Once the lamb accepts this, you will be able to lead it around the ring by simply placing a hand on the back of it's head.

For several days, the lamb should be tied between feeding and exercise periods. If the lamb has to be left unattended for short periods of time, the rope should be long enough for the lamb to eat and lie down, but not long enough for it to get tangled up. It doesn't hurt to spend a little time with the lamb when it is tied up. The more time you spend, the more comfortable your lamb will become and the easier it will be to train.

When you teach a lamb to walk, you are teaching it to lead. After the lamb is halter broke, begin training it to lead. Pull the lead rope, then give it some slack so the lamb comes forward. Do not apply constant pressure. Always pull then release pressure as the lamb responds. The lamb will learn that the rope loosens when he walks forward. Often, it is a good idea to have someone else walk behind the lamb to keep it moving instead of always having to pull on it's head. This will help the lamb learn more quickly. Reward the lamb by petting it when it does what you want. Some lambs are very stubborn, and it will be difficult to train them. Just be patient. If you get discouraged and beat the lamb, it will only make things worse. A lamb that is constantly struggling with it's handler will not impress the judge.

As soon as the lamb begins to lead, start a daily exercise routine and practice proper show ring technique. Daily exercise is not only good for you and the lamb, but it is also important in teaching the lamb to respond to your movements.

Start teaching the lamb to stand correctly. All four feet should be set squarely, one under each corner of the lamb. If the back legs are set too far back, too far under the body, too close together or too far apart, the lamb will look unnatural and incorrect. The most important step in showing a lamb is to always have the feet set properly. The lamb may move around from time to time, but patiently and gently put its feet back in the right spot. Eventually, the lamb will get used to it and practically set it's own feet without your help. When the lamb's feet are set properly, gently rub its belly with your fingers. This will have a calming effect on the lamb and also help keep its back straight.

Now that the lamb knows what to do, the showman has to learn the proper way to handle the lamb. Always hold the lamb with your left hand under its chin. Don't hold the lamb by its neck, because it could choke. The lamb will be under control as long as you have a firm grip on it's chin. Use your right hand to set the legs. Usually the showman should stand or crouch on the left side of the lamb. When the judge comes up to handle your lamb, stand up and move to the front of your lamb. By doing this, it will be easier to keep the lamb under control.

Pass out Member Handout 5, Setting up a Lamb and show the proper way to set up a lamb.

ACTIVITY

Leader Notes

As the showman, your first concern is that the lamb be set properly, to look its best. But at the same time, you must also pay attention to the judge

Remember, you may not always have the best lamb at every show, but you can always have a well-trained, well-shown lamb. A well-trained, well-shown lamb always impresses the judge.

DIALOGUE FOR CRITICAL THINKING:

Share:

1. How did you get your lamb used to a halter?
2. Was it easy or hard for your lamb to lead? What happened?
3. What happened when you tried to teach your lamb to stand correctly?

Process:

4. Why should you train your lamb by being kind?
5. Did positive or negative methods work best for you? Why?

Generalize:

6. What did you learn about yourself while training your lamb?
7. How do you like to learn new things?

Apply:

8. What will you do differently next time you train a lamb?
9. What did you learn while training your lamb that can be used in your other projects?
10. If you could enter a contest where other animals are being judged, or a fitting and showing class where what you do is judged, which would you choose and why?

GOING FURTHER:

1. Attend a sheep show and watch how well trained the lambs are.
2. Bring in an untrained sheep to demonstrate just how unruly sheep can be.

Leader Notes

ACTIVITY

REFERENCES:

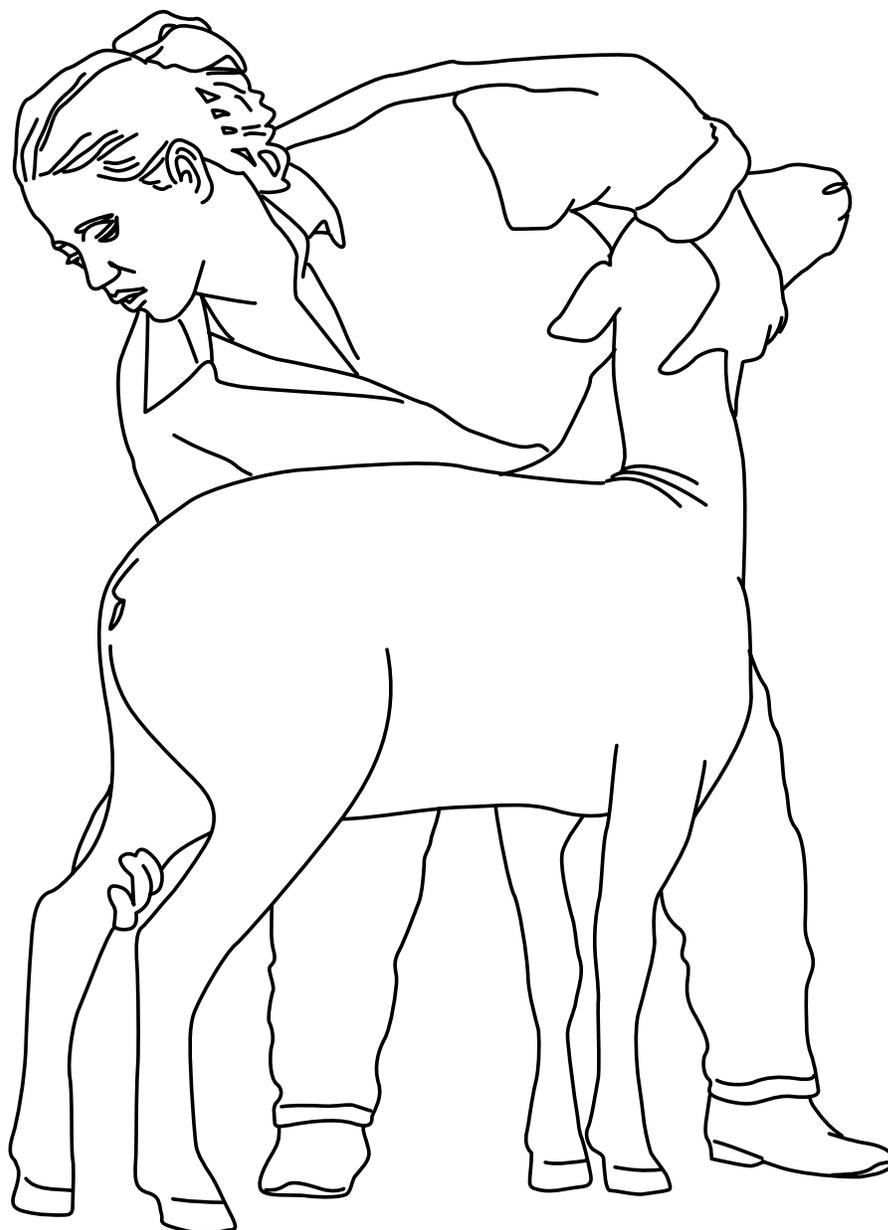
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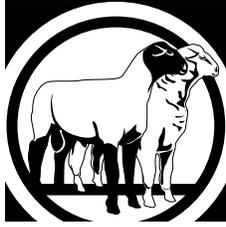
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TRAINING YOUR LAMB FOR SHOW
SHEEP, LEVEL I
Member Handout 5, Setting up a Lamb





Washing Your Lamb

Sheep, Level I

What Members Will Learn . . .

ABOUT THE PROJECT:

- How to wash a lamb
- The equipment needed to wash a lamb

ABOUT THEMSELVES:

- Importance of following directions and sequence

Materials Needed:

- Activity Sheet 6, Washing Procedure
- Leader's Key, Activity Sheet 6, Washing Procedure
- Lamb
- Livestock soap
- Rag
- Wash Bucket
- Spray nozzle
- Water hose
- Wash rack (or suitable place to wash lamb)
- Fly repellent
- Sheep blanket
- Curry comb

ACTIVITY TIME NEEDED: 60 MINUTES

ACTIVITY

Washing your lamb before shearing or fitting removes the dirt and grease (lanolin) from the wool, making it easier to clip. Washing also improves the appearance of the lamb for the show. If you have a breed where wool is a major criteria for the judge (Rambouillet, Columbia etc.) do not wash your lamb. The natural fleece with grease is necessary for the judge to determine the quality of the fleece. However, market lambs and meat breeds should be washed before the show.

Step 1. Washing your lamb can be fun, but safety is important, especially if the lamb is bigger than you. Halter the lamb tightly to the wash rack, leaving only a few inches of rope so you can wash the lamb's neck and chest. This will help keep the lamb from moving around.

Step 2. With the hose or wash bucket, wet down the lamb's wool. Never point the hose directly at the lamb because it forces the dirt closer to the

Leader Notes

Display equipment on a table and ask members to give you three reasons to wash a lamb.

Talk about each piece of equipment and how it will be used.

If possible, go through a demonstration of the following steps of washing a lamb where the members can participate.

Leader Notes

ACTIVITY

skin and makes the lamb harder to clean. Always point the hose at an angle, as this forces the dirt out of the wool.

Step 3. A curry comb may be used to remove the larger chunks of dirt, straw and manure from the fleece. Lather the lamb’s fleece with livestock soap. Some dish soaps may be used, but they generally don’t work as well. They may irritate the skin or remove too much grease causing the wool to lose its texture.

Step 4. Rinse the lamb, preferably with warm water if it’s available. It is important to get all the soap out so it doesn’t irritate the skin. The washing should occur in a front to rear and top to bottom direction. Start at the lamb’s head and wash towards the dock. Next, wash the lamb’s chest, and then the sides. You’ll be able to see a definite line of dirt separating the clean top from the unwashed sides. Start at the top of the shoulder and wash at a back and down angle toward the rear leg. Repeat until the whole side, from the top of the shoulder to the bottom of the rear leg, is clean. Then do the same to the other side. Finally, rinse off the belly. Remember, don’t spray directly at the lamb.

Step 5. Using a rag and bucket of clean, non-soapy water, wash the lamb’s face, nose, ears and legs. Spraying the lamb lightly with fly repellent now will reduce the number of fly attacks on your lamb, and make it easier to handle.

Step 6. If available, blanket the lamb to keep it clean and allow it time to dry. If the lamb must be dried immediately for fitting, a calf blower works well. Run the blower over the lamb in the same direction as washing. Again, do not point the blower directly at the lamb because that will not clean out any dirt, and it will make the lamb more difficult to fit. If available, and used properly, the blower will make your lamb look cleaner and whiter, but it is not a necessity.

Give each member Activity Sheet 6, Washing Procedure. Let members work in pairs to complete the activity sheet as a review.

DIALOGUE FOR CRITICAL THINKING:

Share:

1. What happened when you or your group began getting the lamb wet?
2. What were the easiest/hardest parts of the lamb to wash?

Process:

3. Why do you need to use a washrack when washing your lamb?
4. Why is it important to use the correct type of soap?
5. Why do you think you were told to wash the lamb by doing things in a special way or order?

Generalize:

6. Why is it important to follow directions closely when doing something important?

ACTIVITY

Leader Notes

Apply:

7. What other times is it important to do things in a specific order?
Why?

GOING FURTHER:

- Attend a sheep show and observe sheep being washed, sheared or clipped.

REFERENCES:

Kansas Beef Leader Notebook (LN-1), 2nd ed.

Author:

Jeremy Geske, former Extension Assistant, Kansas State University
James P. Adams, Extension Specialist, 4-H and Youth Programs, Kansas
State University

Reviewed by:

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Sheep Design Team

WASHING YOUR LAMB
SHEEP, LEVEL I
Activity Sheet 6, Washing Procedure

Number the washing steps in the correct order.

- _____ Wash the lamb from front to rear and top to bottom direction.
- _____ Use curry comb to remove large chunks of dirt or straw.
- _____ Wash lamb's face, nose, ears and legs with a rag and clean water.
- _____ Blanket lamb to keep it clean and allow to dry.
- _____ Lather the lamb's fleece with livestock soap.
- _____ Halter the lamb tightly to the wash rack.
- _____ Rinse all soap from wool with warm water, if possible.
- _____ Spray lamb lightly with fly repellent.
- _____ Wet down the lamb's wool with hose or bucket of water.

WASHING YOUR LAMB

SHEEP, LEVEL I

Leader's Key, Activity Sheet 6, Washing Procedure

Number the washing steps in the correct order.

 5 Wash the lamb from front to rear and top to bottom direction.

 3 Use curry comb to remove large chunks of dirt or straw.

 7 Wash lamb's face, nose, ears and legs with a rag and clean water.

 9 Blanket lamb to keep it clean and allow to dry.

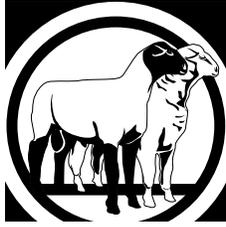
 4 Lather the lamb's fleece with livestock soap.

 1 Halter the lamb tightly to the wash rack.

 6 Rinse all soap from wool with warm water, if possible.

 8 Spray lamb lightly with fly repellent.

 2 Wet down the lamb's wool with hose or bucket of water.



Lamb Taste Test

Sheep, Level I

What Members Will Learn . . .

ABOUT THE PROJECT:

- To taste the difference between lamb, beef, and pork
- Appearance compared to beef and pork
- How to cook lamb

ABOUT THEMSELVES:

- The importance of meat in their diets
- The importance of making decisions

Materials Needed:

- Pictures of the different cuts of lamb, pork, and beef
- Different cuts of lamb, pork, and beef to show members
- Ground lamb, pork, and beef to make burgers
- Three skillets (or grill), spatula, hot pads
- Hamburger bun and “fixings”
- Leader or parent who has cooked lamb before
- Activity Sheet 7, Burger Data Sheet

ACTIVITY TIME NEEDED: 45 MINUTES

ACTIVITY

Let everyone look at the posters revealing the different cuts of meat. Which cuts are unique to one species? Which ones are common to all three? Many cuts are the same since they come from the same areas of the animal. However, for today’s demonstration we will be using ground meat, since everyone loves a burger!

Look at these three ground meats. What are the differences? Similarities? The color may be different because of different fat contents in the meat. For instance when hamburger is fat it appears lighter because fat is white in color and meat is red. However, pork and lamb meat are typically lighter red than the beef, so just because it is slightly lighter doesn’t mean it is higher in fat content.

Leader Notes

The leader should poll the entire club (including parents) and record how many people like and dislike lamb. Record those figures then ask how many have tried lamb and record that. Don’t be surprised if some people claiming to not like lamb have never tried it.

Pass around the ground meat of the three species. Ask if they can tell which is which without telling them. How can you tell a difference?

Leader Notes

Have the members wash their hands and form the meat into patties, 1/3 of the members form a patty from lamb, 1/3 form a patty from pork, and 1/3 form a patty from beef. Place all the lamb in one skillet or grill section, pork in another, and beef in a third. Wash hands, dishes and utensils after forming patties and placing in a skillet.

Give each person a copy of Activity Sheet 7, Burger Data Sheet, to record their opinions.

Buns are optional. Cut patties into pieces and identify each with a colored toothpick. Serve one-third of each kind at a time. Be sure each participant samples all three types of patties.

ACTIVITY

When the burgers are done (try to cook each the same), place each on a bun and cut into thirds. Have each member take 1/3 of a burger from each meat and sample it.

The “chef” should keep the identities of each burger a secret while administering a taste test. Have all members and parents sample each burger and record whether they liked or disliked each one and to rank the three in order of preference. Also, have the members try to guess which is the lamb burger, pork burger, and beef burger and record their answers.

After the test, collect the results of the participants and determine how many ranked the lamb burger as their favorite or least favorite. Have the “chef” reveal the identities of each roast. Go back to the results of the pre-test poll. Did any opinions change? How many of the members guessed the lamb burger correctly?

Members who eat and enjoy lamb should be encouraged to make copies of their favorite lamb recipe(s) to bring to the next meeting for other families who would like to try them.

DIALOGUE FOR CRITICAL THINKING:

Share:

1. Which meat did you like the best? Least?
2. Could you tell which meat was the lamb? How?

Process:

3. Which burger left the most grease in the skillet or flamed the most on the grill? Why?
4. How could cooking methods affect the taste of any burger?

Generalize:

5. Why do we want leaner meat to eat?
6. How do you know if you are buying leaner meat?
7. What helps you make decisions when buying other items? (Select a specific item)

Apply:

8. What will you do to help purchase food items the next time you go to the food store?
9. What can you do to help your family choose a healthy diet?

ACTIVITY

Leader Notes

GOING FURTHER:

- Have members bring their favorite lamb recipes to share at the next meeting.
- Visit a grocery store to see what lamb products are available.
- Compare prices of lamb chops, pork chops and beef rib steaks (price per pound).

REFERENCES:

Author:

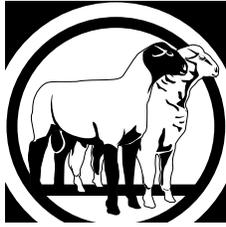
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LAMB TASTE TEST**SHEEP LEVEL I****Activity Sheet 7, Burger Data Sheet**

Sequence or Color Code	Burger # 1 (Red)	Burger # 2 (Yellow)	Burger # 3 (Green)
How did it taste?			
How juicy was it?			
Rate Overall Taste (1-5) 1—Very Good 5—Terrible			
What kind of burger is it? (beef, lamb or pork)			
What kind of burger was it? (from leader)			

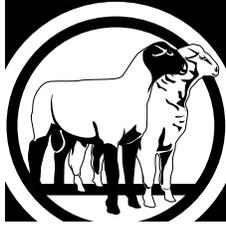


Sheep Leader Notebook

Level II

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Setting Goals for Your 4-H Sheep Project

Sheep, Level II

What Members Will Learn . . .

ABOUT THE PROJECT:

- How to set goals

ABOUT THEMSELVES:

- Importance of setting goals

Materials Needed:

- Paper and pencils
- Sheep Member Guide and Annual Report (MG-37)
- Flip chart and markers

ACTIVITY TIME NEEDED: 30 MINUTES

ACTIVITY

Goals should indicate growth in the project as well as the member's learning. Each year the goals should include at least one new skill to learn.

The MAP Worksheet defines the steps that members must go through to set their goals for Level II.

Leader Notes:

Have each member tell what goals he or she met or accomplished during the last year in this project. For example: raised two market lambs, gave a project talk, etc. Using the flip chart, list problems that members had in the project last year. Do any of the problems indicate things to work on this year?

Hand out a copy of MG-37, Sheep Member Guide and Annual Report, to each member.

Provide members a list of lesson titles from Level II. Develop a list of possible things to learn during the project year.

After they have developed a good list, have the members write their goals for the year on their MAP.

Have the members share their goals for the year with each other and the group. With these goals in mind, you can plan the project meetings so that the members will be able to accomplish many of their goals.

Leader Notes

ACTIVITY

DIALOGUE FOR CRITICAL THINKING:

Share:

1. What is one skill that you learned from your sheep project last year?
2. What is the goal that you have for our sheep project this year?

Process:

3. What problems did you have with your sheep project last year?
4. Why do you think you had those particular problems?

Generalize:

5. Does setting goals help you solve sheep problems?
6. Does setting goals help you solve your own problems?

Apply:

7. How will you use goal setting the next time you plan an activity?

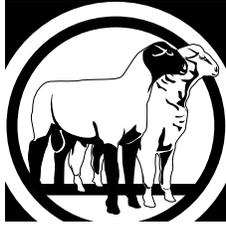
REFERENCES:

Author:

James P. Adams, Extension Specialist, 4-H and Youth Problems, Kansas State University

Reviewed by:

Clifford Spaeth, Extension Specialist, Animal Sciences and Industry,
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Understanding U.S. Sheep Breeds

Sheep, Level II

What Members Will Learn . . .

ABOUT THE PROJECT:

- Define the basic types of sheep
- Be aware of the breeds of sheep in the U.S.

ABOUT THEMSELVES:

- The importance of sheep products in their lives

Materials Needed:

- Activity Sheet 1, Breed Use Summary
- Member Handout 1, Sheep Breed Descriptions
- Video or set of slides of as many breeds as possible
- Access to pictures or breed magazines
- Flip chart and markers

ACTIVITY TIME NEEDED: 60 MINUTES

ACTIVITY

It is important for the members to know the characteristics of many different breeds. When selecting lambs for show or to keep, the breed will tell you many things. Muscling, reproductivity, wool characteristics are all traits that differ greatly by the breed of the sheep. We will feature local breeds, but cover many different breeds common to the United States. There are also many other breeds that do exist, but do not contribute greatly to sheep production in the U.S.

Remember, sheep can be classified in three different ways:

1. By the product they produce—meat, wool, or both (dual-purpose)
2. By their wool type—fine, medium, long, or hair
3. By their commercial use—ram, ewe, or both (dual-purpose)

Meat type sheep are those breeds raised for the production of meat with very little consideration for anything else. Common meat breeds include Suffolk, Hampshire and Dorset. Other meat breeds include Cheviots, Shropshire, Southdown and Texel.

Leader Notes

Review Sheep Breed Groups lesson from Level I. This lesson will discuss and add more breeds to the groups. Concentrate on the breeds in your area, but expose members to others.

Show slides or pictures of breeds and discuss the traits and purpose of each breed.

List breeds by type on a flip chart as you look at pictures and discuss.

Leader Notes

Give members Activity Sheet 1, Breed Use Summary, to record from the flip chart for their records.

Use Member Handout 1, Sheep Breed Descriptions, for quiz bowl questions or copy and cut into pieces for a matching exercise as a review.

ACTIVITY

Wool breeds are grown for a high quality fleece or a heavy fleece with less emphasis on growth and muscle. Wool breeds are divided into fine, medium, long, or hair types. Fine is the most valuable, with hair being the least valuable. Fine wool breeds are Rambouillet, Merino, Booroola and Debouillet. Medium wool breeds include most meat and dual-purpose breeds such as Suffolk, Hampshire, Dorset, Shropshire, Southdown, Cheviot, Montadale, Columbia, Corriedale, Oxford, Targhee, Polypay and Finnsheep. Long wool breeds include the Lincoln, Romney, Cotswold and Border Leicester. These breeds may produce wool over eight inches long. Hair breeds include St. Croix, Barbados Blackbelly and Katahdin.

Dual-purpose breeds try to place emphasis on both meat and wool; such as Columbia, Corriedale, Montadale and Targhee. This category also includes those breeds which combine increased prolificacy (multiple births) with meat or wool production such as Finnsheep, Polypay and Booroola Merino.

Most commercial sheep operations use a crossbreeding system that mates ewes of one breed to a ram of another breed. The most common commercial cross is a white faced fine wool Rambouillet or Merino as the ewe breed mated to a meaty and fast growing ram breed such as Suffolk or Hampshire.

DIALOGUE FOR CRITICAL THINKING:

Share:

1. How many breeds of sheep can you name?
2. How many breeds of sheep can you recognize?
3. What new breeds did you learn from this lesson?

Process:

4. What problems did you have in identifying different breeds? Why?
5. Why do you think there are so many sheep breeds?
6. What are two common meat breeds? Wool breeds? Dual-purpose breeds?

Generalize:

7. What roles do breeds play if you were starting your own flock of sheep? If you were purchasing show lambs?
8. What impact do breeds have on you as a consumer?

Apply:

9. How will knowledge of sheep breeds be useful to you and the consumer in the future?

ACTIVITY

Leader Notes

GOING FURTHER:

- Members can select one breed of sheep and write the breed association for more information.
- Members can attend livestock shows and identify the different breeds and their characteristics.

REFERENCES:

Kansas 4-H Beef Leader Notebook (LN-1), 2nd ed.
SID Handbook

Author:

Jeremy Geske, former Extension Assistant, Kansas State University
James P. Adams, Extension Specialist, 4-H and Youth Programs, Kansas State University

Reviewed by:

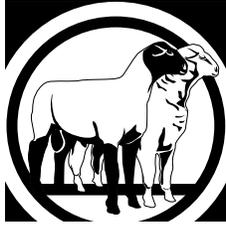
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UNDERSTANDING U.S. SHEEP BREEDS

SHEEP, LEVEL II

Member Handout 1, Sheep Breed Descriptions

Barbados Blackbelly	brown and black hair sheep from the Caribbean
Booroola Merino	similar to the Delaine-Merino, smaller and highly prolific
Border Leicester	white faced, longwool breed originating in England
Cheviot	small, white faced, meat breed from Scotland with erect ears
Columbia	largeframed, white faced, dual-purpose breed originating in the U.S.
Corriedale	medium sized, white faced breed from New Zealand with black nose and hooves
Delaine-Merino	white faced, horned breed from Spain with very fine wool
Dorset	(horned or polled) white faced, meat breed known for out-of-season breeding
Finnsheep	small framed, fine boned, highly prolific breed from Finland
Hampshire	large framed, black faced, meat breed with wool cap and wool on legs
Lincoln	large framed, long wool breed from England
Montadale	medium sized, white faced breed originating in the U.S. (Columbia X Cheviot cross)
North Country Cheviot	similar to Cheviot, but larger
Oxford	similar to but slightly smaller than Hampshires, face and leg color is dark brown instead of black
Polypay	white faced, highly prolific breed from the U.S. (1/4 Targhee, 1/4 Dorset, 1/4 Rambouillet, 1/4 Finnsheep)
Rambouillet	(horned or polled) white faced, fine wooled breed from France, very popular
Romanov	highly prolific Soviet breed with black and whiteface and legs and grey wool
Romney	white faced, long wooled English breed
Shropshire	English meat breed, similar to Hampshire and Oxford
Southdown	very small-framed meat breed from England
Suffolk	large framed, fast growing, black faced, meat breed from England, very popular, no wool on face or legs
Targhee	white faced, dual-purpose breed from the U.S. (1/2 Rambouillet, 1/4 Columbia, 1/4 Corriedale)
Texel	medium sized, “double” muscled breed from the Netherlands
Tunis	red faced, fat tailed breed from northern Africa



Sheep Handling Facilities

Sheep, Level II

What Members Will Learn . . .

ABOUT THE PROJECT:

- The space requirements for lambs
- The basic components of a sheep handling facility

ABOUT THEMSELVES:

- The importance of planning ahead

Materials Needed:

- Member Handout 2, Sheep Facilities
- Activity Sheet 2, Your Sheep Pen

ACTIVITY TIME NEEDED: 45 MINUTES

ACTIVITY

A facility is something we build, such as a barn or pen, as a place to keep our sheep. A good facility should provide for the needs of the lamb(s) and the owner. The basic facilities that a lamb requires include:

1. Protection or shelter from summer heat and winter cold.
2. A convenient feed trough.
3. Available fresh water.
4. Enough space for exercise.

For the owner of the lambs, a good facility should reduce the time and labor involved in working sheep, provide a safe working environment for both lamb and owner, and be built as strong, yet economical as possible.

HOUSING:

Kansas summers can get pretty hot and uncomfortable for the lambs. It is important to have cool areas for the lambs. A barn, shed or even a big tree can provide shade and much needed relief from the heat.

In the winter, lambs must have protection from wind, rain and snow. The best housing facilities are as open as the weather allows. A good roof and walls that block the wind will provide a dry environment for the lambs. It is also best to keep the feed trough under the roof or a cover of some kind to keep the feed from getting wet.

Leader Notes

In this lesson, members should learn a little about the space requirements of lambs and be exposed to various types of sheep handling facilities.

You may use Activity Sheet 2, Your Sheep Pen, before this lesson or as a follow-up activity.

Show sample shed on Member Handout 2, Sheep Facilities.

Leader Notes**ACTIVITY**

The barn or shed should be large enough to comfortably hold all the sheep. Thirty to 110 lb lambs need 8 to 10 square feet of floor space each. The floor of the barn should be covered with clean, dry bedding. This will help reduce fly problems, and keep the facility warmer in winter. Straw is generally a good winter bedding. A shed should also have electricity and adequate lighting.

EXERCISE PEN:

Lambs will spend most of their time in the exercise pen or lot. Besides exercise, an outdoor lot may provide grazing for the lambs as well. Each lamb needs 20 to 30 square feet of lot space. Construction of a lot should be done with drainage as a priority. There should always be dry places for the lambs. Also make sure that the lot drains away from the barn or shed. Pens and fences can be constructed of wire, metal or wood.

FEED AND WATER TROUGHS:

All lambs should have continual access to clean, fresh water. Each lamb may drink several gallons of water a day. The water location should be away from the feed trough. Electric waterers are convenient, but not a necessity. As long as a source of running water is close to the barn or lot, water can be carried to the pens. Large tanks or even five gallon buckets can work as water troughs. In the winter, the water must be managed so that it doesn't freeze.

Hay feeders should be large enough to allow access by all lambs. They can be made of wood or wire, as long as they hold hay, and are slatted to allow lambs to eat without wasting too much.

Feed troughs can be made from any solid material. If the lambs are limit fed, the trough should be long enough to provide 9 to 12 inches of feeder space per head. If lambs are on a self feeder, they only need 1 to 2 inches per head, as they will not all be eating at the same time.

FEED STORAGE:

A separate building or room should be set aside for feed storage. It should be large enough to hold an adequate amount of feed for the flock. It is important to keep the feed dry so it doesn't get rotten or moldy. Also, keep in mind that mice and other rodents will try to get at the feed as well. Hay and straw can be stored either inside a shed or in a separate lot. It is important that the construction of the hay and feed storage areas be good enough to keep the sheep from getting into it and overeating.

WORKING FACILITIES:

There are several reasons why we work sheep. We may give them medicine, weigh them, shear them or sort them. We sort sheep for a number of reasons. We may wish to sort the "good" ones from the "bad" ones, rams from ewes, ewes from lambs, or to pick the lambs out that we want to take to the fair. A good facility makes these activities much easier. For some of these activities, access to electricity is needed.

Show sample handling facility on
Member Handout 2, Sheep Facilities.

ACTIVITY

Leader Notes

The catch or holding pen should be a corral large enough to hold all the sheep at one time. It is advantageous if all lots and pastures open into the catch pen. A rounded design makes the sheep easier to move, since there are no corners to stop them. At one end of the crowding pen is the catch pen, usually consisting of a long swinging gate on the side of a somewhat triangular pen. The size of the crowding pen depends on the number of sheep you feel comfortable working with and the size of the working chute. It should hold a manageable portion of your lambs. The crowding pen crowds the lambs into the working chute. Chutes with solid sides work well. The chute should be narrow enough that the sheep must go through single file and not be able to turn around. The chute should be high enough to keep the sheep from jumping out, yet low enough for ease of handling. At the end of the chute should be a system of doors that allows one person to sort the sheep into at least two different pens. Some chutes may have access to a loading dock, which is a ramp allowing easier loading onto a truck or trailer. Some chutes may also have access to a scale allowing the weighing of individual lambs.

In some situations, permanent working facilities are not necessary, especially if you only have a few sheep. An adequate temporary facility can be made using steel posts, wire and wooden panels. Keep in mind that facilities should be economical, safe for both lamb and owner, and reduce the time and labor involved in working sheep.

DIALOGUE FOR CRITICAL THINKING:

Share:

1. What are the basic parts of your sheep pen? How might these parts change if your animals were not tame or halter broke?
2. What changes or improvements might you like to make to your pen? Why?

Process:

3. What aspects of sheep handling facilities are most important? Why?
4. What characteristics of sheep behavior have you encountered?
5. What type of facility design best accomodates an animal's behavior? Why?

Generalize:

6. How would you plan for facility design if you were only feeding out market lambs? How does this differ from a lambing operation? How would it differ if you did both?

Apply:

7. What features would you include in an ideal sheep handling facility?

Give out Activity Sheet 2, Your Sheep Pen, for members to use to measure their pen. If used as a follow-up activity, be sure to allow plenty of time to discuss each member's pen at the next meeting.

After measuring their own facilities, ask members to make a list of suggestions that may improve their current facilities.

Leader Notes

ACTIVITY

8. What are important aspects of the work environment where a person works each day?

GOING FURTHER:

- Tour sheep farm and observe facilities.
- Tour a livestock auction and observe facilities.

REFERENCES:

Kansas 4-H Beef Curriculum
SID Sheep Production Handbook
SID Sheep Production Youth Guide
Sheep Housing and Equipment Handbook, 1982

Author:

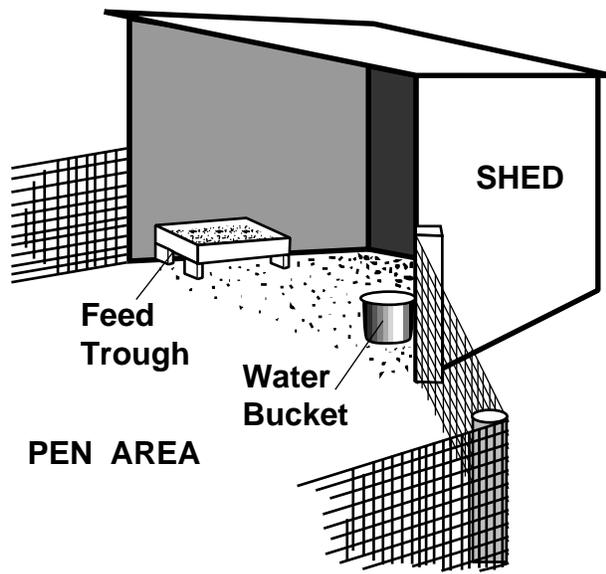
Jereme Geske, former Extension Assistant, Kansas State University
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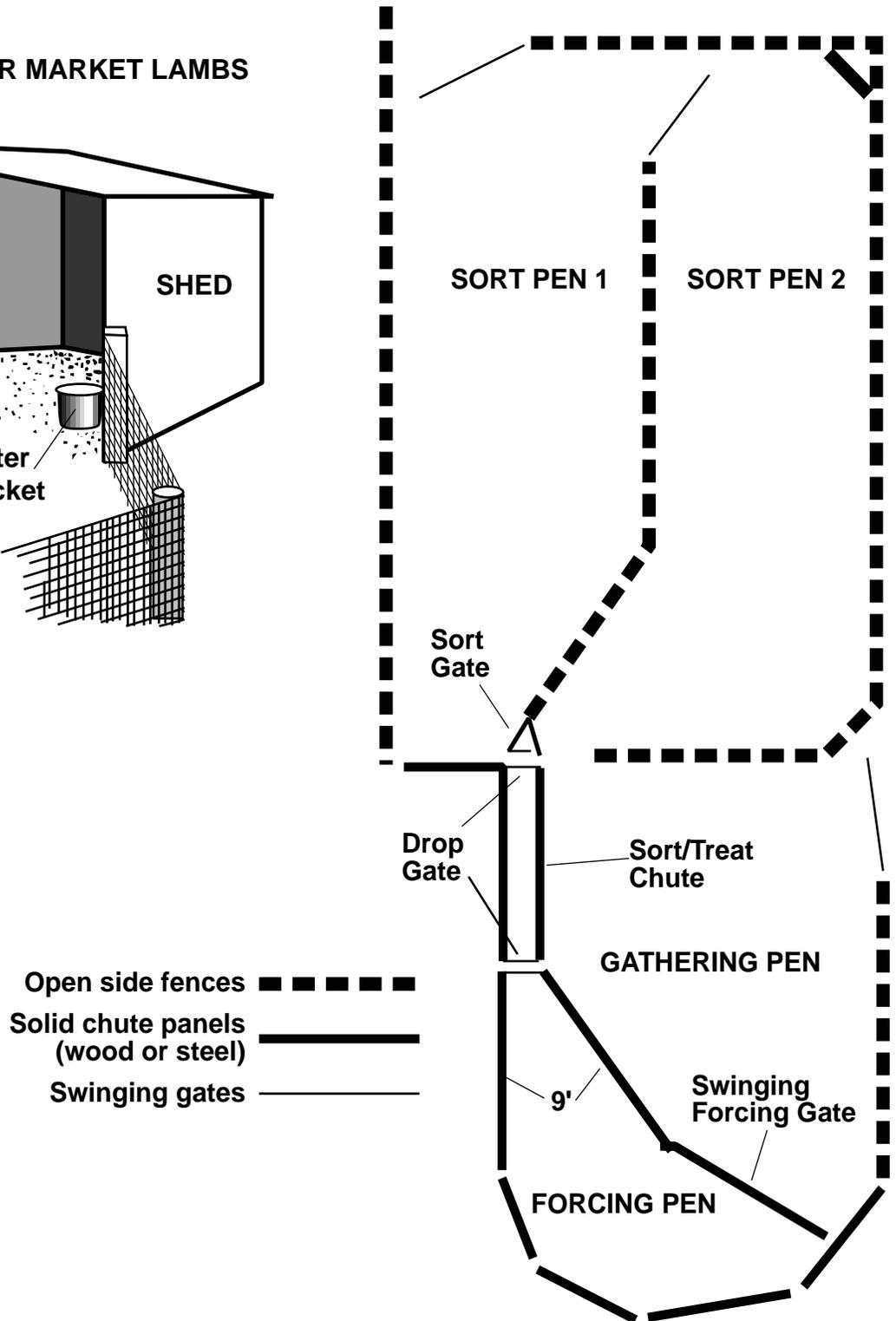
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SHEEP HANDLING FACILITIES
SHEEP, LEVEL II
Member Handout 2, Sheep Facilities

SAMPLE SHED FOR MARKET LAMBS



SAMPLE HANDLING FACILITY



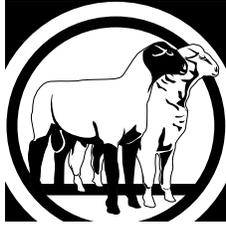
SHEEP HANDLING FACILITIES

SHEEP, LEVEL II

Activity Sheet 2, Your Sheep Pen

Directions: Answer the questions about the pen you keep your sheep in and then draw the pen. You will need a tape measure or yardstick to measure your pen. When you have finished, take this Exercise Sheet to the next meeting for your leader to check.

1. How many sheep do you keep in this pen?
2. Is your pen square, round, a rectangle, or another shape?
3. Is your pen inside or outside of the barn?
4. How tall are the gates? _____ feet and _____ inches
5. How long are each of the sides of the pen? Write their length next to your drawing.
6. How long is your feed bunk? _____ feet and _____ inches
7. How deep is your feed bunk? _____ feet and _____ inches
8. How long is your water tank? _____ feet and _____ inches
9. How deep is your water tank? _____ feet and _____ inches
10. Draw your pen below and remember to write how long each side of the pen is.



Sheep Behavior

Sheep, Level II

What Members Will Learn . . .

ABOUT THE PROJECT:

- Why sheep act the way they do

ABOUT THEMSELVES:

- Why their behavior is sometimes not perfect
- How they can change their own behaviors

Materials Needed:

- Activity Sheet 3, Behavior Jumble
- Leader's Key, Activity Sheet 3, Behavior Jumble
- Flip chart and markers

ACTIVITY TIME NEEDED: 30 MINUTES

ACTIVITY

Have you ever watched how sheep act around people or other animals?

There are many reasons why sheep act the way they do. Sheep mostly act out of instinct, but sometimes from learned experience. By understanding these factors, you can create a more stress-free environment for the lambs, and reduce the labor involved in managing them.

First of all, sheep are “gregarious.” That is, they like to stay together. It is known as flocking instinct. Where one sheep goes, the rest will likely follow. The flocking instinct is not as strong in some breeds (particularly black-faced breeds) as it is in others (wool breeds).

Lambs need companionship from other sheep, just as we like to have our friends and families around us. Lambs that have competition for food will eat more and generally be happier and healthier than those with no competition.

Because of the position of their eyes, sheep can see almost all the way around themselves.

The only real blind spot is directly behind the sheep. However, sheep have poor depth perception. This is the reason they tend to jump and be frightened by shadows or uneven floors. Some sheep may balk, and refuse to cross shadows. It is a good idea to keep your working chutes free from shadows.

Leader Notes

Ask members to name positive and negative sheep behaviors. List on flip chart.

Ask: What are the advantages of sheep staying in groups? List on flip chart.

Have the members see what their vision is. Have one person look straight ahead and another stand on each side of them. Without turning their head, check when they can see the other people.

Ask members to list some things that might scare sheep or cause them to balk, jump or run.

Leader Notes

Pass out Activity Sheet 3, Behavior Jumble, for a review of the basic concepts learned. Let members work in pairs.

ACTIVITY

When trying to herd sheep, it is best to remain calm and try to stay behind them. If they see people to the side or in front of them, they may refuse to move forward. Also, sheep are very sensitive to loud noises.

Quieter, rattling noises are more effective because yelling and screaming causes the sheep to become confused and excited, and that makes them harder to work with. Sometimes it may be easier to get sheep through a gate by leading them with a feed bucket than by trying to chase them through.

Sheep will often remember previous experiences for up to a year or more. Older sheep may often remember the way to move through a chute or corral making sorting easier. However, sheep also remember the bad experiences. They may begin to associate the working chute with painful things such as vaccinations or ear tagging. In this case, it would get harder and harder to work them.

DIALOGUE FOR CRITICAL THINKING:**Share:**

1. What did you find unusual about sheep behavior? Why?
2. What was one thing that you learned that you did not know before?

Process:

3. Why should you always remain calm with sheep?
4. What is “gregarious?” How can you use this when herding sheep?

Generalize:

5. Do you think people are “gregarious?” In what way?
6. When are some times in your life when it is best to remain calm?

Apply:

7. How can you use people’s behavior to get along better with others?
8. What is one of your behaviors that you would like to change? Why?

GOING FURTHER:

- Watch a flock of sheep and see how they behave.
- Go to a mall and watch people’s behavior. Is it similar to that of sheep? How?

ACTIVITY

Leader Notes

REFERENCES:

Author:

Jeremy Geske, former Extension Assistant, Kansas State University
James P. Adams, Extension Specialist, 4-H and Youth Programs, Kansas
State University

Reviewed by:

Clifford Spaeth, Extension Specialist, Animal Sciences and Industry,
Kansas State University
Sheep Design Team

SHEEP BEHAVIOR**SHEEP, LEVEL II****Activity Sheet 3, Behavior Jumble**

Complete the following word scramble. Each "jumble" of letters spells a word found within the discussion on sheep behavior. Using the clues, decipher the words and write them out in the spaces provided. To check yourself, write down (in order) all the circled letters in the spaces at the bottom of the page.

Clue	Jumble	Word
sheep need _____ from other sheep	CPMOANNOIPISH	_____  _____
sheep have poor depth _____	PTIONCREEP	_____  _____  _____
sheep like to stay together because they are _____	GGAROUSIRE	_____  _____
sheep often remember _____	ESENCEPERIX	 _____  _____
If one sheep goes, the _____ will follow	OSRTHE	 _____
Sheep that stick together are said to have a strong flocking _____	ISTINTCN	_____  _____  _____
Sometimes it's easier to lead sheep with a feed _____	BTUCKE	_____  _____
sheep will either balk or _____ at shadows	JPUM	_____  _____
if sheep see people off to the _____, or in front of them, they may refuse to move forward	SEID	_____  _____
(check): _____		

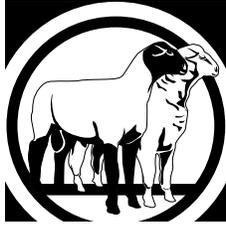
SHEEP BEHAVIOR

SHEEP, LEVEL II

Leader's Key, Activity Sheet 3, Behavior Jumble

Complete the following word scramble. Each "jumble" of letters spells a word found within the discussion on sheep behavior. Using the clues, decipher the words and write them out in the spaces provided. To check yourself, write down (in order) all the circled letters in the spaces at the bottom of the page.

Clue	Jumble	Word
sheep need _____ from other sheep	CPMOANNOIPISH	C O M P A N I O N S H I P
sheep have poor depth _____	PTIONCREEP	P E R C E P T I O N
sheep like to stay together because they are _____	GGAROUSIRE	G R E G A R I O U S
sheep often remember _____	ESENCEPERIX	E X P E R I E N C E S
If one sheep goes, the _____ will follow	OSRTHE	O T H E R S
Sheep that stick together are said to have a strong flocking _____	ISTINTCN	I N S T I N C T
Sometimes it's easier to lead sheep with a feed _____	BTUCKE	B U C K E T
sheep will either balk or _____ at shadows	JPUM	J U M P
if sheep see people off to the _____, or in front of them, they may refuse to move forward	SEID	S I D E
(check):	S H E E P A R E N O T S T U P I D	



Common Feedstuffs

Sheep, Level II

What Members Will Learn . . .

ABOUT THE PROJECT:

- Basic ingredients in a sheep's diet
- Basic roughages and concentrates

ABOUT THEMSELVES:

- The importance of a balanced diet

Materials Needed:

- Molasses
- Feed samples
- Activity Sheet 4, Feedstuff Definitions
- Leader's Key, Activity Sheet 4, Feedstuff Definitions
- One or two human food product labels

ACTIVITY TIME NEEDED: 30 MINUTES

ACTIVITY

Just as you or I eat a wide variety of foods, there are a number of grains and roughages that can make up a sheep's diet. In addition to water, vitamins and minerals, sheep will graze on grasses or forbes and eat hay. They will also consume a variety of grains. The importance of water and some of the other nutrients is discussed in an earlier lesson.

Although grains (also known as concentrates) and roughages provide some of the vitamins and minerals necessary for healthy growth, some supplementation may be necessary.

Vitamin premixes—Supplement added to a ration to insure an adequate supply of the essential vitamins.

Salt—Commonly available as all livestock require salt to maintain healthy tissue.

Other minerals, such as calcium and phosphorous, are available in a variety of supplements. Trace mineral salt can be fed to take care of any other mineral deficiencies.

A large portion of many sheep diets comes from grazing on grasses and forbes. In addition, many plants are harvested and fed as hay when grazing is unavailable. Two commonly fed hays are alfalfa and brome

Leader Notes

This lesson could easily be presented at a local feed mill for easy access to samples.

As members arrive, have various feed sitting out. As they identify each feed, discuss the purpose and uses. Discuss the general proportions of various feeds that might be needed.

Leader Notes**ACTIVITY**

grass. Roughages provide bulk in the diet and are easily digested by ruminants.

Alfalfa—A very popular hay as it meets most of the sheep's nutritional requirements and is very palatable to sheep.

Brome—A less expensive hay, fed to sheep with lower nutritional requirements.

Grains or concentrates are fed to sheep that require more energy than hay or grass can provide. When higher consumption is desired, grain is fed as it takes less storage space than bulkier hay.

Corn and milo—Grains which are high in carbohydrates and promote the fattening process.

Oats—It is higher in fiber and lower in energy than corn and milo and tends to promote more growth and less fat deposit. Generally more expensive than other grains.

Barley—Similar to corn and milo, except higher in protein and fiber. May be slightly less palatable to sheep than corn or milo.

While these grains provide energy, they may not provide enough protein. Therefore, we add a protein supplement.

Soybean meal—A common protein supplement. It is high in energy and palatability.

Sometimes, a well-balanced ration may not appeal to sheep. Sweeteners can be added to increase the palatability. These are especially necessary when young lambs are first learning to eat grain.

Molasses—A common feed additive that increases the palatability of the ration.

These are some of the common ingredients in many sheep rations. There are many others available. Most market lamb feeders will purchase a commercial completely balanced pelleted ration designed for a particular weight of lamb. Balancing rations will be discussed in other lessons.

DIALOGUE FOR CRITICAL THINKING:**Share:**

1. What ingredients are in your sheep's feed?
2. Does your lamb like a certain kind of feed better than another? Why?

Where do we receive much of the protein we require? Answer: Meat.

Let the members smell the molasses.

Give members Activity Sheet 4, Feedstuff Definitions as a review and for their record books.

ACTIVITY

Leader Notes

Process:

3. What is the main purpose of roughages? Minerals? Concentrates?
4. What type of feedstuff is needed most by a lamb? Why?

Generalize:

5. What types of food do you need the most? Why?
6. How are the foods you need different from those your parents need?

Apply:

7. Where do you find nutrient information for your food?
8. How do you know if you are eating a balanced diet?

Show can, box or human food product label to share and discuss.

GOING FURTHER:

- Visit a local feed mill and see how the ingredients are weighed and processed to make a complete ration.

REFERENCES:

Kansas 4-H Beef Leader Notebook (LN-1), 2nd Ed.

Authors:

Jeremy Geske, former Extension Assistant, Kansas State University
James P. Adams, Extension Specialist, 4-H and Youth Programs, Kansas State University

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COMMON FEEDSTUFFS

SHEEP, LEVEL II

Activity Sheet 4, Feedstuff Definitions

Match the definitions with the appropriate feedstuffs.

- | | |
|----------------------|---|
| ___ Molasses | A. Mineral fed free choice to maintain healthy tissue |
| ___ Salt | B. Added to rations to increase protein content |
| ___ Oats | C. Grains high in carbohydrates and energy |
| ___ Vitamin premixes | D. Bulky hay fed to sheep with lower nutrient requirements |
| ___ Alfalfa | E. Elements such as calcium and phosphorus necessary for bone and other tissues |
| ___ Corn or milo | F. Grain higher in fiber and lower in energy than corn or milo |
| ___ Soybean meal | G. Grain similar to corn and milo with higher protein |
| ___ Brome | H. Feed additive that increases the palatability of the ration |
| ___ Barley | I. Necessary to maintain proper body functions |
| ___ Minerals | J. High quality, high protein hay that is very palatable to sheep |

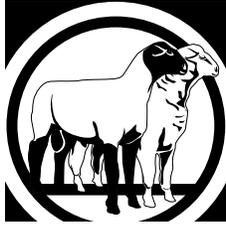
COMMON FEEDSTUFFS

SHEEP, LEVEL II

Leader's Key, Activity Sheet 4, Feedstuff Definitions

Match the definitions with the appropriate feedstuffs.

- | | |
|---------------------------|---|
| <u>H</u> Molasses | A. Mineral fed free choice to maintain healthy tissue |
| <u>A</u> Salt | B. Added to rations to increase protein content |
| <u>F</u> Oats | C. Grains high in carbohydrates and energy |
| <u>I</u> Vitamin premixes | D. Bulky hay fed to sheep with lower nutrient requirements |
| <u>J</u> Alfalfa | E. Elements such as calcium and phosphorus necessary for bone and other tissues |
| <u>C</u> Corn or milo | F. Grain higher in fiber and lower in energy than corn or milo |
| <u>B</u> Soybean meal | G. Grain similar to corn and milo with higher protein |
| <u>D</u> Brome | H. Feed additive that increases the palatability of the ration |
| <u>G</u> Barley | I. Necessary to maintain proper body functions |
| <u>E</u> Minerals | J. High quality, high protein hay that is very palatable to sheep |



How to Read a Feed Tag

Sheep, Level II

What Members Will Learn . . .

ABOUT THE PROJECT:

- Identify five types of feed nutrients
- Identify feed nutrient sources
- Identify feed tag information

ABOUT THEMSELVES:

- Identify human foods and their primary nutrient
- The importance of a balanced diet

Materials Needed:

- Activity Sheet 5, Feed Tag Quiz
- Activity Sheet 6, Cereal Box Quiz
- Feed Tags from rations (Have members bring tag from their feed sack)
- Two or more cereal boxes
- Flip chart and markers

ACTIVITY TIME NEEDED: 60 MINUTES

ACTIVITY

Understanding the information written on a feed tag will help a member identify the ingredients of a specific feed, understand the nutrient requirements of an animal and eventually learn how to balance a ration.

Proper animal nutrition is the key to a successful livestock operation or 4-H livestock project. Sheep that don't receive proper nutrition for growth and development will not be profitable and may even die.

Generally, feeds are classified into two categories: roughages and concentrates. Roughages are typically leafy green plants such as alfalfa or prairie hay, straw or silage. Roughages are less digestible than concentrates, meaning that it takes longer for them to pass through a sheep's digestive system. Young ruminants do not have the capacity to eat enough low-quality roughage to achieve normal growth.

Concentrates include cereal grains (corn, wheat, barley and milo), oil meals (soybean, linseed and cotton seed), fish meal, packing plant by-products, molasses and dried milk products. Concentrates are high in energy, low in fiber and highly digestible.

Leader Notes

Since knowledge of feed constituents is necessary for this lesson, it is recommended that you conduct the lesson on common feedstuffs before teaching this lesson, OR, take a break at the feed mill and then continue with this lesson.

Leader Notes

Remind members that this is a review of the five food groups from Level I. List nutrient on flip chart and solicit purpose and sources from the group before listing on the chart. Show physical sample if still at the feed mill.

Pass out Activity Sheet 5, Feed Tag Quiz. Give each pair of members a feed tag. If they brought their own, they can compare it to the tag supplied by the leader.

Pass out Activity Sheet 6, Cereal Box Quiz, to each pair of members and distribute cereal boxes. Each member should pick two types of cereal to compare. Have the members discuss what they found out about the cereals they compared.

ACTIVITY

Regardless of feed type, all feeds include five basic nutrients: protein, energy (carbohydrates and fats), minerals, vitamins and water. Knowing what combination of these nutrients your feed supplies is critical to a good feeding program.

Protein supplies the materials essential for the growth and development of body tissues such as muscle. Most grains and roughages do not contain enough protein to meet the requirements of a young, fast-growing lamb. Therefore, protein supplements such as soybean, linseed and cotton seed meal are used to balance the lamb's ration. Protein is expensive, so most producers try not to feed extra protein. For that reason, it is important to know your lamb's requirement as well as the composition of the feed ration.

Energy is to your lamb what gasoline is to a car. Energy sources, such as corn, milo or barley, provide the energy for walking, exercise, growth, production and so on. Excess energy is stored as fat until needed by the body.

Minerals build strong bones and teeth as well as support other life functions of the lamb. Sheep need 16 different minerals in their diet. Calcium, phosphorus and salt (sodium chloride) make up the largest portion of a lamb's mineral needs. Producers may add bone meal, dicalcium phosphate or limestone to achieve the proper balance of calcium and phosphorus. Trace mineral salts can be added to supply salt and a number of minor minerals.

Vitamins are also important, but needed in smaller amounts than other nutrients. Some rations may require a vitamin pre-mix (adding vitamins A & D) for proper nutrition.

Without **water**, life would not be possible. Many people consider water to be the most important nutrient in a lamb's diet. Water is the cheapest and often the most neglected part of a lamb's diet. A lamb's body is over two thirds water, and water is necessary for many body functions. Most feedstuffs contain a small amount of water, not nearly enough to meet the lamb's needs. Silage contains much more water than other feedstuffs.

Have you ever wondered what goes into a prepared lamb ration? The feed tag is an important tool. It tells us what ingredients are in the feed, as well as how much of various nutrients are contained in the feed. The tag may also include the weight of the feed, the brand name and manufacturer of the feed and feeding instructions. In some ways, a feed tag is a lot like the nutritional facts table on the side of the cereal box.

DIALOGUE FOR CRITICAL THINKING:

Share:

1. What are the feed nutrients?
2. What is the protein content for the feed you give your lamb?

ACTIVITY

Leader Notes

Process:

3. What is the main purpose of each nutrient?
4. What nutrient is needed most by your lamb? Why?

Generalize:

5. What nutrient might you find in other animal feeds?
6. Why do nutrient requirements vary for different ages of animals?

Apply:

7. Where else do you find nutrient information?
8. What nutrient is the most important on the label of the food you eat?
Why?

GOING FURTHER:

- Arrange a trip to a local feed mill to see how the ingredients are weighed and mixed to make a complete ration.

REFERENCES:

Zurcher, Thomas D., University of Minnesota, Ag. Extension Service
AS-11, '81.
Kansas 4-H Beef Curriculum

Author:

Jeremy Geske, former Extension Assistant, Kansas State University
James P. Adams, Extension Specialist, 4-H and Youth Programs, Kansas
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HOW TO READ A FEED TAG
SHEEP, LEVEL II
Activity Sheet 5, Feed Tag Quiz

Carefully read the feed tag supplied by your leader and answer the following questions.

1. Which ingredients are the major energy sources of your ration?

2. Which ingredients are the major protein sources of your ration?

3. Which ingredients are mineral or vitamin sources of the ration?

4. What is the percent crude protein of your ration?

5. What is the percent crude fiber of your ration?

6. Does your ration contain molasses?

Molasses does contain energy and protein, but what is the major reason it is added to lamb rations? (*Hint—it is the same reason some people add sugar to their cereal.*)

HOW TO READ A FEED TAG
SHEEP, LEVEL II
Activity Sheet 6, Cereal Box Quiz

Cereals are required to include nutritional information on the box. The label includes a list of ingredients as well as the percentages of recommended daily allowances, and amounts of some nutrients per serving. Compare two cereals.

1. Name of cereals:

A: _____ B: _____

2. Main ingredient(s):

A: _____ B: _____

3. Serving size (also servings per box):

A: _____ (____) B: _____ (____)

4. What does U.S. RDA mean?

5. Which vitamins are listed?

A: _____ B: _____

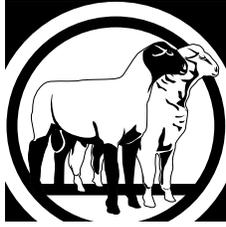
6. Does the cereal provide 100% of your daily need of any of the nutrients? If so, which ones?

A: _____ B: _____

7. Which nutrients increase when milk is added?

A: _____ B: _____

8. Which nutrients are minerals?



Identifying the Parts of a Lamb And Wholesale/Retail Carcass Cuts

Sheep, Level II

What Members Will Learn . . .

ABOUT THE PROJECT:

- To identify the parts of a live lamb
- The wholesale cuts of a lamb carcass
- Major retail cuts of lamb

ABOUT THEMSELVES:

- Their preferred style of learning

Materials Needed:

- Activity Sheet 7, Parts of a Lamb
- Leader's Key, Activity Sheet 7, Parts of a Lamb
- Activity Sheet 8, Lamb Carcass
- Leader's Key, Activity Sheet 8, Lamb Carcass

ACTIVITY TIME NEEDED: 30 MINUTES

ACTIVITY

LIVE LAMB PARTS

One of the first things that a member must know before moving on to different aspects of the sheep project are the proper names for the parts of their lamb. This will serve as the basis for many things such as judging, selection, and general discussion of sheep.

Leader Notes

There are many ways to teach this lesson.

1. Distribute Activity Sheet 7, Parts of a Lamb, with blank lines to be filled in by the members. Have members work in pairs to fill in as many as possible and then use the leader key to discuss answers and assist the members in completing their worksheet.
2. Using Activity Sheet 7, Parts of a Lamb, or a large drawing or poster, point out the different parts and have different members name the part. Team competition can be accomplished by having animal part names on slips of paper, dividing the group up into teams and having them take turns to see which team can identify where the part is on the animal. To add interest, put Velcro on the back of lamb part cards and have members stick them on a live lamb.

Leader Notes

3. Roll Call—At the beginning of the meeting, have each member answer roll call by naming a part of the animal.
4. Number Game—Using a large drawing or blank lamb parts sheet, leader points to a member and calls out a number. The member must name the part of the animal with that number.

Pass out Activity Sheet 8, Lamb Carcass, and use it as a reference as you discuss the parts. Connect the retail cuts to the wholesale cuts. Use Velcro on the back of carcass part cards and stick them on a live lamb.

ACTIVITY

WHOLESALE CARCASS CUTS

Let's review some terminology.

Carcass—the part of the animal we eat after the pelt and offal is removed

Lamb—the meat from young sheep

Mutton—the meat from mature sheep

Consumer—people who use lamb and wool

One of the major uses of sheep in this country and around the world is for meat. It is important to understand the different parts of a lamb carcass; and from which of these parts are the popular and expensive cuts made. The lamb carcass is divided into 6 wholesale cuts by the processing plant.

The most expensive retail cuts (those sold at the grocery store) such as lamb chops and rack of lamb come from the **loin** and **rack**. Lambs with a lot of muscle in these areas are desirable. A large portion of the meat obtained from a lamb carcass comes from the **leg**. It is commonly used in roasts and referred to as leg of lamb. The **shoulder** provides a lot of meat and is less expensive than the meat from the leg, loin or rack. It is typically used for roasts or arm chops. The **breast** and **foreshank** provide a relatively small amount of the total meat produced by a lamb carcass. The meat from these parts is inexpensive compared to the loin, rack and leg. Most common retail cuts from the breast and foreshank are riblets and ground lamb.

DIALOGUE FOR CRITICAL THINKING:

Share:

1. What sheep animal parts did you already know?
2. What new parts did you learn?
3. What wholesale carcass parts did you know? Learn?

Process:

4. Why is it important to know the parts of a lamb?
5. Which parts do you think are the best indicators of muscling in a lamb? Why?
6. What are the similarities and differences between live and carcass parts?

Generalize:

7. What techniques did you use to learn the parts of an animal that will help you learn other things?
8. What did you discover about your learning habits?

ACTIVITY

Leader Notes

Apply:

9. How will knowing the parts of a lamb help you in the future?

10. What learning techniques might you use next time to learn the purpose or importance of each part in addition to the name?

GOING FURTHER:

- Visit local processing plant.
- Prepare an exhibit showing the different parts of a lamb.
- Illustrate the parts of a sheep with a live sheep, allowing members to touch the sheep.

REFERENCES:

Kansas 4-H Beef Leader Notebook (LN-1), 2nd ed.
SID Sheep Production Youth Guide

Authors:

Jeremy Geske, former Extension Assistant, Kansas State University
James P. Adams, Extension Specialist, 4-H and Youth Programs, Kansas State University

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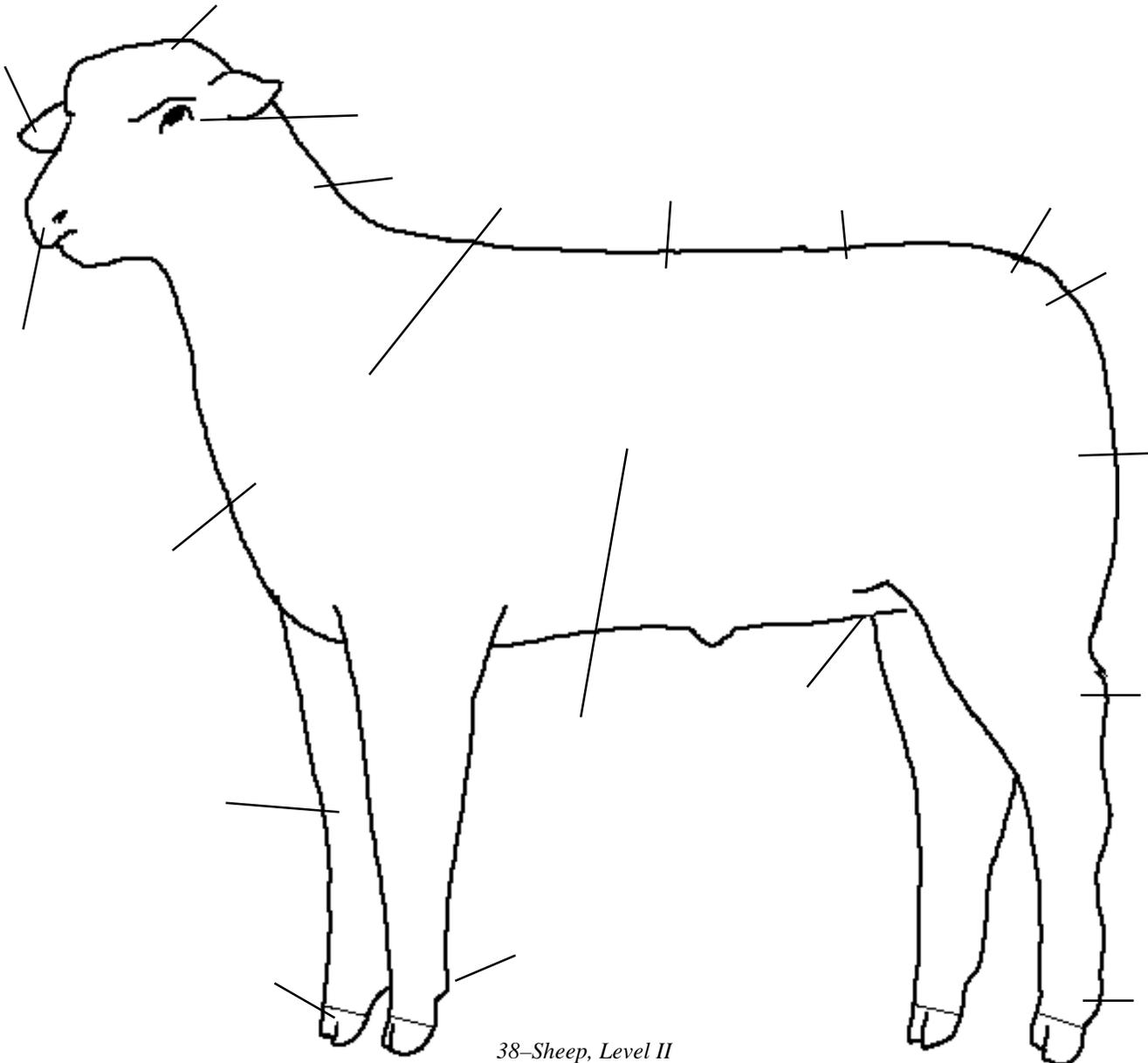
**IDENTIFYING THE PARTS OF THE LAMB
AND WHOLESALE/RETAIL CARCASS CUTS
SHEEP, LEVEL II**

Activity Sheet 7, Parts of a Lamb

Match the part of the lamb with the correct number

Parts

- | | | |
|-------------------------------------|--|---|
| 1. chest (also known as the breast) | 8. hoof | 14. pastern (area between the hoof and dew claws) |
| 2. dew claws | 9. knee | 15. poll |
| 3. dock | 10. leg | 16. ribs |
| 4. ear | 11. loin (together, the loin and rump make up the hind saddle) | 17. rump |
| 5. eye | 12. muzzle | 18. shoulder |
| 6. flank | 13. neck | 19. back/rack |
| 7. hock | | |



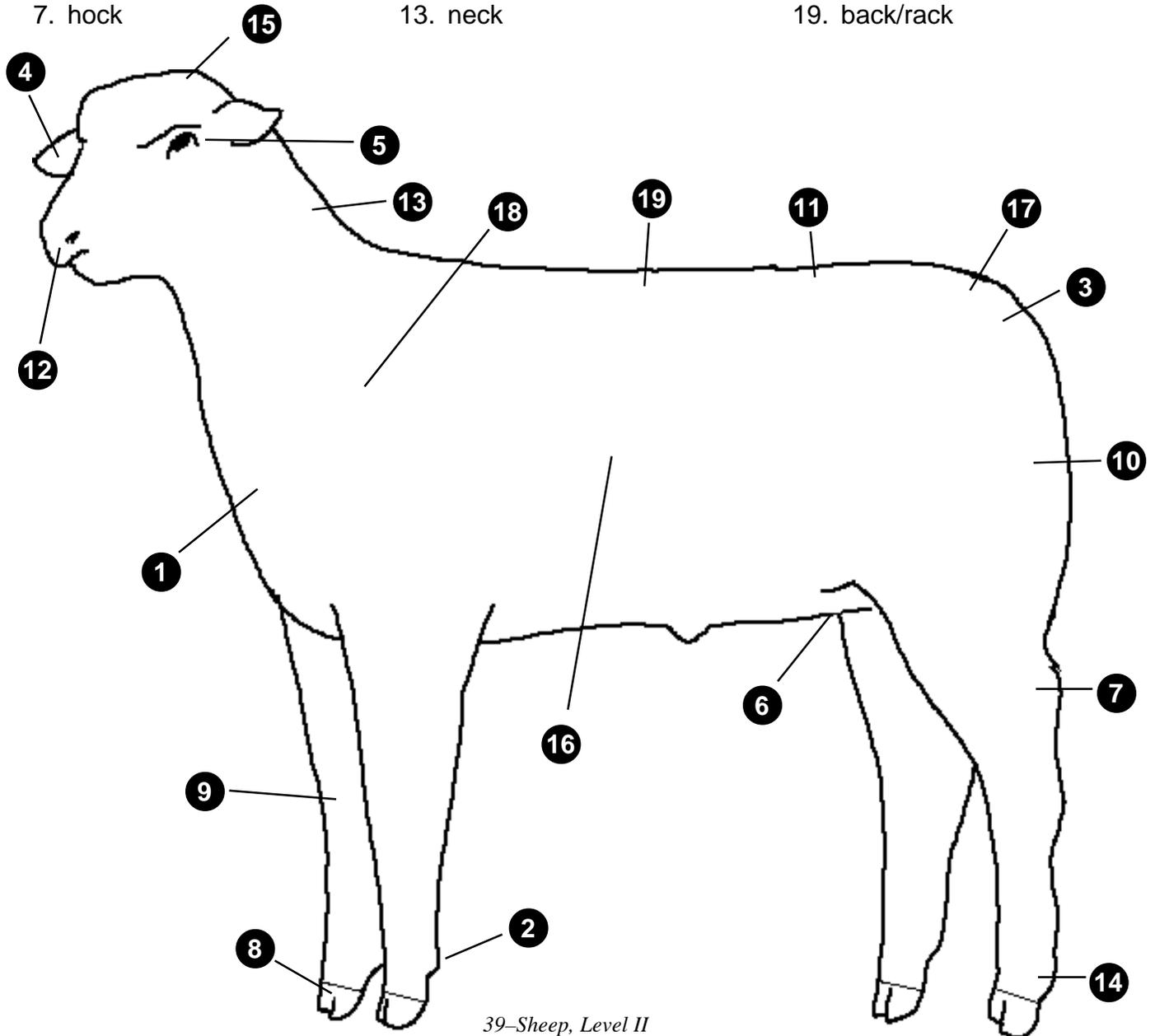
**IDENTIFYING THE PARTS OF THE LAMB
AND WHOLESALE/RETAIL CARCASS CUTS
SHEEP, LEVEL II**

Leader's Key Activity Sheet 7, Parts of a Lamb

Match the part of the lamb with the correct number

Parts

- | | | |
|-------------------------------------|--|---|
| 1. chest (also known as the breast) | 8. hoof | 14. pastern (area between the hoof and dew claws) |
| 2. dew claws | 9. knee | 15. poll |
| 3. dock | 10. leg | 16. ribs |
| 4. ear | 11. loin (together, the loin and rump make up the hind saddle) | 17. rump |
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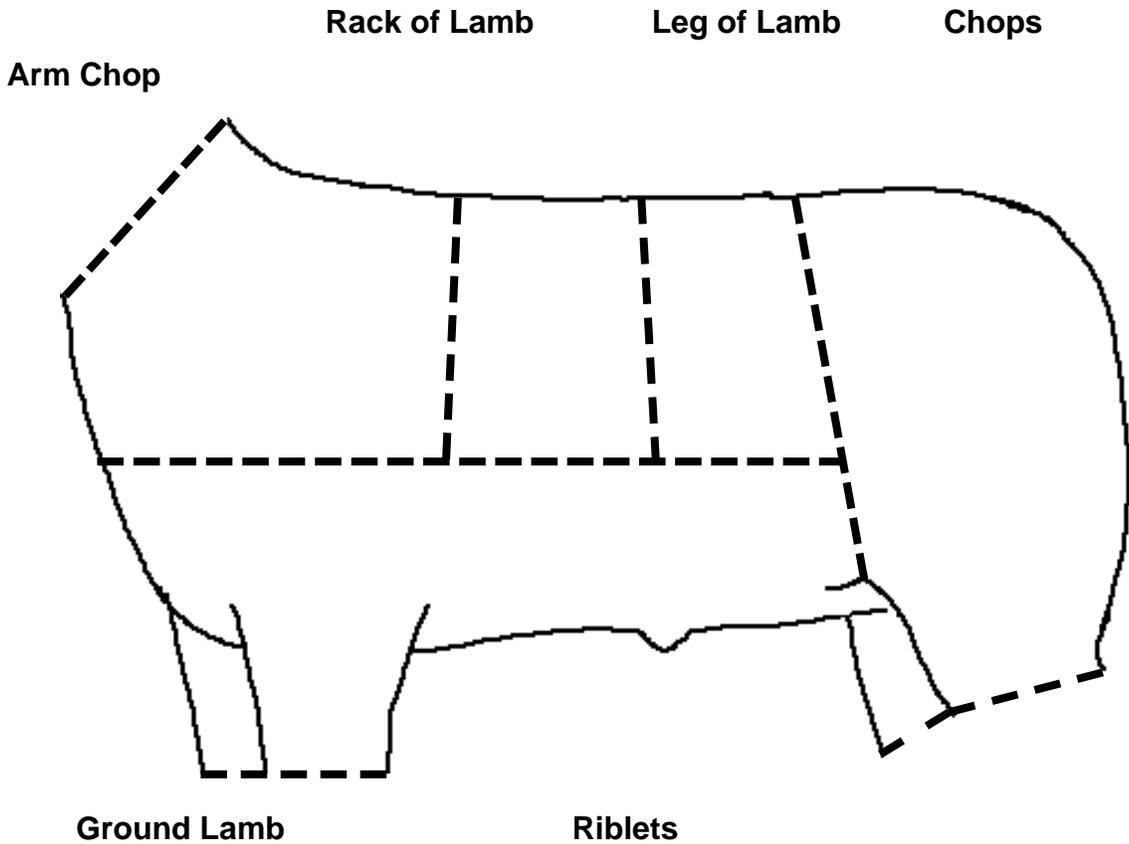


**IDENTIFYING THE PARTS OF THE LAMB
AND WHOLESALE/RETAIL CARCASS CUTS**

SHEEP, LEVEL II

Activity Sheet 8, Lamb Carcass

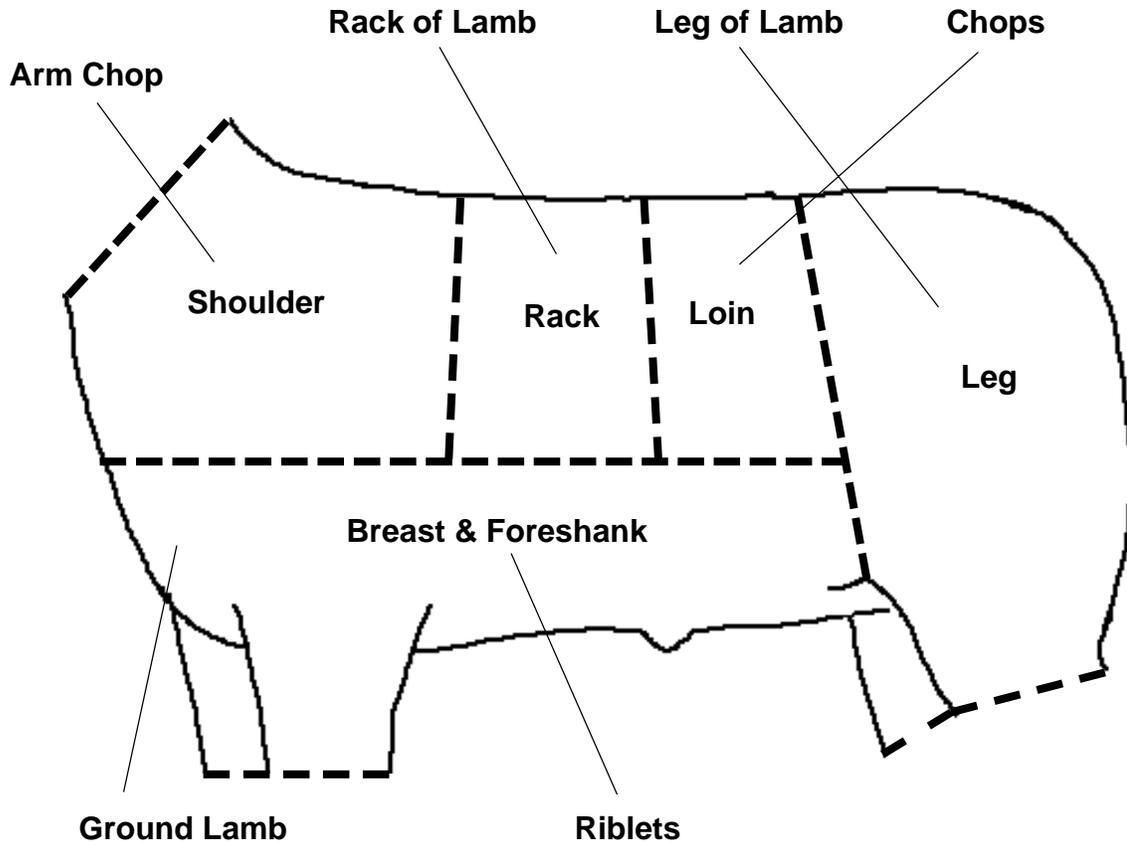
Label the six wholesale cuts. Draw a line from the retail cut to the proper wholesale cut.



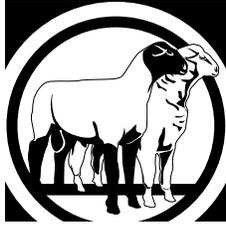
**IDENTIFYING THE PARTS OF THE LAMB
AND WHOLESALE/RETAIL CARCASS CUTS
SHEEP, LEVEL II**

Leader's Key, Activity Sheet 8, Lamb Carcass

Label the six wholesale cuts. Draw a line from the retail cut to the proper wholesale cut.



IDENTIFYING THE PARTS OF A LAMB



Beginning Lamb Judging

Sheep, Level II

What Members Will Learn . . .

ABOUT THE PROJECT:

- Major parts of the lamb
- What to look for in judging sheep
- Procedure to follow in judging a class of animals

ABOUT THEMSELVES:

- Importance of planning tasks step by step
- Decision-making process

Materials Needed:

- Sheep for judging, if possible 2 to 4 market lambs or 2 to 4 ewes, pictures or slides
- Activity Sheet 7, Parts of a Lamb (from previous lesson)
- Member Handout 3, The Ideal Lamb, Side View
- Member Handout 4, The Ideal Lamb, Rear View

ACTIVITY TIME NEEDED: 2 TO 6, 45 MINUTE SESSIONS

ACTIVITY

Learning to properly judge sheep for contest or business purposes is one of the best ways to become aware of sheep production goals. Sheep are raised according to guidelines set forth by individuals, businesses and research, but most of all by the demands of the consumer as to the type of product they desire. So, as lamb is being produced, producers are striving to supply the consumer with what they want in order to receive top price from the buyer.

Before beginning to judge, there are several factors to consider before placing or rank ordering, a group of animals:

1. Why do we judge lambs? (market or reproduction)
2. What characteristics make an animal valuable for the purpose?
3. How do the animals compare with the ideal animal?

JUDGING MARKET LAMBS

As you judge, develop a definite pattern or system. The first step is to get a good overall impression of the group and of each individual. You can get this best from about 25 feet away from the class.

Leader Notes

Session One: Review parts of a lamb from previous lesson and study ideal lamb from three views.

Session Two: Review judging pattern, study market sheep ideals.

Session Three: Review judging pattern, study breeding sheep ideals.

Session Four: Learn steps in placing a class and apply them to a market lamb class.

Session Five: Review steps in placing a class and apply to a breeding class.

Several more practice sessions will be needed before members become comfortable with the process.

Leader Notes

Be sure members know the terms and parts you are talking about.

Pass out Member Handout 3, The Ideal Lamb, Side View. Discuss each part and what it should look like. Identify parts on live lambs when possible.

Pass out Member Handout 4, The Ideal Lamb, Rear View. Discuss each part and what it should look like. Identify parts on live lambs when possible.

ACTIVITY

Live market lamb evaluation is essentially an estimation of important carcass characteristics. The purpose of a market lamb is to produce a lean, heavily-muscled carcass. All other traits are relatively unimportant. The first thing we want is for our market lamb to have lots of muscle. We look for muscle in two main places, down the top and in the rear legs. If a lamb has a thick, firm top, it will have a lot of muscle in the loin. The loin muscle runs along either side of the spine, from the shoulder to hip. Longer-bodied lambs are desirable because they will have more length of loin. Also, a market lamb should have a thick, bulging rear leg. The leg also produces a large portion of the more valuable cuts of a lamb carcass. A lamb that is narrow and pointed along its top, and flat along its rear leg is light muscled and will yield a poor carcass.

Side View

The following characteristics should be considered when viewing the lamb from the side:

1. General conformation and size. A good animal is rectangular in appearance.
2. Straightness of top and bottom lines.
3. Length of rump.
4. Levelness of rump.
5. Length of body measured from nose to tailhead.
6. Trimness of body.
7. Length of leg.
8. Correctness of leg (straightness).
9. Amount of muscling in forearm and leg.
10. Trimness and cleanliness of breast.

Rear View

In observing a lamb from the rear, the lamb is evaluated for:

1. Width and depth of leg.
2. Depth of twist.
3. Turn or roundness of top.
4. Uniformness of width in back, loin and dock.

ACTIVITY

Leader Notes

Front View

In observing a lamb from the front, the following characteristics are observed:

1. Width between the front legs.
2. Muscling in the shoulders.
3. Trimness of breast.
4. Soundness and correctness of front legs.
5. Size and shape of head.

Refer to Member Handout 3, *The Ideal Lamb, Side View*, while discussing the front view of the lamb.

The second thing to look for in a market lamb is the amount of fat, also known as finish or condition. It is desirable for lambs to be very lean. Some good places to look for fat on lambs are down the spine, along the ribs behind the front leg, and across the chest. Run your fingers down the center of the top of the lamb. The leaner the lamb, the more easily you will be able to feel the bumps indicating the bones of the spine. It will be more difficult to feel the spine on a fatter lamb. Next, run your fingers along the ribs, right behind the front legs. On a lean lamb, you should easily be able to feel each rib. As lambs get fatter, the ribs will be covered and more difficult to feel. Also, the lamb may deposit condition on its chest. Feel the chest to check for this. If you are unable to handle the lambs, judging becomes more difficult. Then you have to train your eye to see differences in fat and muscle. Remember—muscle is round or curved and fat is flat!

A few other things may influence the final placing of a market lamb class. The size of the lamb may be important, as a larger lamb may yield a heavier carcass with the potential for more total pounds of muscle. The normal range for market lambs is from 90-140 pounds. Lambs should be level topped, and deep bodied, yet trim middled. A lamb with a big belly could be a wasteful lamb.

PLACING A CLASS

Now you know what to look for in an ideal lamb and you are ready to compare lambs or judge a class of four sheep. The sheep will be numbered from left to right with you standing behind them. Place the lamb that is closer to the ideal first, the next one second and so on.

If you become confused, step back and remember what the class is being judged for (market or breeding) and how the lambs compare to the ideal. Remember, your first impression is usually correct.

An orderly system of judging should be followed each time a group of sheep is judged. Judging is composed of five steps: 1) an overall view; 2) side view; 3) rear view; 4) front view, and 5) close inspection.

If it is possible, have two market lambs to compare, or a class of four animals as a summary to this session. Have members select the best animal in each pair or place a class and tell why they selected the animals. Pictures or slides could also be used.

Leader Notes

ACTIVITY

JUDGING BREEDING SHEEP:

Visual evaluation of breeding sheep is more difficult because there are a lot more factors that need to be considered. The profitable breeding sheep is structurally and reproductively sound, highly productive, growthy and efficient. Although muscle is still important, it is not as important as in market lambs. Also, breeding sheep do not need to be as lean as market lambs, but still shouldn't be excessively fat.

A growthy sheep is a big framed animal. One that is tall at the shoulder, and very long from front to rear. A good sound structured sheep will be more efficient, more productive and live longer than a poor structured sheep. A sound structured sheep is heavy boned, stands straight and square on all four legs, and walks with a long, easy stride. A sound structured sheep is also level down its top, from shoulder to dock, giving it more internal volume in which to take in feed and convert that feed to energy and growth.

The purpose of breeding stock is to reproduce; therefore, visual evaluation of the external reproductive organs is important. In addition, a lamb should be well-balanced, alert and generally eye appealing. Ewes should have a refined, feminine appearance. Rams should be rugged and masculine. If evaluating wool breeds, quality of fleece is another consideration. The fleeces of wool breeds should be fine, dense and uniform (as discussed in other lessons on wool and wool judging). Breed characteristics may also be important.

When judging a class, rank the lambs in order from the one you feel combines the most of the "good" qualities with the fewest "bad" qualities to the lamb that has the least "good" qualities and the most "bad" qualities.

SUMMARY

Live animal appraisal is used by all segments of the sheep industry—whether you are a producer selecting a project animal or a member of a livestock judging team.

DIALOGUE FOR CRITICAL THINKING:

Share:

1. What items do you see best from each view? (Rear, side, front)
2. What items do you determine by touch?
3. What was the most difficult item to determine? Easiest? Why?

If it is possible, have two or four breeding ewes to compare as a summary to this session. Have members select the best animal in each pair or place a class and tell why they selected the animals. Pictures or slides could also be used.

Review the procedure for placing a class from the market lamb session.

More advanced lessons on judging will go into organizing and giving oral reasons as well as being more detailed on the differences between "good" and "bad" traits.

ACTIVITY

Leader Notes

Process:

4. What are the major differences to consider when selecting market versus breeding sheep?
5. Why is it important to develop a pattern, procedure, or sequence when judging sheep?

Generalize:

6. When do you need a procedure or pattern to do other things? List and discuss.
7. What did you learn about yourself as a result of the process in this lesson?

Apply:

8. When might you use this evaluation process in the future? Why?

GOING FURTHER:

- Evaluate your project animal(s) and describe good and bad points.
- Judge your project animals. If there is more than one, select the best animal. Tell why the decision was made.
- Visit a local livestock auction and practice evaluating animals and guessing weight.
- Participate in a livestock judging contest.
- Take a field trip to a livestock show and judge animals in a class. Compare decisions with an official judge.

Leader Notes

ACTIVITY

REFERENCES:

4-H Livestock Judging Guide, S-92, Kansas State University Extension
Distribution Center

Kansas 4-H Beef Leader Notebook, LN-1, 2nd Ed., Kansas State
University

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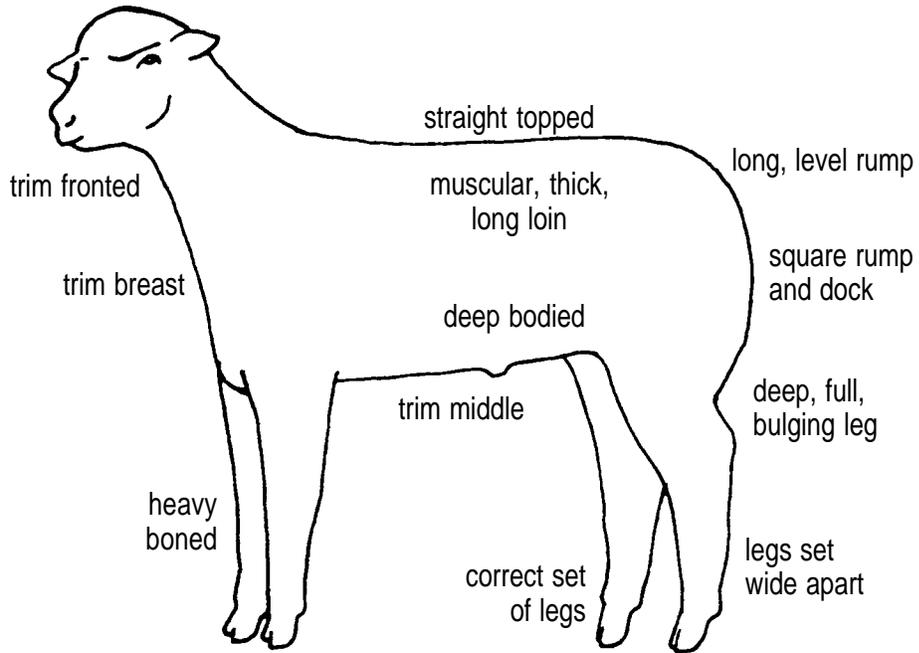
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Sheep Design Team

BEGINNING LAMB JUDGING

SHEEP, LEVEL II

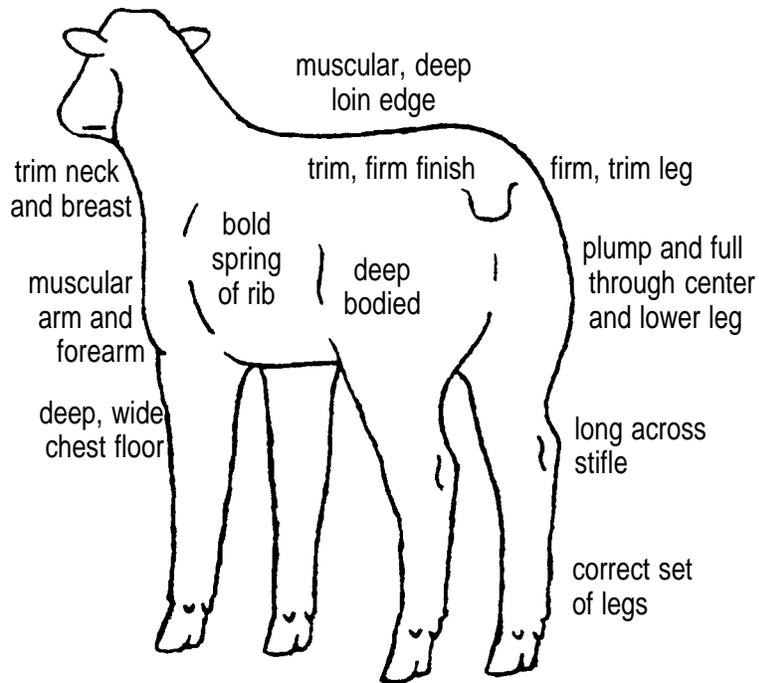
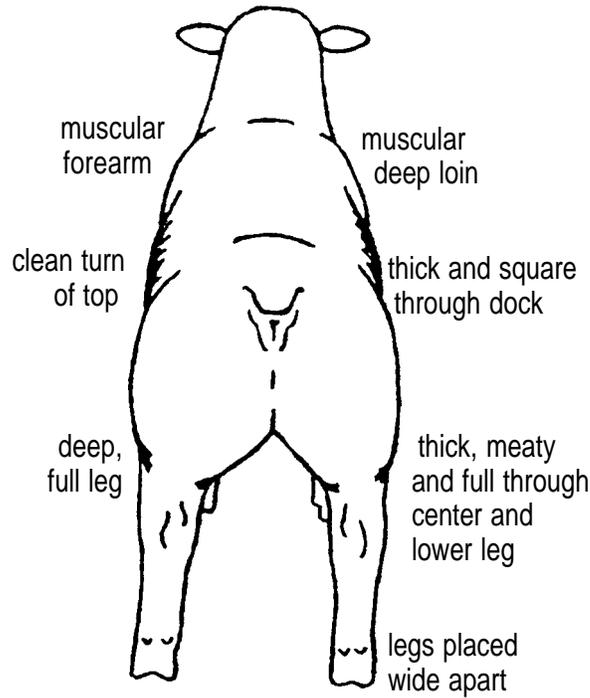
Member Handout 3, The Ideal Lamb, Side View

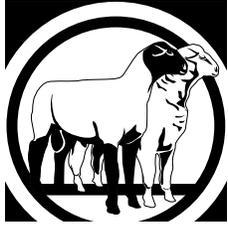


BEGINNING LAMB JUDGING

SHEEP, LEVEL II

Member Handout 4, The Ideal Lamb, Rear View





Which One?—Lamb I.D.

Sheep, Level II

What Members Will Learn . . .

ABOUT THE PROJECT:

- Methods of identifying lambs
- Why identification is important

ABOUT THEMSELVES:

- The importance of good identification

Materials Needed:

- Activity Sheet 9, Let's Play Tag
- Ear tags and applicators
- Ear notcher
- Tattoer
- Paint brands
- Strips of corrugated cardboard

ACTIVITY TIME NEEDED: 45 MINUTES

ACTIVITY

One of the major tasks of a sheep breeder is to obtain or design and implement a record-keeping system. Record keeping is exceedingly important if you are to utilize any type of selection or evaluation program. If you don't have records, it is difficult to make accurate decisions regarding the management of your sheep flock. A record-keeping system can be very extensive. Records may be kept on everything from lamb weights and sale prices to feed costs and feed usage. One constant; however, to any "good" record-keeping system is some form of individual identification.

Sheep can be identified in a number of different ways. Paint brands and chalk marks are short-term, temporary methods of identification. For example, when administering some form of medication to the flock, chalk marking the ones that have received the medication prevents any from being missed or from receiving multiple doses. Paint brands last a little longer than chalk, but are still only temporary, and may de-value the fleece. By paint branding a ewe and her lambs with the same number, a shepherd can identify those ewes which weaned the best lambs. This does not; however, reveal any previous years performance. In other words, you only have the current year's production to base your selection on. Paint branding is easy to do and can be read from long distances; however, it can be messy.

Leader Notes

This lesson is for members to learn about identifying lambs at birth for a flock. Be sure to talk about the weighing and tagging system used for county and state shows.

Leader Notes

Show examples of the different tags and applicators.

Give each member a strip of corrugated cardboard. Pretend the cardboard is a lamb's ear. Have them practice applying several types of ear tags to their "lamb ear."

Have each member take another strip of cardboard. Pretend the cardboard is the lamb's ear. Assign each member a number for his/her "lamb." Have them use the tattoo plier (No ink as it would be too messy) to tattoo their "lamb" with its number.

ACTIVITY

The most common method of sheep identification is ear tagging. There are many different types of tags and applicators. Most 4-H lambs are identified with ear tags. Ear tagging is an easy, relatively inexpensive method that usually lasts much longer than paint branding. It is not; however, permanent, as tags may be lost. Ear tags are usually made of plastic and come in a variety of colors, shapes and sizes. Ear tags are relatively easy to read if done properly and with the appropriate size of ear tag. Some tags may have the flock name printed on back as a means of identifying ownership.

The tag should be attached to the outer half of the ear. Puncture the ear between the veins to avoid excess bleeding.

The type of ear tag you use on your sheep often depends on personal preference. A good ear tag is easy to read, convenient to use and is difficult for the sheep to lose.

Tattooing is one permanent method of identification. Many registered sheep are tattooed in the ear to insure correct identification in the event that the ear tag is lost. In order to read a tattoo, the sheep must be restrained. A tattoo tool is sort of like pliers. It has a flat end, and a jaw for the adjustable number needles. A lamb's ear should be cleaned. Squeeze the tattoo plier with the number needles on the inside of the ear. Remove the plier and rub the tattoo ink on the inner ear where the needles contacted the skin. The ink dries in the depressions made by the needles and you have a permanent mark inside the lamb's ear. There are a variety of tattoo applicators available. Most have three or four adjustable numbers and/or letters which can be arranged into the desired tattoo. As you might expect, tattoos are more difficult to read on black faced sheep.

Ear notching is a very old method of permanent identification. It can be done with a pocket knife or a commercial notching plier. Typically, notching the end of the ear is used more as a means of culling than as a means of identification. At any time during the year, the shepherd may notch the ear of any sheep he or she feels must be culled. When it comes time to sell, the sheep with ear notches are easy to sort from the rest. Also, you don't have to worry about misreading an ear tag, or losing the list of tag numbers of the sheep you had written down to cull.

Another method of permanent identification is nose printing. That will be discussed in another lesson.

Once you decide on a method of identification, a numbering system must be installed. This applies mostly to ear tags, but may also be used for paint brands or tattoos. The numbering system can be very simple to very complex, depending on your needs. Some ear tags are pre-numbered, while others are blank. Blank tags allow you to develop a more complex numbering system. Typically, a lamb's ear tag should convey at least two items of information, the lamb number and the year of birth. Some

ACTIVITY

Leader Notes

systems may also include some reference to sire or breed. It is important to develop a system that you, the owner, can understand. For example, lamb # 9401 or # 94-1 might indicate the 1st lamb born in 1994. Conversely, # 9513 or # 95-13 might be the 13th lamb born in 1995. It may be difficult to put more than 4 or 5 numbers on a sheep ear tag; therefore, if you have a large number of lambs, you may need to alter the system. Sometimes, producers change the color of the tag each year. For instance, lamb # 201 with a green tag might be the 201st lamb born in 1993, while lamb # 002 with a blue tag might be the 2nd lamb born in 1994. The year could be shortened to just 1 digit like 3-27 (being the 27th lamb born in 1993). On the other hand, some sheep live for more than 10 years which could lead to more than one sheep with the same number in your flock. This could cause havoc with your records. A letter code could be used for year such as 7Z or 3X (being the 7th lamb born in 1990 and the 3rd lamb born in 1988, respectively). If color of tag is not being used to indicate year, it may be used to indicate sire. For example, all lambs with red tags are by sire A, lambs with white tags are by sire B and lambs with black tags are by sire C. If a flock consists of multiple breeds, a numerical or alphabetical code may be used to indicate breed of lamb or of sire.

Typically, when a lamb is born, it is given a number. That number and the dam's number are recorded. Any future data collected can then easily be traced to the individual, its' dam and possibly sire as well. Data can be used to make selection decisions on the lambs and the parents. It sounds very complex, but it can be as simple as you want to make it. It all depends on how much information you wish to know simply by looking at the ear tag.

Give each member an Activity Sheet 9, Let's Play Tag. Remember several solutions are possible.

DIALOGUE FOR CRITICAL THINKING:

Share:

1. How do you identify your sheep? Why do you do it this way?
2. Do you think if you had a large flock of sheep your I.D. method would change? Why or why not?

Process:

3. Why are some sheep tattooed?
4. Is ear tagging a permanent method of Identification? Why or why not?

Generalize:

5. Why is it so important to have a good, functional and efficient I.D. system?
6. What kind of identification do you have? Why is it so important?

Leader Notes

ACTIVITY

Apply:

7. What would happen if you were watching a football game on TV and all the players had the same numbers and looked the same. How could you tell who the quarterback was, or what his statistics were?

8. What forms of identification will you need in the future? Why?

GOING FURTHER:

- When buying show lambs, ask the producer to explain I.D. of the lambs you purchase.
- Have a sheep producer come in and talk about his/her identification system.

REFERENCES:

Kansas 4-H Beef Leader Notebook (LN-1), 2nd ed.
SID Sheep Production Handbook

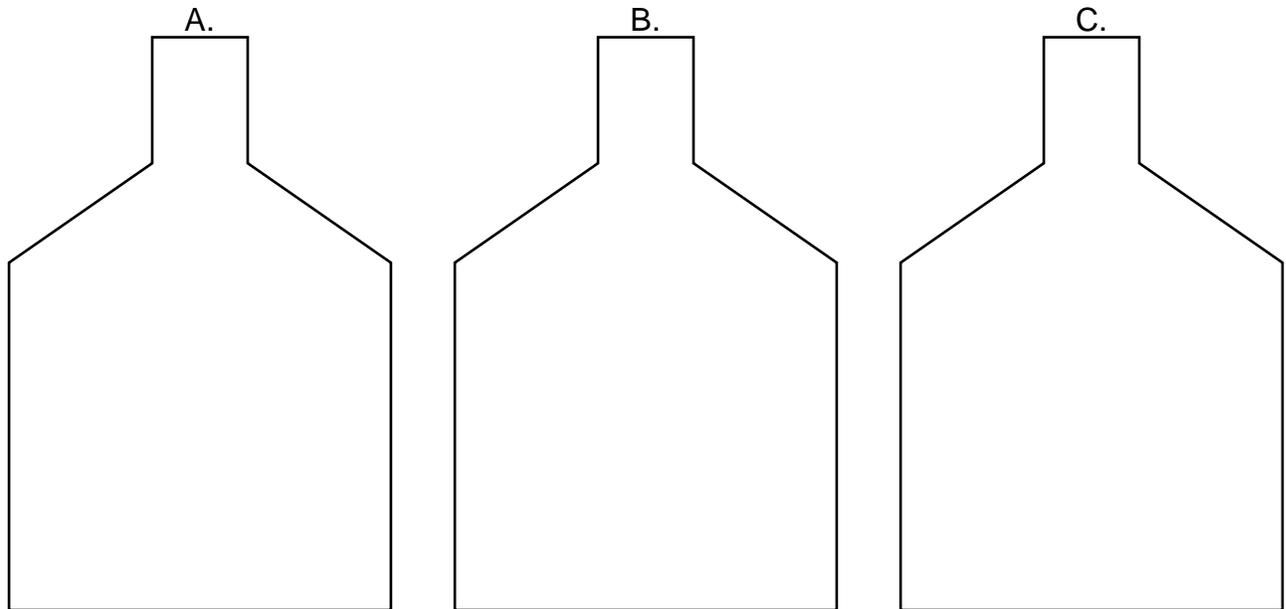
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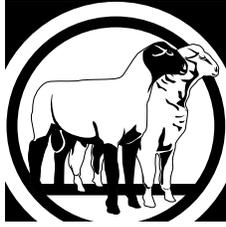
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WHICH ONE? LAMB I.D.
SHEEP, LEVEL II
Activity Sheet 9, Let's Play Tag



1. On tag (A), indicate how you might identify the 43rd lamb born in 1995, if you had a small flock and used only one sire.
2. Repeat this for tag (B), but assume that you are expecting more than 1,000 lambs to be born in 1995, and that you aren't concerned about sire.
3. Repeat part two for tag (C) assuming that you used multiple sires, that this lamb is out of sire J, and that sire information should be indicated by the tag.



Nose Printing Lambs

Sheep, Level II

What Members Will Learn . . .

ABOUT THE PROJECT:

- The purpose of nose prints.
- The market lamb show nomination process.
- How to take a good print.

ABOUT THEMSELVES:

- Importance of sequence and timing.
- Patience.

Materials Needed:

- Market Lamb Nose Print Nomination KJLS and KSF, MG-30, (Minimum one card per lamb or member)
- Nose board
- Two or three lambs
- Terry towel
- Felt ink pad
- Black ink
- Small clip board
- Member Handout 5, Nose Print Samples

ACTIVITY TIME NEEDED: 60 MINUTES

ACTIVITY

Nose printing is a supplemental identification process to other identification procedures such as ear tagging. To be effective, nose printing requires:

- clear prints with good definition
- an experienced print reader

Nose prints are a dependable way of identifying individual lambs. The “nose print” pattern does not change and is individualistic like fingerprints. The print pattern can be stretched, skewed to one side or compacted, depending on how the lamb is held. Stretching, skewing or compacting the pattern makes the print difficult to compare to a print from a more normal, relaxed position of the nose surface.

Leader Notes

To illustrate what will happen with sheep, use the equipment to fingerprint each member. Compare fingerprints to lamb nose prints. When are human fingerprints used? Why?

Discuss with the group the purpose of nose printing (permanent identification). When is this helpful? Why is it required for major shows?

Leader Notes

ACTIVITY

THE SYSTEM

The first step in the system is to take the nomination prints. This is usually done along with ear tagging when a member declares a lamb as an official nominee in a lamb show. (Approximately 90 days before the show.) The nomination card, with the nose prints on the card, is sent in with the appropriate fee to nominate a lamb. If the prints are legible, the nomination is accepted and the lamb is eligible to be entered in the show requiring the nose print nomination.

Additional prints are taken to confirm the identity of the lamb. The second (or additional) print is compared with the nomination print. If the reader declares that they match, the two prints are stapled together and refiled.

Additional prints may be taken:

- when the lamb loses an ear tag
- when the lamb is brought to a show
- when there is a challenge or dispute regarding identity
- when the lamb places in the top two of its class at a show

Give each member a lamb nose print card, MG-30, and discuss the specific dates, fees, etc. for the nomination process required by the shows your members plan to enter.

PROCEDURE

The nose printing operation should be set up in a convenient place, both for bringing in the lamb and for the nose printer. A metal fence section in a runway or a metal gate works quite well. A nose board will help constrain the lamb. The board is about 10" × 14" with an oval hole approximately 3" × 4" in the middle. The side of the board facing the lamb and the edge of the hole should be padded to protect the lamb. Carpeting or carpet padding works well. A ¼-inch hole in each corner of the board allows wiring to fence rails. The board should be positioned to match the nose height of most lambs to be printed. A helper can also constrain a lamb by standing over the lamb and holding the head up with one hand on either side of the head. It is very important that the head be held still during printing. Any movement will blur the print.

The following procedure is suggested:

1. Clean and dry the nose with a terry towel.
2. Ink the nose by "patting" the nose with a "felt" ink pad that has had a light to moderate application of black ink. Using a "foam" pad, pressing too hard, and/or having too much ink on the pad will result in prints with little or no definition.
3. Pat the card against the nose to take the print. A light, quick pat or press will result in an acceptable print. Movement of the nose, rolling, and/or pressing the hand will result in poor prints.

ACTIVITY

Leader Notes

From the time the nose is cleaned, the printer has about 2 to 5 seconds to get a print before the nose becomes too moist. White face, fine wool lambs seem to remoisten the nose surface faster than black-faced lambs. A lamb's nose will moisten quickly on a hot afternoon or evening, especially after being hauled in an enclosed trailer. If a lamb "wets-up" its nose too quickly to permit a good print, try printing that lamb early in the morning.

If the print is smeared, take it again. Start all over by cleaning the nose. If the print is light, press harder or add a small amount of ink to the pad.

Each printer will have to develop their own style of pressing the card against the nose. Putting the card on a small clipboard works for some. Clipping the card to a piece of cardboard is another method. Another successful method is to attach the ink pad case to one side of a board or clipboard and use clips to hold the card on the other side. This allows you to quickly ink the nose and print the lamb after cleaning and drying the nose.

After you have demonstrated the nose printing procedure, divide your group into teams (it may take 2 to 3 to hold the lamb) and let them practice taking prints. You will need 2 to 3 lambs per team as lambs' noses "wet-up" quicker when nervous. Compare their prints to Member Handout 5, Nose Print Samples, to determine quality of prints. Remind the members that this is a skill that takes lots of practice.

DIALOGUE FOR CRITICAL THINKING:

Share:

1. What was the result of your first attempt to nose print? Why?
2. What was the most difficult aspect of nose printing?

Process:

3. What is the purpose of nose printing?
4. Why are lambs nominated with a nose print for shows?
5. What is significant about the sequence of the steps in the nose printing procedure? Why?

Generalize:

6. What other skills have you learned that require a set procedure?
7. How important is patience when learning a procedure? Why?

Apply:

8. What is the significance of human finger printing in the current society? (Ex. Identify lost children, etc.)

GOING FURTHER:

- Observe lamb nose printing at a weigh-in or show.
- Demonstrate to a group how to take a nose print.
- Learn to read and compare nose prints.

Leader Notes

ACTIVITY

REFERENCES:

Author:

This lesson was modified from original material in the Texas 4-H Sheep Project Lessons by David E. Kehler, County Extension Agent, Kansas with adaptation by: James P. Adams, Extension Specialist, 4-H and Youth Programs, Kansas State University

Reviewed by:

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Kansas State University
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NOSE PRINTING LAMBS

SHEEP, LEVEL II

Member Handout 5, Nose Print Samples

ACCEPTABLE PRINTS

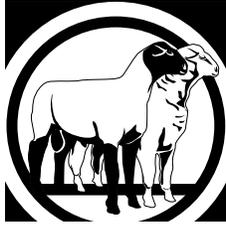


UNACCEPTABLE BECAUSE OF MOVEMENT



UNACCEPTABLE BECAUSE OF MOISTURE





Recording Your Sheep Project

Sheep, Level II

What Members Will Learn . . .

ABOUT THE PROJECT:

- How to record receipts and expenses
- How to record feed fed
- Other costs involved in a sheep project

ABOUT THEMSELVES:

- Importance of record keeping

Materials Needed:

- Sheep Member Guide and Annual Report (MG-37)
- Activity Sheet 10, Sheep Project Worksheet (2 pages)
- Pencil
- Flip chart and markers

ACTIVITY TIME NEEDED: 45 MINUTES

ACTIVITY

After you have bought your lamb, the work really begins. It is now time to record your learning and doing goals on the Member Achievement Plan (MAP) of your Sheep Member Guide and Annual Report.

MAP Step 8 of the member guide is where you record what you learn about your lamb and yourself and also what you do, have trouble with, or maybe what you tried and could not do!

But, where do you record what it costs to feed and take care of your lamb? Some may wish to list these items in their Journal (Map Step 8) while others may keep a notebook in the barn. It doesn't really matter "where" you keep this information, but it is important to keep the information where you can easily find it and know what your lamb is doing and the costs involved in keeping a lamb.

This information needs to be available so that you can use it in times of sickness, to prepare a talk, or maybe to share with a banker to help get another loan for additional feed.

Here is another option to record your project information. The Sheep Project Worksheet may be used for lambs, ewes, or flocks. A ewe production record is in Level III for older members.

Leader Notes

Pass out Sheep Member Guide and Annual Report, MG-37, if members have not received it at a previous meeting. Review each member's "MAP" to be sure they have goals for the year.

Pass out Activity Sheet 10, Sheep Project Worksheet. Ask members what they will list in each section. Discuss with examples.

Leader Notes

Tell members to make copies of the worksheet pages when more space is needed or create worksheets on a computer so that sections can be expanded.

Ask members to bring Activity Sheet 10, Sheep Project Worksheet, to every meeting for updating. Note: Expenses are listed first because that is what members will experience first.

Have members mention and list on a flip chart other expenses before using these examples.

ACTIVITY

The summary page of the Member Guide and Annual Report includes a description of your animals and their weight and value at the beginning and end of the project, etc.

The income portion of the worksheet includes sheep and wool sold plus any show premiums won.

The expense portion of the worksheet begins with a place to list all sheep purchased for the project. List all feed costs including any hay or grain grown at home that is fed to your sheep. Home grown feed should be weighed and given a market value at the time it is fed.

Pasture rent for ewes should be listed by number of days and rent price or value for the specific type of pasture (native, brome, stalks, etc.).

Other expenses include everything you bought or paid for except original cost of animals and feed costs. This might include costs of implants, eartags, shots, registration fees for ewes, veterinary costs, feed pans or buckets, pens, shed, halters, grooming supplies, show expenses, such as entry fees, and gas for the pickup (when buying, selling, or showing).

The profit or loss summary is where you add up all of your income after you sold a market animal or the value of a ewe at the end of the year. Subtract all of your feed costs (including pasture), other expenses, and of course, your cost of paying for the lamb at the beginning.

If you sold your lamb at a premium auction rather than on the regular market, figure your profit or loss using both income values and compare the differences.

DIALOGUE FOR CRITICAL THINKING:

Share:

1. What do you think will be the largest expense? Smallest expense? Why?
2. What do you think will be the most difficult part of the worksheet? Easiest? Why?

Process:

3. Why is it important to keep a recording of what happens in a sheep project and the costs involved?
4. What is the difference between “market price” and a “premium price” that you might receive at a 4-H auction?

Generalize:

5. What will you learn from using this worksheet? Why?

ACTIVITY

Leader Notes

Apply:

6. How can similar worksheets be used in other projects or with personal purchases that you make?

7. How might a computer enhance your record keeping efforts?

GOING FURTHER:

- Compare this record to those your parents keep.
- Visit a producer or downtown business and ask them to show and explain their record keeping system.
- Put your records on a computer and develop your own form.
- Give a talk on record keeping.
- Ask a banker what records are required for a loan.

REFERENCES:

Kansas Beef Leader Notebook

Authors:

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Larry P. Corah, Extension State Leader, Animal Sciences and Industry, Kansas State University

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Sheep Design Team

RECORDING YOUR SHEEP PROJECT
SHEEP, LEVEL II
Activity Sheet 10, Sheep Project Worksheet

Sheep Project Expenses

Date	Description of sheep bought	Hd/lbs	Price Hd. or lb.	Expense

Total cost of sheep (A)

Date	Description of feed costs	Quantity	Price/Unit	Expense

Total Feed Costs (B)

Date	Other expenses (labor, rent, entry fees, supplies, etc.)

Total Other Expenses (C)

Total all Expenses (A + B + C) = D

RECORDING YOUR SHEEP PROJECT
SHEEP, LEVEL II
Activity Sheet 10, Sheep Project Worksheet, *continued*

Sheep Project Income

Date	Description of sheep sold	Quantity Hd/lbs	Price Hd/lbs	Income

Total income from sheep/lambs (E)

Date	Wool sales	Quantity	Price/lb	Income

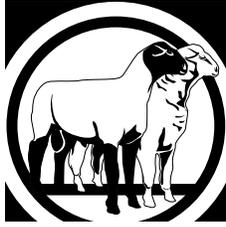
Total income from wool (F)

Date	Other Income (show premiums, etc.)	Income

Total Other Income (G)

Total all Sheep Income (E + F + G) = H

Profit <Loss> of sheep project (H - D) =



Setting a Sheep on its Rump

Sheep, Level II

What Members Will Learn . . .

ABOUT THE PROJECT:

- Proper way to catch and hold a lamb
- How to set a lamb on its rump

ABOUT THEMSELVES:

- The value of practice when learning skills

Materials Needed:

- Small pen
- Live lamb

ACTIVITY TIME NEEDED: 30 MINUTES

ACTIVITY

When working with sheep, there are several management practices, such as shearing and trimming hooves, that can be accomplished easier if the sheep is set on its rump. By using the proper technique, a sheep can be set on its rump with little effort by the member and little chance of injury to the sheep or the handler.

The first step to catch a sheep is to reduce the space the sheep has to run. Move quietly and slowly to herd the sheep into a crowding/sorting pen or section off a small area of the barn with portable sheep panels. Position yourself behind the lamb and quickly grab the rear flank and lift it off the ground and toward your body. Place your free hand under the lamb's jaw. Release the flank and place that hand on the neck or behind the lamb's head. If you try to grab a sheep by the leg it will kick, causing injury to the lamb, the handler, or both. Also, you should not grab a sheep by the wool as it will cause bruises that reduce the value of the carcass. When you have a hold of the sheep's head, (under the jaw) it will be easier to control if you tilt the nose upward. A sheep with its nose tilted up will be less likely to move forward, but may try to back up if the nose is tilted too high.

Now that you have control of the sheep, the next step is to set the sheep on its rump. You should be standing with your knees pressed against the sheep's left side with your left hand under the sheep's jaw (sides may be opposite for left-handed members). Being contrary in nature, the sheep will push against your knees. This is to your advantage as the sheep is

Leader Notes

Study lesson on sheep behavior before this lesson.

Have one or two older members try to catch a lamb and set it on its rump without telling them the proper method. Observe and comment on difficulties.

Note: Start in a small pen so members don't chase and scare lambs.

Leader Notes

Have the members practice setting the sheep on their rumps. Let members work in pairs until they gain confidence and skill.

ACTIVITY

then slightly off balance. In one smooth, quick motion, twist the sheep's head sharply over its right shoulder, remove your knees from the sheep's side and press your right hand against the sheep's right hip. By doing these three things at the same time, the sheep's rump should swing around toward you and the sheep should be off its feet. The sheep should be braced in a sitting position between the handler's knees. With none of its feet touching the ground, the sheep should not struggle very much, and the handler's hands should be free to trim the hooves or otherwise treat the lamb.

There are other methods for setting a sheep on its rump; however, when done properly, this method is easiest and it is very safe for both sheep and handler.

DIALOGUE FOR CRITICAL THINKING:

Share:

1. What happened when you first tried to catch your lamb? Why?
2. What was the most difficult part of setting your lamb on its rump? Why?

Process:

3. What problems did you have when catching and setting your lamb on its rump?
4. When do you need to use this method of holding a lamb?

Generalize:

5. What skills did you need to do this activity?
6. How important is practice when learning new skills?

Apply:

7. What other things do you do that require lots of practice?
8. What are some skills that you have that did not require lots of practice? Why?

GOING FURTHER:

- Watch a sheep shearing demonstration or visit a flock at shearing time.
- Observe a shepherd catch and inspect a lamb.

ACTIVITY

Leader Notes

REFERENCES:

Michael Malinski, University of Minnesota, Ag. Extension Service AS-56
'81.

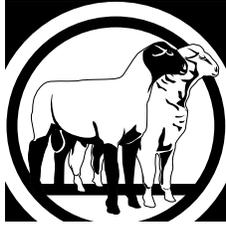
Market Lamb Resource Handbook, 4-H 250 R, The Ohio State
University, Nov. 1996.

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Sheep Design Team



How to Give a Shot

Sheep, Level II

What Members Will Learn . . .

ABOUT THE PROJECT:

- Different types of shots given to sheep
- How to give intramuscular, intravenous and sub-cutaneous shots to sheep
- How to identify various syringes

ABOUT THEMSELVES:

- Sometimes it is necessary to get a shot to ensure good health
- Importance of using medicines or drugs according to the directions

Materials Needed:

- Disposable 100 cc syringes (1 per group)
- Disposable needles (1 per group)
- Various sizes of disposable syringes
- Bananas (1 per group)—oranges may be used if bananas are unavailable
- Water in a cup (1 per group)
- Flip chart and markers

ACTIVITY TIME NEEDED: 30 MINUTES

ACTIVITY

Just like people, sheep must have their shots in order to stay healthy. There are many different kinds of shots and each kind has its own way of working in the lamb's body. Some vaccines work best when they are inserted just below the skin, but not into muscle. Some should be given into the muscle and some are even given directly into the vein. We're not going to talk about which ones go where, because there are so many, but we're going to talk about the places to give the shot.

There are many kinds of syringes used to give shots. Some are plastic and are used a few times and thrown away. Some are glass and metal and can be used many times. There are many sizes of syringes, because some vaccines require small amounts to be effective while others require large amounts for larger animals.

We are going to use real needles and syringes to learn how to give shots today. So, you must be very careful. Do not play with them. They are

Leader Notes

Survey members to see what type of shots they have had and why.

Show the different kinds of syringes, but do not pass them around. Set up a display table where the members can see the syringes after the lesson.

To each group, hand out a banana, cup of water, and syringe with the needle already on it and still covered.

Leader Notes

Be sure everyone understands the danger of the needles and do not let anyone misuse them! You should stand at the front or middle of the group with your own equipment to show how to do the shots. Let members work in pairs. One hold the banana and one give the shot, then switch.

As members give shots; record the types of shots, their uses and locations on the flip chart.

ACTIVITY

sharp and could puncture your skin. The banana has a thick skin, just like a sheep, and we can use it to learn how to give shots.

INTRAMUSCULAR

The first shot we'll give is intramuscular or IM. "Intra" means within, and "muscular" means the muscle, so intramuscular means within the muscle. So, when we insert the needle, it needs to go through the skin and inside the muscle of the lamb. This shot is for medicine or vaccines that must be absorbed slowly by the lamb. Intramuscular shots should be given in the neck muscle behind the ears. Do not give these shots in the rump or leg as there is a possibility of leaving a residue or scar area in the most valuable meat of the lamb.

Taking turns and being very careful, let one person in the group take the cap off the needle. Holding the needle facing the table top and away from people, pull the plunger back to fill the syringe with air. Push it out to get the feel of the syringe. Then place the end of the needle into the cup of water and pull the plunger back again to fill the syringe with water. Now, pick up your banana. Insert the needle through the skin of the banana and into the soft "meat" of the fruit. The needle should go into the banana nearly the full length of the needle. Holding the syringe steady, push the plunger in slowly so that you release a little water into the fruit. Don't release very much as the fruit isn't big enough to hold much extra water. When you've released the water into the banana, let go of the plunger and holding the syringe, pull it slowly out of the banana. Put the cap back on the needle and hand it to the next person in your group.

SUB-CUTANEOUS

The next shot is called sub-cutaneous. "Sub" means under or below and "cutaneous" is the skin. So, "sub-cutaneous" means under the skin. This shot is not to be given in the meat of the lamb, but just under the skin. So, when we practice, we need to be careful that we only get the water under the skin of the banana. It is most common to give this shot in the skin of the lamb's neck.

Carefully take the cap off the needle (there should still be water in it from the first time) and pick up the banana. Holding the syringe at a slight angle with the banana, slowly insert the needle into the skin and slide it just under the skin of the fruit, not into the meat. Holding the syringe steady, slowly release a little water into the fruit. Then withdraw the needle, put the cap back on and hand it to the next person in the group.

INTRAVENOUS

The last shot is called intravenous. What does "intra" mean again? "Intra" means within and "venous" means the vein. So, what does "intravenous" mean? It means within the vein. This may be used to draw blood from the lamb or give it a medicine that must get into its system very quickly. The vein that is usually used to give an intravenous shot is the jugular vein in the neck of the animal alongside the throat.

ACTIVITY

Pick up your banana. The edge that runs along the side of the banana is going to be the vein for us today. So, you will want to insert the needle into the vein, but not through it. Carefully take the cap off the needle and hold the syringe at a slight angle to the banana. Push the needle through the first layer of skin and slowly push it along the vein until most of the needle is buried in the skin. Do not get under the skin as in the last shot, you should still be inside the skin and in the edge of the banana. Slowly release some water into the banana and withdraw the needle and put the cap back on.

Now, let's review these shots and the locations we give sheep.

DIALOGUE FOR CRITICAL THINKING:

Share:

1. Which shot was most difficult? Easiest?
2. What types of shots (injections) did your lamb need? Why?

Process:

3. What problems did you have while giving the shots? Why?
4. Why is it important to give a shot (injection) in the correct place or manner?
5. Which type of shot is absorbed fastest? Slowest? Why?

Generalize:

6. How important are shots, vaccinations, or injections in other animal projects?
7. When have you needed a shot? Why did you need it?

Apply:

8. How will understanding shot location help you understand the purpose of the medicine in the future?
9. What can you do differently next time to make it easier to give each type of shot?

GOING FURTHER:

- Visit a veterinarian and watch him/her give shots to live animals.
- Visit each member's home and give their lamb the shots it needs.
- Have group members give demonstrations on giving shots at a club or project meeting.

Leader Notes

All shots for each lamb should be recorded by date, type and purpose. If this information is first recorded on a calendar or pocket notebook, transfer the information to your permanent records.

Review the three types of shots from the flip chart and show the location on a live lamb, picture or drawing.

Leader Notes

ACTIVITY

REFERENCES:

Kansas Beef Cattle Handbook, Animal Sciences and Industry, Kansas State University, Weber Hall, Manhattan, Kansas

Author:

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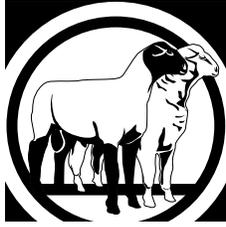
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Sheep Design Team



Common Sheep Parasites

Sheep, Level II

What Members Will Learn . . .

ABOUT THE PROJECT:

- How to identify the common sheep parasites
- The life cycle of worms
- Prevention and treatment of various parasites

ABOUT THEMSELVES:

- Importance of parasites
- The significance of each phase of a cycle

Materials Needed:

- Member Handout 6, Life Cycle of a Parasite
- Activity Sheet 11, Pest Test
- Leader's Key, Activity Sheet 11, Pest Test
- Slides or pictures of various internal and external parasites or sheep infested with such parasites.
- Diagram of the life cycle of certain parasites.

ACTIVITY TIME NEEDED: 60 MINUTES

ACTIVITY

First, let's define parasite. A parasite is an organism that lives on or within another organism at the expense of the "host" without offering anything in return. There are two basic categories of parasites that infest sheep, internal and external. Internal parasites are those that live within the body of the sheep, while external parasites live or feed on the outside of the sheep's body.

The most common internal parasites are worms. Worms are a serious problem in Kansas because they can easily be transmitted from sheep to sheep. If one sheep has worms, it is highly likely that most of the flock will also have worms. Worms cause damage by eating the food the sheep eats before the sheep has time to digest the nutrients. In other words, the sheep does the work of eating and the worm gets the nutritional benefit. Worms may also damage the lining of the sheep's digestive tract making it more difficult for the sheep to digest food.

Sheep with worms don't gain weight as well as they should. Other symptoms may include diarrhea, coughing, weight loss, going off feed, difficult breathing and blood in the manure. However, these symptoms are

Leader Notes

Read through the discussion on parasites and show the pictures as you discuss the different parasites.

Leader Notes

The next lesson will cover how and when to worm sheep.

Pass out Member Handout 6, Life cycle of a Parasite, and review the diagram as you discuss the life cycle.

Pass out Activity Sheet 11, Pest Test, to review information learned.

ACTIVITY

common to many forms of illness. How do we tell if a sheep has worms? The only way to be sure is to have a manure sample tested for worm eggs and larvae by a veterinarian.

If worms are diagnosed in your flock, you may control them by using a dewormer. Deworming medications are known as anthelmintics. Anthelmintics come in several forms including boluses, feed additives and injectibles, but the most common form is drench. Drenching refers to the administration of a liquid medication. To successfully control worm problems, sheep need to be dewormed more than once. Anthelmintics kill the adult worms inside the sheep; however, there are still eggs and larvae outside the host that the sheep may pick up again. Deworming accompanied by moving to a fresh pasture is the most effective control method.

Pasture rotation will minimize egg build up in the manure. Other worm prevention methods include disposing of sheep carcasses without allowing dogs or cats to feed on the scraps. The family dog or cat can host the same type of worms as sheep, thus deworming the family pets will help the sheep flock.

Now, let's review how worms spread, so we can consider the best time to prevent or control them.

Adult worms lay eggs inside the sheep. The eggs are passed out of the body with the feces. The eggs hatch and larvae infest the bedding and grazing areas of the sheep. Sheep inadvertently ingest worm larvae as they graze. Once inside the sheep, the larvae grow to adults and begin laying eggs.

There are several types of worms, and certain medications may not control all types. The large stomach worm (barber pole worm) is the most common round worm affecting sheep. Lungworms, tapeworms and liver flukes may also be a problem.

Most external parasites cause damage by biting or sucking blood from the host. Various types of flies and lice can cause damage to sheep. The external parasite responsible for the most economic loss to sheep producers is the ked. Although commonly called the "sheep tick" the ked is actually a wingless fly. Keds suck blood and damage the hide (cockle).

Some external parasites, such as lice and keds, spend their entire life cycle on the host. Others, such as biting flies may only attack the sheep when feeding. The female sheep ked deposits full grown larvae which pupate almost immediately and attach to the wool. In about three weeks, adult keds emerge. These parasites are spread by close contact from one sheep to the other.

Medication for external parasites is commonly administered in the form of dips, pour-ons or sprays. Most adult keds are removed during shearing.

ACTIVITY

Leader Notes

By treating the sheep a few days after shearing, the newly emerging adults are also killed. Ked-infested wool should not remain in areas where sheep have access.

DIALOGUE FOR CRITICAL THINKING:

Share:

1. How can you tell if your lamb has any parasites?
2. What was the most interesting aspect of the life cycle of a parasite?
3. What methods can you use to control these parasites?

Process:

4. What are the problems that each of the parasites discussed cause?
5. What should you do if one of your sheep has worms?
6. How are keds removed from sheep?

Generalize:

7. What parasites affecting other animals have you learned about?
8. What is unique about some of the sheep parasites compared to others?
9. How else might the word parasite be defined?

Apply:

10. How will your knowledge of parasites be useful in the future?
11. What parasite control measures will you use for improved results?

GOING FURTHER:

- Read the labels from various parasite control products to see common ingredients.
- View damage from wool infested by keds.

Leader Notes

ACTIVITY

REFERENCES:

Intro to Veterinary Entomology, Bay, D.E. and R.L. Harris, 1988
Kansas 4-H Beef Leader Notebook (LN-1), 2nd ed.
SID Sheep Production Youth Guide
SID Sheep Production Handbook

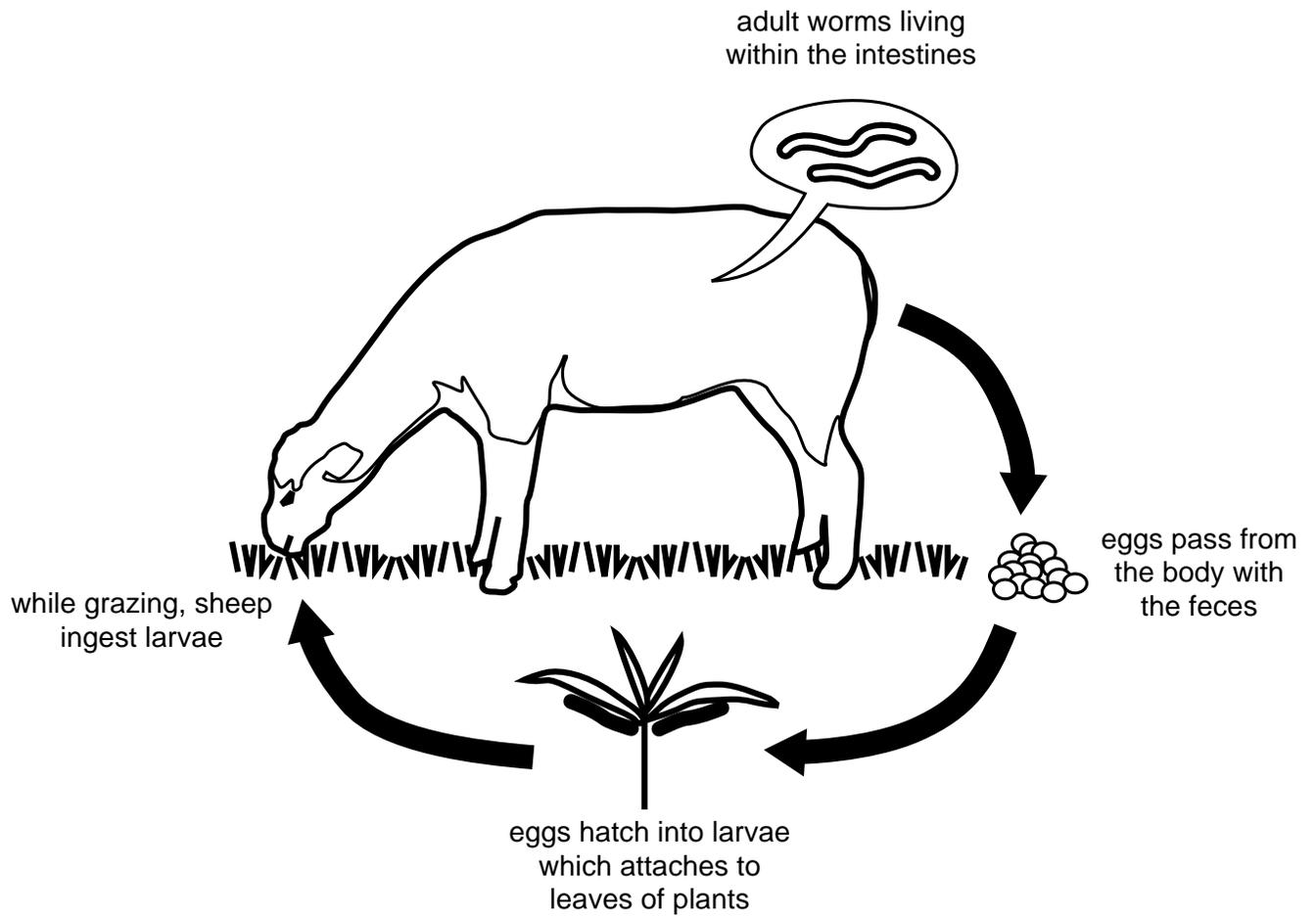
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COMMON SHEEP PARASITES
SHEEP, LEVEL II
Member Handout 6, Life Cycle of a Parasite



COMMON SHEEP PARASITES
SHEEP, LEVEL II
Activity Sheet 11, Pest Test

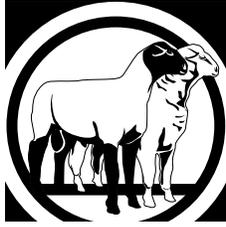
Organisms that live off of other organisms without providing anything beneficial to the host are called _____. Worms and other _____ parasites can cause sheep to lose weight and perform poorly. Adult worms live in the sheep's digestive tract and lay _____ which are passed in the manure. Eggs hatch into _____ which attach to grass and are eaten by the sheep. The most common round worm affecting sheep is the _____ worm. Worms can be controlled using medications known as _____. These worming medications are usually administered in the form of a liquid _____.

Flies, ticks and lice which bite and suck blood from the outside of the sheep are called _____ parasites. The external parasite that causes the most economic loss to sheep producers is the _____ also known as the "sheep tick." The sheep tick is not really a tick, but is actually a _____. Medications in the form of sprays, dips or _____ - _____ are generally used to treat external parasites.

COMMON SHEEP PARASITES
SHEEP, LEVEL II
Leader's Key, Activity Sheet 11, Pest Test

Organisms that live off of other organisms without providing anything beneficial to the host are called parasites. Worms and other internal parasites can cause sheep to lose weight and perform poorly. Adult worms live in the sheep's digestive tract and lay eggs which are passed in the manure. Eggs hatch into larvae which attach to grass and are eaten by the sheep. The most common round worm affecting sheep is the large stomach worm. Worms can be controlled using medications known as anthelmintics. These worming medications are usually administered in the form of a liquid drench.

Flies, ticks and lice which bite and suck blood from the outside of the sheep are called external parasites. The external parasite that causes the most economic loss to sheep producers is the ked also known as the "sheep tick." The sheep tick is not really a tick, but is actually a wingless fly. Medications in the form of sprays, dips or pour-ons are generally used to treat external parasites.



How to Worm Your Sheep

Sheep, Level II

What Members Will Learn . . .

ABOUT THE PROJECT:

- Importance of worming
- When to worm sheep
- Methods of worming

ABOUT THEMSELVES:

- When worms might be a hazard to their health

Materials Needed:

- Dewormer samples
- Deworming equipment
- Member Handout 7, Sheep Worming Summary

ACTIVITY TIME NEEDED: 60 MINUTES

ACTIVITY

Throughout the year, many sheep are infected by worms such as the large stomach (barber pole) worm, lung worm, tape worm or liver fluke. If left untreated, these worms may cause severe economic losses to the operation. Fortunately, deworming sheep is a simple task that every sheep producer should know how to do.

A producer may suspect worms if his/her sheep are unusually thin, or cough a lot. The producer may even notice worm larvae or eggs in the feces. Worms are easily spread from animal to animal; therefore, every sheep in the flock needs to be treated with an anthelmintic (dewormer). There are a couple of dewormer medications approved for use on sheep. There are others developed for cattle, that may be used if approved by your veterinarian. The different worming medications may be effective on different types of worms. Some may control other internal parasites such as nasal bots. It is important to work closely with your veterinarian to make sure that you are using a safe, effective deworming medication. Also, worms may build up an immunity if the same drug is used over and over. It is a good idea to change the dewormer medication every couple years to avoid the immunity problem.

There are three strategic times to worm your flock in order to prevent infestation. The first is in the spring when ewes are turned out to grass. This helps prevent pasture infestation. The second time is at the end of

Leader Notes

Plan this lesson or discussion when feeder lambs are purchased or weighed and ear tagged. Lambs should be wormed at this time so a demonstration would be a good activity for members to observe. Show samples of various types of dewormers and equipment needed.

Leader Notes

ACTIVITY

July or early August as most worm populations increase dramatically over the summer. The third time is about 40 days prior to lambing. A parasite infested ewe will have difficulty raising her lambs. At this time, make sure your dewormer is safe to use on pregnant ewes. Feeder lambs should be wormed at the beginning of the finishing period or when purchased.

Some anthelmintics come in injectable form. They are administered in much the same way as you would give a shot. Others are boluses (pills) that are given with a bolus gun. The bolus may be dipped in mineral oil to aid in swallowing. The bolus gun allows the producer to place the bolus into the throat without sticking his/her hand into the sheep's mouth. A plunger expels the bolus from the gun into the sheep's throat. The sheep's head should be tilted up to prevent the sheep from spitting out the bolus.

While these methods work fine, drenching is probably more effective and less expensive. Drenching refers to administering liquid medication that the sheep must swallow. An experienced drencher, with the proper equipment and handling facilities can safely and effectively deworm a large number of sheep in a relatively short period of time. The sheep should be placed in a crowding pen or working chute with little room for the sheep to move around. As you move through the chute and drench the sheep, it may be a good idea to mark the "drenched" sheep with a chalk mark on the back. This prevents you from missing any or giving any more than one dose. The drench usually comes in a plastic bottle that can be strapped to your back. A plastic or rubber tube runs from the bottle to the drenching gun. The gun will have a device to set the proper dosage. Consult the drench container for dosage recommendations. Dosage is usually given on a by weight basis, so you need to have a general idea of how much your sheep weigh. The operator moves along the chute standing just behind the sheep's shoulder. Place the free hand under the jaw and insert the nozzle of the drench gun into the mouth, over the tongue. Keep the head in a normal position. If the sheep's head is tilted or the neck twisted too much, the drench may go into the lungs instead of the stomach. This could lead to choking and even pneumonia.

Provide Member Handout 7, Sheep Worming Summary, as a review and for their record book.

Remember, consult your local veterinarian when implementing a deworming program for your flock. Your veterinarian will know which parasites are most likely to cause problems in your area, and can help you determine which anthelmintics will work best in your situation.

DIALOGUE FOR CRITICAL THINKING:

Share:

1. Which deworming method have you seen?
2. What was the most difficult aspect of the method viewed? Why?

ACTIVITY

Leader Notes

Process:

3. What are some symptoms of wormy sheep?
4. When should sheep be wormed? Why?

Generalize:

5. What other animals have worm problems?
6. Are internal worms ever a problem for people? When? Where?

Apply:

7. When might you need to be concerned about becoming infested with worms?

GOING FURTHER:

REFERENCES:

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HOW TO WORM YOUR SHEEP SHEEP, LEVEL II

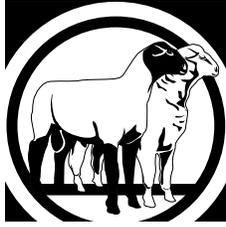
Member Handout 7, Sheep Worming Summary

I. Strategic Times to Worm

- A. Spring—before ewes turned out to grass
- B. August
- C. 40 days prior to lambing (wormer specified for pregnant ewes)
- D. Feeder lambs when purchased or before finishing period

II. Worming Methods

- A. Injectable—follow label directions
- B. Bolus (pill)
 - 1. Use bolus gun to expel bolus into sheeps throat
 - 2. Tilt sheep's head up slightly and hold mouth shut until bolus is swallowed
- C. Drenching—least expensive
 - 1. Fill crowding pen or working chute with sheep
 - 2. Chalk mark each sheep when drenched
 - 3. Use drenching gun attached to supply bottle
 - 4. Follow label directions for dosage
 - 5. Standing just behind sheeps shoulder, place free hand under the jaw and insert nozzle of drench gun into mouth over the tongue.
 - 6. Keeping head in normal position, hold mouth closed and expel correct dosage into back of mouth
- D. Consult your veterinarian on best de-wormer to use for your area



Diseases and Risk to the Members

Sheep, Level II

What Members Will Learn . . .

ABOUT THE PROJECT:

- Common Sheep Diseases

ABOUT THEMSELVES:

- The importance of prevention

Materials Needed:

- Pictures of diseased sheep
- Club Lamb Fungus Video, order through local Extension office from K-State Research and Extension Distribution Center
- Activity Sheet 12, Diseases Summary
- Flip chart and markers

ACTIVITY TIME NEEDED: 60 MINUTES

ACTIVITY

Leader Notes

Several sheep diseases can also affect humans. Two commonly occurring diseases that affect young lambs and are easily transmitted to people are sore mouth and club lamb fungus. The purpose of this lesson is to learn how to recognize the signs of these diseases, and what to do if the lamb or the member becomes infected.

While discussing sore mouth, show pictures of affected lambs. Have members list preventions, symptoms, treatments on a flip chart.

Sore mouth, also known as Orf or contagious ecthyma, is a highly infectious, highly contagious virus. It is common in young lambs from three to six months of age, a typical age for 4-H lambs at the time of the county fair. A lamb with sore mouth will develop scabby sores on the muzzle and lips. The virus is spread from these scabs to any cuts or wounds that come in contact with them. Sore mouth can be prevented by vaccinating the lambs, but be careful, the vaccine is a modified live virus; follow the directions closely. The disease will run its course in about one to four weeks, and is rarely fatal to the lamb. If possible, leave the infected lambs alone, and the virus will go away. If you must handle the lamb, use extreme caution. Wear gloves if you will be working with the head of the lamb, because the virus can enter any cuts on your hands, too. Sore mouth isn't very dangerous, but it is extremely painful and will leave ugly scabs on your hands. If you get a case of sore mouth, see your doctor immediately. Don't bring lambs with sore mouth to the fair. They could transmit the disease to other lambs. It is against acceptable policy to show lambs with sore mouth.

Leader Notes

Show video "Club Lamb Fungus" or pictures of infected lambs.

On a flip chart, have members list preventions, symptoms and treatments for Club Lamb Fungus.

ACTIVITY

Club Lamb Fungus is a highly contagious, ringworm-like skin lesion that is caused by up to three types of fungi. The infections transmit readily to other animals or to humans. Human infection may result in acute inflammatory lesions that are accompanied by scar formation.

Following are symptoms for Club Lamb Fungus in sheep:

1. lesions
2. thick, dry scaly pustules about the head and ears
3. pustules found on the body enlarge, form scabs and cause the wool to become matted
4. wool pulled from the area leaves the underlying skin with a raw ulcer appearance
5. wool in the infected area thins out and much of it falls out; subsequently, the wool regrowth is darker or black

The following conditions will aid the transmission of the disease:

1. direct contact with other lambs at shows; risk increases proportionately with the number of shows attended
2. frequent washing and/or shearing of lambs
3. indirect contact through such means as:
 - A. contaminated pens or washracks
 - B. contaminated equipment such as clipper blades or blankets
 - C. handling of lambs by judges

The incidence of Club Lamb Fungus is reduced by keeping the previously discussed conditions at a minimum. The use of an antifungal shampoo as a prophylactic rinse prior to and after attending a show sometimes serves as a prevention. A 1% solution of alum or a solution with 1 part chlorine bleach diluted with 10 parts of water is sometimes used as a preventative spray or dip. It is important to administer preventatives and most importantly cures under the direction of a veterinarian. Some effective cures or treatments are available, but most are legal only when used as the result of a veterinarian-client relationship.

If you contract club lamb fungus, see your doctor immediately.

Give each member Activity Sheet 12, Disease Summary. Review the flip chart listings and let members fill in their activity sheets for their record books.

ACTIVITY

Leader Notes

DIALOGUE FOR CRITICAL THINKING:

Share:

1. What sheep diseases have you seen before? Where?
2. What new diseases did you learn about?

Process:

3. What is the significance of sore mouth and club lamb fungus?
4. Why is it important to prevent sheep diseases?

Generalize:

5. How do these diseases affect people?

Apply:

6. How will you act differently in the future as a result of this lesson?

GOING FURTHER:

- Invite a veterinarian to discuss disease prevention.
- Plan a health program for your flock.

REFERENCES:

Author:

Jeremy Geske, former Extension Assistant, Kansas State University
James P. Adams, Extension Specialist, 4-H and Youth Programs, Kansas
State University

Reviewed by:

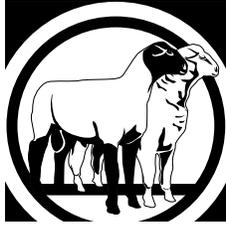
Clifford Spaeth, Extension Specialist, Animal Sciences and Industry,
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Sheep Design Team

DISEASES AND RISK TO MEMBERS

SHEEP, LEVEL II

Activity Sheet 12, Disease Summary

Disease	Prevention	Symptoms	Treatment
Sore mouth			
Club Lamb Fungus			



Basic Fitting For the Show

Sheep, Level II

What Members Will Learn . . .

ABOUT THE PROJECT:

- Why fitting is important
- What equipment is needed in fitting a lamb
- The steps to properly fit a lamb

ABOUT THEMSELVES:

- The importance of appearance
- Importance of personal grooming habits

Materials Needed:

- Wool cards
- Hand shears
- Spray bottle
- Trimming stand
- Sheep blanket
- Live lamb

ACTIVITY TIME NEEDED: 60 MINUTES

ACTIVITY

Fitting a lamb is very important. Proper fitting techniques make your lamb look the best it possibly can. The right fitting equipment is important. Without this equipment it is very difficult to make your lamb look it's best.

HOW TO USE THE EQUIPMENT . . .

The trimming stand holds the lamb in place, allowing you to do a smooth fitting job. Occasionally, the lamb will try to move sideways causing it to fall; therefore, you must always have at least one person present who is able to lift the lamb back on the stand. After a couple of falls, the lamb quickly learns to stand still. This teaches the lamb to remain still while it's head is restrained, which will be helpful when trying to show the lamb. Never leave a lamb unattended up on a stand. The lamb could fall and be seriously injured.

Market lambs are generally shown slick shorn, with as little wool left as possible at the time of the show. They don't need to be carded or trimmed with the hand shears. They can be shorn the day before the show with an electric shearmaster. Once shorn, all that is left is to wash the lamb.

Leader Notes

It is important for young members to get used to using the fitting equipment as soon as possible. Have a lamb with a reasonable amount of wool on a trimming stand or at least haltered and tied to a post. The leader should demonstrate the use of the equipment, from carding to putting on the blanket. Have each of the members practice carding and trimming.

Leader Notes**ACTIVITY**

The fitting of a breeding lamb should begin long before the county fair. Preferably, about a month before the show, the lamb should be “cut out.” A lamb that is “cut out” is mostly slick shorn except a fair amount of wool is left down the top (on the back from shoulder to dock) and on the rear legs. By doing this, it will enhance the lamb’s muscular appearance. Shearing the other areas slick saves time by removing wool that will be trimmed off anyway. The month will allow enough wool to grow in the slick shorn areas to be able to do a nice smooth fit job. Also, removing a lot of wool at this time will make washing the lamb much easier. For beginning fitters, have someone remove most of the fleece, leaving about 2 to 2 ½ inches of fleece. This amount will be less intimidating and easier for a beginner to handle. At the fair, the lamb’s belly and the top of its neck (where the head piece of the trimming stand will hold the lamb) can be slick shorn again. The next step is to wash the lamb as described in the lesson in Level I.

Breeding ewe lambs and ram lambs are almost always fit by hand rather than slick shorn. Although you will eventually trim off most of the wool, enough wool is left in strategic areas to make your lamb look it’s best. The purpose of fitting a lamb, is to make it look as attractive and as close to the ideal as possible.

The wool cards are used to pull the wool fibers out so that they may be trimmed to an equal length. Much the same way a barber would comb your hair out while cutting it. Hold the wool card in a way that is comfortable and gently but firmly place it against the wool. The curved teeth of the card will grab the wool fibers and pull them out as you pull the card away from the lamb. It will seem a little like separating two strands of velcro. It will take a little practice to get used to doing this properly. It is easier to fit a lamb when the fleece is slightly moist. It cuts easier and packs down more uniformly. After the lamb has been carded, use a spray bottle to mist clean water over the fleece.

The hand shears should also be held in a comfortable manner. Place one blade, at an angle away from you, into the wool at the depth you want to cut. Hold that blade steady and cut with the other. While cutting, slide the shears slowly along the lamb at a pace you are comfortable with. Go slow at first until you get the hang of it. It will take a lot of practice to become good at this, so the earlier you start the better. Remember, you can always cut more wool off, but you can’t put it back once it’s been trimmed off.

Ideally, you’d like the lamb to look nice and smooth all over. Trim the lamb in such a way that when viewed from the front, the lamb’s back end is wider than it’s front. When viewed from the top or side, the lamb should look square. The lamb should look level from shoulder to dock.

Start at the head and blend the neck down into the shoulder. Take most of the wool off the neck to give it a long trim appearance. The front shoulders and chest should also be trimmed very close. Next, trim the lamb’s

ACTIVITY

Leader Notes

topline from shoulder to dock. Make the top look wide and level. Don't trim off quite as much wool because a little wool on the top will make the lamb look taller. Next, trim the sides. Decide how wide you want the top to look, then trim the side so that the lamb looks square from top to bottom. Blend in the top by rounding the edge just a little to give the lamb a more natural appearance. Also blend the side into the belly in a similar manner. The sides, along the widest part of the ribs should have very little wool left by time you've squared the lamb from top to bottom. Finally, do the back legs. Give the legs a rounded shape that emphasizes the muscle shape.

Periodically, step away from the lamb and observe it from a distance. If there are any unsatisfactory parts, card them up and trim them over again. Finally, blanket the lamb and return it to its pen.

DIALOGUE FOR CRITICAL THINKING:

Share:

1. What was the hardest/easiest thing to fit on the lamb? Why?
2. Did you feel more comfortable fitting your lamb when you started or when you were done? Why?

Process:

3. What problems did you encounter?
4. What part of fitting do you think is most important? Why?
5. Why should you fit breeding lambs and market lambs differently?
6. Why is the appearance of your lamb important?

Generalize:

7. When is it important for you to look your best? Why?
8. Why is your appearance important when doing something special?

Apply:

9. What do you do to enhance your appearance for special occasions? Why?

Leader Notes

ACTIVITY

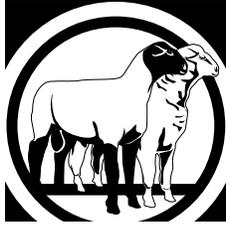
REFERENCES:

Author:

Jeremy Geske, former Extension Assistant, Kansas State University
James P. Adams, Extension Specialist, 4-H and Youth Programs, Kansas
State University

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Sheep Design Team



Anatomy of Male and Female Reproductive Tracts

Sheep, Level II

What Members Will Learn . . .

ABOUT THE PROJECT:

- Identify the parts of a male ovine reproductive tract
- Identify the parts of a female ovine reproductive tract
- Learn how the anatomy is related to its function

ABOUT THEMSELVES:

- The contribution of each part to the success of a whole system

Materials Needed:

- Activity Sheet 13, Male Ovine Reproductive Tract
- Leader's Key, Activity Sheet 13, Male Ovine Reproductive Tract
- Activity Sheet 14, Female Ovine Reproductive Tract
- Leader's Key, Activity Sheet 14, Female Ovine Reproductive Tract
- Large blank diagram of each activity sheet
- Pencils
- Tape
- Small pieces of paper with names of the various parts of the male and female ovine reproductive tracts written on the paper
- Access to a ram would be helpful in order to point out the external anatomy (optional)

ACTIVITY TIME NEEDED: 60 MINUTES

ACTIVITY

Let's discuss the male reproductive tract first. The main purpose of the ram is to breed ewes and produce lambs. The organs of the reproductive tract each have their own purpose or function which allows the ram to do his part in producing lambs.

This is the **sheath**, it provides protection for the penis.

The **penis** is the organ used to breed the ewes. Semen or sperm cells are deposited into the female tract from the penis.

The **sigmoid flexure** is a muscle which keeps the penis inside the ram's body most of the time and allows it to be extended from the body during mating.

The **retractor muscle** is responsible for pulling the penis back into the body after mating.

Leader Notes

Post an enlarged copy of Activity Sheet 13 and 14, Male Ovine Reproductive Tract and Female Ovine Reproductive Tract, on a wall without the names of the parts on it. Give each member a piece of paper with the name of a part on it and have them tape the part onto the diagram in what they believe is the correct location.

Hand out Activity Sheet 13 and 14, Male Ovine Reproductive Tract and Female Ovine Reproductive Tract, so that the members can follow along.

ANATOMY OF MALE AND FEMALE REPRODUCTIVE TRACTS

Leader Notes

Leave the papers on the large diagram until you get to the particular part and if it is wrongly identified, remove the paper and set it aside and replace it with the correct label.

Looking at your correctly labeled copy, point to the parts on the large diagram, explain them and allow the members to write them down on their papers.

Clear the diagram of all the labels and have the members turn over their papers. Have them try again to label the parts of the male ovine reproductive tract. The rest of the group can help.

Clear the diagram of all the labels and have the members turn over their papers. Have them try again to label the parts of the female ovine reproductive tract. The rest of the group can help.

ACTIVITY

The **scrotum** covers and protects the testicles. It also helps to maintain the proper temperature of the testicles to insure fertility.

The **testicles** are the organs which produce sperm cells. They contain many little tubules in which sperm cells are made. The testicles also produce a hormone called testosterone. Testosterone is a chemical that signals the body to develop masculine traits.

The **epididymis** is the tube where sperm is stored. Sperm cells mature here while waiting to be transported from the testicles during mating.

These are the important organs in the ram's reproductive tract. The tract is a continuous tube running from the testicles through the penis. As sperm cells travel along the tract, "accessory sex glands" add fluids and materials to the sperm that will help it survive once inside the female tract. This mixture of sperm cells and fluid is called semen.

Now let's discuss the female reproductive tract. The main purpose of the ewe is to produce lambs. Each organ within the ewe's reproductive tract serves a specific purpose allowing the ewe to produce lambs.

The **vulva** is the external opening to the female reproductive tract.

The **vagina** is the tube connecting the vulva to the uterus. During mating, semen is deposited in the vagina.

The **cervix** serves as a protective barrier for the uterus. It is a coil of muscles that remain tightly closed to keep out of the uterus any organisms that may cause infection. It opens slightly during mating to allow semen to pass through. It also opens to allow birth to take place.

The **uterus** is where the fetus, or baby lamb, develops during pregnancy. In the ewe, the uterus has two halves called horns that curl under. The uterus expands during pregnancy to allow for growth of the fetus. After birth, it will return to nearly its' original size.

The **ovary** is the organ which produces the female sex cells, the eggs. The ovaries also produce hormones such as estrogen and progesterone. These hormones are chemicals which signal the body to develop feminine traits.

The **oviducts** connect the ovaries to the uterine horns. Fertilization, or the union of egg and sperm, takes place here.

The process from fertilization to pregnancy to birth is very complex. These are the organs which have major roles in the reproductive process.

ACTIVITY

Leader Notes

DIALOGUE FOR CRITICAL THINKING:

Share:

1. What parts of the male reproductive tract were the easiest to identify? Hardest?
2. What parts of the female reproductive tract were the easiest to identify? Hardest?

Process:

3. Trace the route the sperm takes through the ram's reproductive tract from start to finish. Why is knowledge of this route important?
4. Trace the route the egg takes through the ewe's reproductive tract from start to finish. Why is knowledge of this route important?
5. What is the purpose of each ram reproductive tract part? The ewe's? List and discuss.

Generalize:

6. If a ram is infertile (cannot produce normal sperm) what impact or problem would that have on a ewe flock?
7. What is the economic impact of having ewes that have trouble getting bred or cannot become pregnant?

Apply:

8. How can information in this lesson be useful in preventing future breeding problems?

Leader Notes

ACTIVITY

REFERENCES:

Kansas 4-H Beef Leader Notebook (LN-1), 2nd ed.
SID Sheep Production Guide

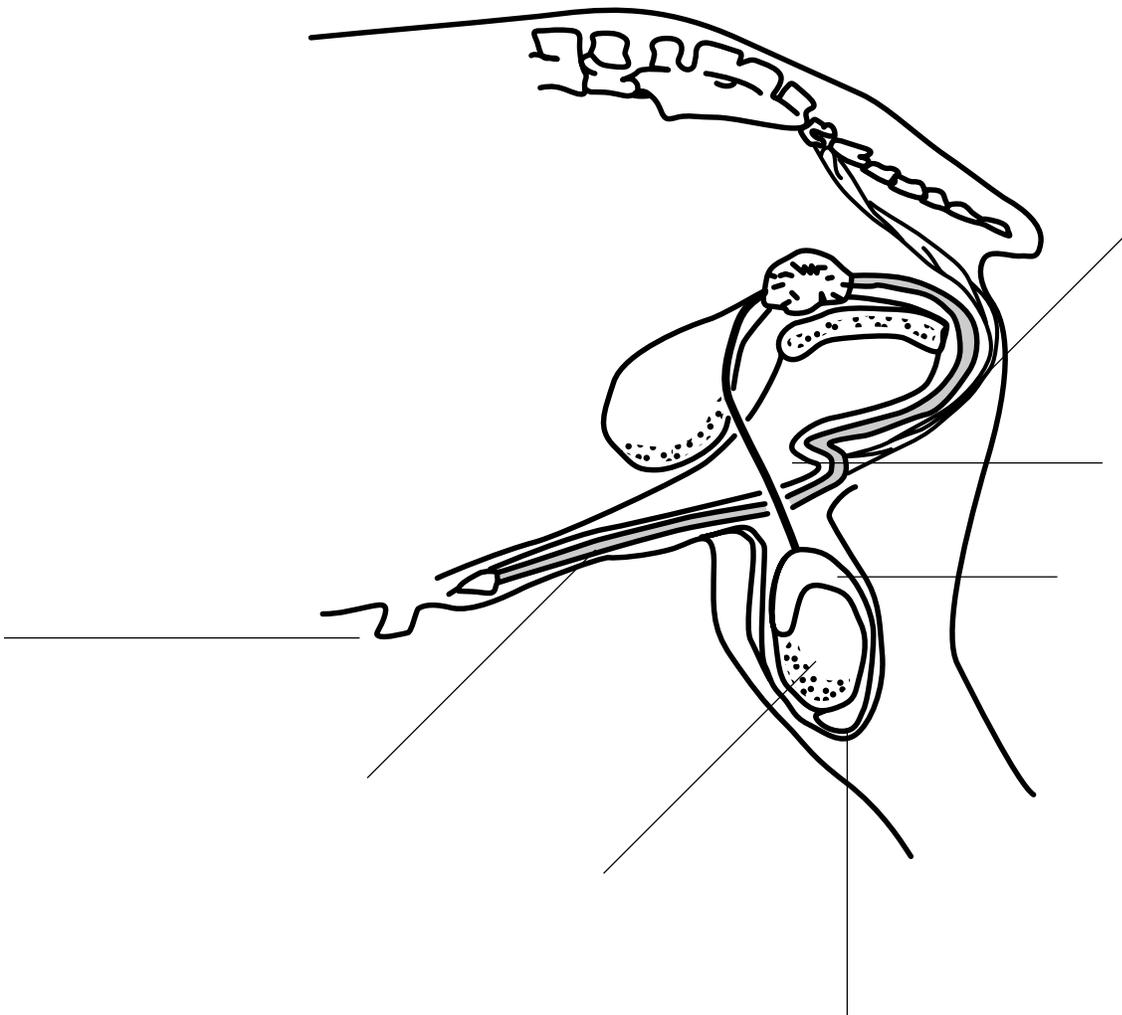
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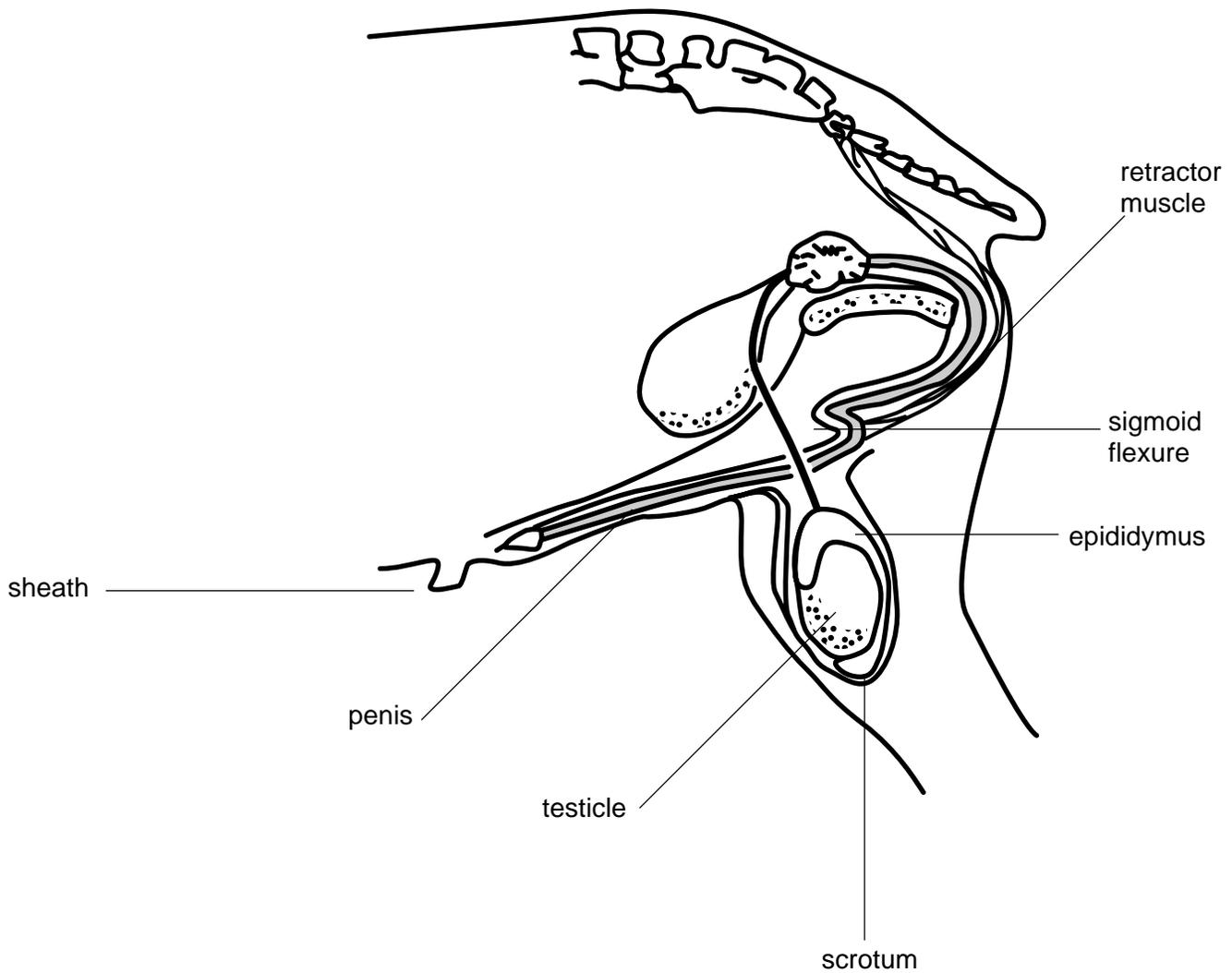
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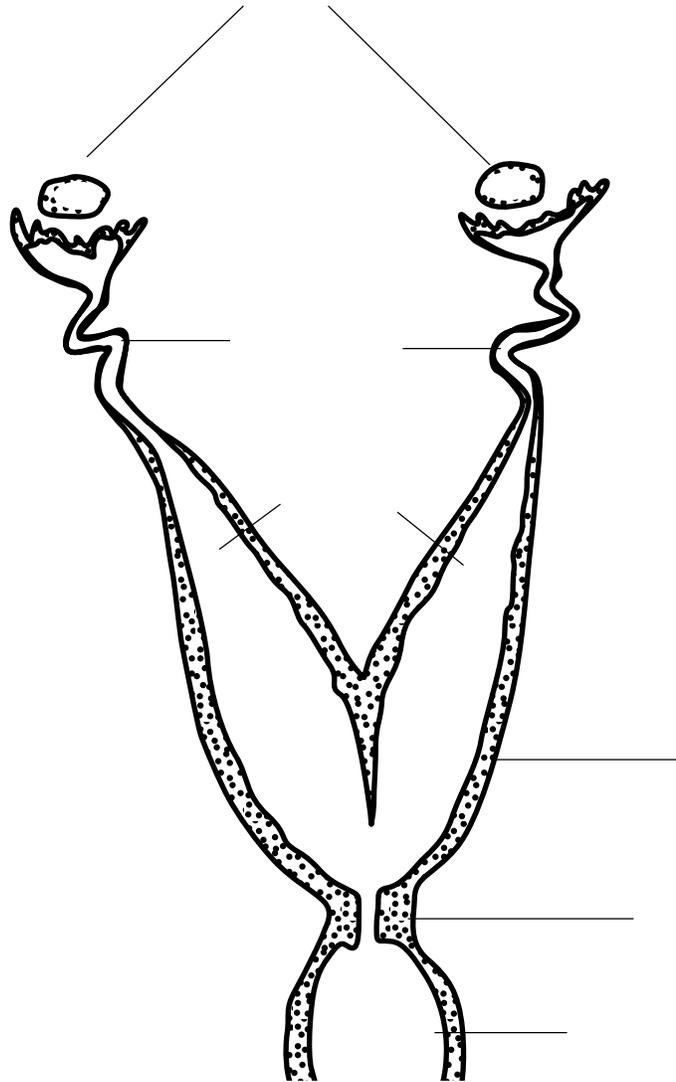
ANATOMY OF MALE AND FEMALE REPRODUCTIVE TRACTS
SHEEP, LEVEL II
Activity Sheet 13, Male Ovine Reproductive Tract



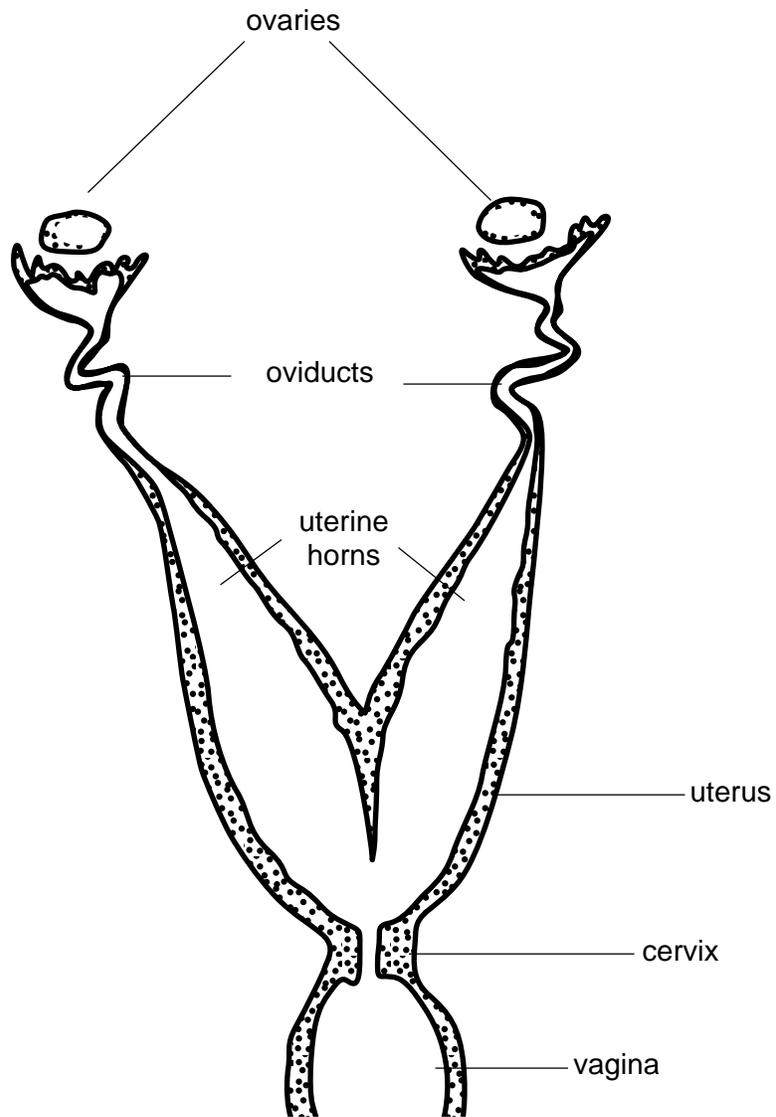
ANATOMY OF MALE AND FEMALE REPRODUCTIVE TRACTS
SHEEP, LEVEL II
Leader's Key, Activity Sheet 13, Male Ovine Reproductive Tract

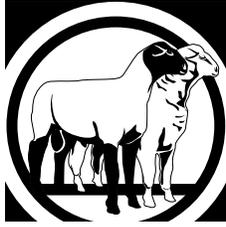


ANATOMY OF MALE AND FEMALE REPRODUCTIVE TRACTS
SHEEP, LEVEL II
Activity Sheet 14, Female Ovine Reproductive Tract



ANATOMY OF MALE AND FEMALE REPRODUCTIVE TRACTS
SHEEP, LEVEL II
Leader's Key, Activity Sheet 14, Female Ovine Reproductive Tract





Common Sheep Predators

Sheep, Level II

What Members Will Learn . . .

ABOUT THE PROJECT:

- The most common predators of their sheep

ABOUT THEMSELVES:

- The dangers of talking to strangers

Materials Needed:

- Activity Sheet 15, Predator Review
- Leader's Key, Activity Sheet 15, Predator Review
- Photos of different predators (optional)
- Flip chart and markers

ACTIVITY TIME NEEDED: 45 MINUTES

ACTIVITY

A predator is an animal that lives by killing and eating other animals. Predation, primarily by coyotes and dogs, is an irritating reality to many sheep producers. In the western United States, estimates of annual losses of sheep due to coyotes are 4 to 8 percent of the lambs and 1.5 to 2.5 percent of the ewes. Coyotes are the number one predator of livestock in Kansas. Members with lamb projects should become aware of the dangers caused by predators. Understanding a little about the predators will give the members insight on how to protect their sheep.

Since coyotes are the major sheep predator, let's discuss them first. Coyotes normally eat rabbits, rodents and small deer; however, they are opportunistic, and will eat livestock if it is available to them. They will generally kill small lambs or old, sick ewes, but are capable of preying on healthy, adult sheep as well. Coyotes usually kill only for food. They almost always kill by biting the throat, which suffocates the victim.

The next most common predators of sheep are dogs, both wild and domestic. It is usually easy to tell the difference between coyote and dog attacks. First of all, dogs leave much larger tracks than coyotes. Dogs cause more losses by playing than actual desire to hunt and kill. Dogs enjoy chasing and biting sheep. In the event of a dog attack, usually larger numbers of sheep are killed or injured. Sheep are usually bitten and torn in a variety of places, especially on the rear legs. Dogs rarely feed on the sheep they kill.

Leader Notes

Begin the lesson by looking at photos of common sheep predators or invite a wildlife damage control specialist to your meeting.

Use the flip chart to list characteristics of coyote and dog attacks as experienced by the members. Use text to check member responses for accuracy.

Leader Notes

Give members Activity Sheet 15, Predator Review, to complete for their record books. Use the leader's key to discuss and further review their answers.

ACTIVITY

Most other predators cause very little sheep damage. Wolves, bears and mountain lions can easily prey on sheep; however, they aren't that common in areas inhabited by sheep. Bobcats, foxes and eagles may also prey on small lambs, but the frequency of such attacks is low. Bobcats and mountain lions generally bite the lambs in the head. The presence of claw marks on the body, and larger, rounded paw prints help distinguish these attacks from that of a coyote or dog. Eagles usually attack the lamb's skull and feed on the brains. Foxes, eagles and other birds are more likely to scavenge off the carcass of a sheep that is already dead than they are to kill one.

Methods for preventing predator attacks will be discussed in another lesson.

DIALOGUE FOR CRITICAL THINKING:**Share:**

1. Did you know some of the predators before this lesson? Which ones?
2. Have you ever had any sheep killed? What kind of predator did it?

Process:

3. Why do most predators prey on sheep?
4. Why aren't there more sheep losses to bears, wolves, or mountain lions?
5. Why do dogs prey on sheep?

Generalize:

6. Dogs are generally nice, but they can kill sheep. Why? Can people seem nice when they really aren't?
7. Do you think children are easier victims for crimes than adults? Why?

Apply:

8. Why is it important to be with someone else when you are around strangers? Make a list of situations when you should/should not talk to someone you do not know.

GOING FURTHER:

- Visit a zoo and watch a coyote's actions.
- Visit a farm with sheep and see how they keep out predators.
- Attend or help arrange for a predator control meeting with area sheep producers.

ACTIVITY

Leader Notes

REFERENCES:

SID Sheep Production Handbook
SID Sheep Production Youth Guide
Managing predator problems.... KSU Ext. Serv

Author:

Jeremy Geske, former Extension Assistant, Kansas State University
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COMMON SHEEP PREDATORS
SHEEP, LEVEL II
Activity Sheet 15, Predator Review

Review the list of animals below. Circle any of the animals that could be predators of sheep.

wolf

donkey

eagle

fox

wild dog

cattle

blue jay

bobcat

domestic or pet dog

mountain lion

bear

antelope

coyote

beaver

snake

Of these predators, the _____ causes the most sheep losses.

How do you tell the difference between coyote and dog attacks?

COMMON SHEEP PREDATORS

SHEEP, LEVEL II

Leader's Key, Activity Sheet 15, Predator Review

Review the list of animals below. Circle any of the animals that could be predators of sheep.

wolf	donkey	eagle
fox	wild dog	cattle
blue jay	bobcat	domestic or pet dog
mountain lion	bear	antelope
coyote	beaver	snake

Of these predators, the coyote causes the most sheep losses.

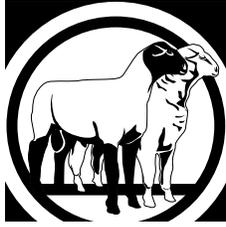
How do you tell the difference between coyote and dog attacks?

Coyotes:

1. Normally kill small lambs or sick ewes.
2. Usually kill one or two lambs for food.
3. Attack by biting the throat of sheep.

Dogs:

1. Leave larger tracks.
2. Tend to play with or scatter sheep.
3. Chase or bite several places, especially back legs.
4. Will injure or kill several sheep with each attack.
5. Rarely eat what they kill.



Raising Orphan Lambs

Sheep, Level II

What Members Will Learn . . .

ABOUT THE PROJECT:

- Importance of raising orphans in large flocks
- Value of colostrum
- What “grafting a lamb” means

ABOUT THEMSELVES:

- The importance of food
- Their feelings about helping the needy in their community

Materials Needed:

- Farm flock
- Orphan lambs
- Creep feed samples
- Colostrum and milk replacer samples
- Member Handout 8, Orphan Summary

ACTIVITY TIME NEEDED: 60 MINUTES

ACTIVITY

Extra or orphan lambs appear in most flocks at lambing time. They are the result of ewe death loss, ewes rejecting their lambs, or ewes producing multiple births beyond their capability of milk production. Some ewes, especially ewe lambs, may only have enough milk for a single lamb, while others are quite capable of raising triplets if fed properly. Unfortunately, not all ewes will be able to raise every lamb they give birth to. It is estimated that 10 percent of the nation’s lamb crop dies from starvation within the first week after birth. These extra lambs can be saved if proper management is practiced.

The most desirable method of raising orphan lambs is to “graft” them on to another ewe. This can be successful when the orphan lamb is born very close to the same time that another ewe gives birth to a single. The orphan lamb should be covered with the afterbirth of the “adopting” mother. This may fool the ewe into thinking the orphan lamb is actually one of her own. Extra training may be needed to make sure the “adopting” ewe will claim the orphan lamb and allow it to nurse.

If grafting is not possible, then lambs must be artificially reared. This means feeding milk replacer. Generally, due to the high cost of milk replacer, the extra labor involved and the high death rate of “bottle”

Leader Notes

If at all possible, teach this lesson on a field trip to a farm flock. Let members feed an orphan lamb. Discuss with the shepherd how orphans are raised. Compare samples of colostrum and milk replacer. Look at creep feed samples.

Leader Notes**ACTIVITY**

lambs, it is not very profitable to raise the orphan lambs. If a flock annually only has a few head of orphan lambs, it is better to sell them to someone who will be raising a large number of them. If, on the other hand, a flock has a significant number of orphan lambs and the proper labor-reducing facilities are available, raising orphan lambs may be profitable if you can wean them from milk replacer and get them eating creep feed as soon as possible.

Colostrum is the antibody-rich, first milk of the ewe that supplies the newborn lamb(s) with protection against disease, while the lamb's immune system is still developing. Lambs must receive this colostrum, or a substitute soon after birth or the chances of survival are poor. Colostrum may be collected from the mother or another ewe that has lambed about the same time. Colostrum may be frozen and stored until needed. When needed, it should be thawed and fed at room temperature so as not to destroy the antibodies. If ewe colostrum is not available, cow colostrum may be used. Lambs should be fed four to six ounces of colostrum every four hours for at least a day.

After this, lambs should be fed milk replacer. A good lamb milk replacer should contain 30 to 32 percent fat, 22 to 24 percent protein and 22 to 25 percent lactose. Lambs should receive their fill of milk replacer; however, some lambs may overeat, get sick and even die. Milk replacer mixes most readily with warm water; however, it should be fed at cooler temperatures (33 to 40 degrees) to reduce digestive disorders and prevent ingredient separation.

At about a week of age, lambs should be exposed to creep feed. Creep feed for young lambs must be highly palatable. If it doesn't taste good, lambs will just drink milk replacer and not eat the grain. Creep should be high in protein, and of a physical form acceptable to the lamb. Soybean meal is an important ingredient in lamb rations. Although they will initially only eat small amounts, this exposure will help orient their digestive system. By about four weeks of age, the lambs should be ready to be weaned off milk replacer, and on a complete solid diet. The creep feed is less expensive than milk replacer and offers the essential nutrients for fast, efficient growth. Along with creep feed, lambs should have access to clean, fresh water, trace mineral salt and a roughage (hay or grass).

The number of lambs to be reared should determine the type and amount of equipment to be used. Equipment should be simple to use, easy to clean and as inexpensive as possible. If only a few lambs are orphaned, they can be bottle fed. They should be fed every three hours for the first week, and after that, three to four times per day until weaned. If several lambs are to be raised, some type of milk-dispensing, self-feeder is essential to reduce labor. Choose one that is economical, easy to clean, simple for the lambs to figure out and that will prevent wastage. Sanitation is very important to insure lamb survival.

ACTIVITY

Leader Notes

Lambs should be protected from cold and drafts, although good ventilation is necessary. Pens should be kept dry and well-bedded. Heat lamps may be necessary in severe weather.

One other possibility is to raise the orphan lambs on dairy goats. In addition to her own kids, a nanny may raise up to three orphan lambs at a time. Since the length of lactation is longer for dairy goats than sheep, a nanny could raise up to fifteen different orphan lambs depending on the length of the lambing season. Again, the idea is to get them going on creep and weaned from the goat as soon as possible to free up the goat for new orphans. Ideally, the nanny should be bred to give birth two to three weeks before the lambing season. It will take some training to convince the goat to allow the lambs to nurse, and to teach the lambs to nurse from the goat. Goats tend to behave differently than sheep, and their presence may require a change in management techniques and/or equipment.

Review by providing Member Handout 8, Orphan Summary. Discuss each item and then have members place the handout in their record books.

DIALOGUE FOR CRITICAL THINKING:

Share:

1. Have you ever watched or fed a newborn animal on a bottle? What happened?
2. What is the most difficult part of bottle feeding? Why?

Process:

3. Why do so many lambs become orphans?
4. Why is it important for lambs to receive colostrum?
5. What does “grafting” mean?

Generalize:

6. How do you prevent hunger in other animals?
7. What is the significance of hunger issues in your community?

Apply:

8. What can you do to help prevent hunger?

Leader Notes

ACTIVITY

REFERENCES:

SID Sheep Production Handbook

Recommendations for Sheep Management Programs, NCR Ext. Pub. 240

Wes Limesand, Shepherd, North Dakota State University Sheep Unit

Author:

Jeremy Geske, former Extension Assistant, Kansas State University

James P. Adams, Extension Specialist, 4-H and Youth Programs, Kansas
State University

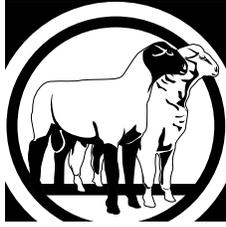
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Sheep Design Team

**RAISING ORPHAN LAMBS
SHEEP, LEVEL II
Member Handout 8, Orphan Summary**

- I. Causes of Orphans
 - A. Ewe death
 - B. Rejection
 - C. Multiple Births
- II. Methods of Raising Orphans
 - A. Grafting
 - B. Bottle feed
 - 1. Feed colostrum immediately
 - a. From another ewe
 - b. From frozen supply
 - c. Frozen supply from a cow
 - d. Four to 6 ounces every 4 hours on the first day
 - 2. Milk replacer—every 3 hours first week, then 3 to 4 times per day
 - 3. Expose to creep feed at one week of age
 - a. High protein
 - b. Highly palatable
 - 4. Wean from milk replacer
 - 5. Provide creep feed, fresh water, trace mineral salt and roughage
 - C. Milk dispensing self-feeder
 - 1. When several lambs are being raised
 - 2. Easy to clean—sanitation very important
 - 3. Simple for lambs to use
 - 4. Prevents waste
 - D. Housing
 - 1. Dry well-bedded pen free from drafts
 - 2. Heat lamp in severe weather
 - E. Raise on Dairy Goat



Wool Quality

Sheep, Level II

What Members Will Learn . . .

ABOUT THE PROJECT:

- What makes wool dirty
- How wool is graded
- Physical properties of wool

ABOUT THEMSELVES:

- The importance of wool in their lives

Materials Needed:

- Activity Sheet 16, Wool School
- Leader's Key, Activity Sheet 16, Wool School
- Examples of different grades of wool
- One or two tied fleeces
- Flip chart and markers

ACTIVITY TIME NEEDED: 60 MINUTES

ACTIVITY

Let's look at this pile of wool on the table. What do you see? How does it feel? Why? Where did it come from? How did we get the wool?

This pile of wool from one sheep is called a fleece and was removed from the sheep by shearing. This shorn wool that has not been washed is called grease wool. When the grease is removed and processed it is called lanolin and is used in lotions and other products. The weight of this fleece would be called the grease fleece weight and is used to help determine the value or price received.

A single piece or strand of wool is called a fiber. The quality of the fiber is determined by its length (staple length), the crimp or natural waviness and its diameter or grade.

Now let's talk about the value of wool. The most important factor in determining the price of wool is the grade. Grade may range from 36s to 80s. Finer wool is generally more valuable. For example, a fine fleece from a Rambouillet may have a grade of 64s or 70s. A fleece from a Suffolk might have a grade of 54s. The higher the number, the finer the fleece. Yield is also very important. Yield refers to the amount of clean wool compared to the grease fleece weight. Yield is typically around 50

Leader Notes

Have one or two tied fleeces on a table for members to look at as they arrive. Have members describe what they see and feel. List comments on the flip chart.

List main points on the flip chart.

Leader Notes**ACTIVITY**

percent. A higher yield is desirable. Coarser fleeces tend to be higher yielding as they have less grease. However, fine wool breeds tend to have heavier grease fleece weights. A third important factor is staple length. Coarse fleeces must have long staple length or they won't be acceptable.

There are several other factors which may affect the value of wool, including crimp, color, purity and secondary cuts. As far as color is concerned, white is desirable. Other colors, such as black fibers, are discounted. Purity refers to the presence or absence of other materials. Things that make wool dirty include: straw, hay, feed, paint brands, twine, manure and soil. Clumps of wool full of manure and dirt are called tags and are usually found on the udder or near the tail or dock.

Now let's talk about some of the physical properties or characteristics of wool that affect its total value. Wool is very elastic—that is, it can be stretched and then regain its original shape and length. Thus, garments made from wool will retain their shape well. The strength of a wool fiber is often indicated by the crimp. A distinct crimp indicates a well-grown, healthy, sound fiber of uniform diameter and length. Wool has a very low density, meaning that it is very light in weight compared to its volume, or space it takes or fills. Wool has a very unique relationship with moisture or water. Water is not absorbed into the inner portion of a wool fiber, but attaches to the surface of the fiber. Thus, wool helps keep the sheep's skin dry in rainy weather. Because of the crimp, bulk and resilience of wool, it is an excellent insulator which keeps the sheep warm in winter. That is why people often wear wool clothing during the winter.

DIALOGUE FOR CRITICAL THINKING:**Share:**

1. What did the wool feel like? Could you tell a difference between the different types?
2. Was the wool "greasy"? If so, why?

Process:

3. What dictates the grade of the wool?
4. What is implied if you have a higher grease fleece weight?

Generalize:

5. What types of clothing are made out of wool?

Apply:

6. Look at the labels of your clothing. Do they have wool in them? What other things are made from wool?

Handout Activity Sheet 16, Wool School, for review and inclusion in member record books.

ACTIVITY

Leader Notes

GOING FURTHER:

- Visit a sheep farm and watch them shear sheep.
- Compare prices of wool clothes with other fabrics.

REFERENCES:

Author:

Jeremy Geske, former Extension Assistant, Kansas State University
James P. Adams, Extension Specialist, 4-H and Youth Programs, Kansas
State University

Reviewed by:

Clifford Spaeth, Extension Specialist, Animal Sciences and Industry,
Kansas State University
Sheep Design Team

WOOL QUALITY
SHEEP, LEVEL II
Activity Sheet 16, Wool School

Each year we remove wool from sheep by _____ them. The wool from one sheep is called its _____. It is called _____ before washing.

It is important to keep my sheep's wool clean. Some things that can make it dirty are _____, hay, _____, paint brands, _____, manure and soil.

_____ refers to the fiber diameter, and is the most important factor in determining the price of wool. _____ refers to the amount of clean wool compared to grease fleece weight. Finer fleeces are usually _____ yielding than coarser fleeces. _____ is the natural waviness of wool fibers.

Wool is very _____ because it can regain its original shape and length after it is stretched. Wool has a very low _____ since it is light weight compared to the space it fills. Wool helps keep you and the sheep warm in the winter because it is a good _____.

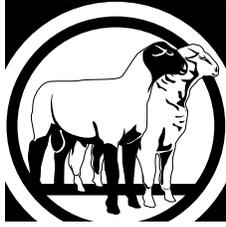
WOOL QUALITY
SHEEP, LEVEL II
Leader's Key, Activity Sheet 16, Wool School

Each year we remove wool from sheep by shearing them. The wool from one sheep is called its fleece. It is called grease wool before washing.

It is important to keep my sheep's wool clean. Some things that can make it dirty are straw, hay, feed, paint brands, twine, manure and soil.

Grade refers to the fiber diameter, and is the most important factor in determining the price of wool. Yield refers to the amount of clean wool compared to grease fleece weight. Finer fleeces are usually lower yielding than coarser fleeces. Crimp is the natural waviness of wool fibers.

Wool is very elastic because it can regain its original shape and length after it is stretched. Wool has a very low density since it is light weight compared to the space it fills. Wool helps keep you and the sheep warm in the winter because it is a good insulator.



Marketing Your Product

Sheep, Level II

What Members Will Learn . . .

ABOUT THE PROJECT:

- The different possibilities that exist to market sheep
- What the potential is locally for different markets

ABOUT THEMSELVES:

- There are many solutions to a problem

Materials Needed:

- Activity Sheet 17, Market Options
- Leader's Key, Activity Sheet 17, Market Options
- Flip chart and markers

ACTIVITY TIME NEEDED: 60 MINUTES

ACTIVITY

Let's discuss the different products you might get from a sheep operation that would be available for sale. The two major products are meat and wool. Within these areas, there are other products including breeding stock, cull rams and ewes, feeder lambs and market lambs. Some sheep may also be used for milk production.

There are several marketing options to consider when selling sheep products.

Although many producers raise sheep for meat production, they usually don't sell meat. They sell live animals that will be slaughtered at various packing plants across the country. Market lambs can be sold at a public auction or sale barn. They may also be sold electronically, either by teleauction or computer auction. A producer with a large enough number of lambs may sell directly to a feedlot, packer or order buyer. There are also various pricing options. Generally, market lambs are sold by the pound (live weight). There may be adjustments to the price, usually because of weight restrictions. You may also sell grade and yield, where you are paid on the carcass merit of your lambs.

There are several ways to market the wool we produce. You may sell to a local wool buyer, or, if you have a large quantity, directly to a warehouse or mill. You may also solicit sealed bids from a number of buyers and sell to the highest bidder. You could consign your wool to a large wool

Leader Notes

Begin by having members brainstorm ideas for marketing sheep or sheep products. List these on a flip chart. Discuss each method and then mark the most common marketing tools used in your community. Some ideas may require more study beyond this lesson.

Leader Notes

ACTIVITY

auction. Many small producers may get together and form a wool pool. By putting together a large quantity of wool, they can attract more buyers and hopefully receive higher prices. In some areas there are also specialty markets for colored wool. A value added product might be spinning and dyeing your own wool and using the yarn to weave rugs or clothing items to sell.

Breeding stock may be sold privately, off the farm, or at public auctions. Many are consigned to special sheep sales (either local or national). If you have large enough numbers, and a good reputation you may hold your own sale.

Cull rams and ewes are often sold at public auctions. If there is a demand, they may be marketed as breeding stock at the sale barn or off the farm.

Feeder lambs, produced for show, may be consigned to sales or sold privately. Many market show lambs are sold at premium sales or at regular market price after the shows are over.

A new market has recently begun for frozen semen. Semen has been collected from some of the top purebred rams for the purpose of artificial insemination. Usually, it would be sold by private treaty or through a semen distribution company.

As you can see, there are several options to consider when marketing your products. You need to find the market that offers the most potential profit for your situation.

Give members Activity Sheet 17, Market Options, as a review to discuss and place in their record book.

DIALOGUE FOR CRITICAL THINKING:

Share:

1. What markets did you know about before this lesson?
2. Do you think that you can pursue any of these markets? How?

Process:

3. Why are many of these markets dependant on their location?
4. Do you think you can make more profit using a specialized market? Why?

Generalize:

5. When was one other time when you realized that you had more options than you realized?
6. Do you think that the most popular answer is always the right one? Why or why not?

Apply:

7. How do you plan to use computers to solve problems in the future?

ACTIVITY

Leader Notes

GOING FURTHER:

- Have a sheep buyer come and speak about his/her occupation.
- Tour a purebred sheep farm and ask the owner how they market their purebred sheep.

REFERENCES:

SID Sheep Production Handbook

Author:

Jeremy Geske, former Extension Assistant, Kansas State University
James P. Adams, Extension Specialist, 4-H and Youth Programs, Kansas
State University

Reviewed by:

Clifford Spaeth, Extension Specialist, Animal Sciences and Industry,
Kansas State University
Sheep Design Team

MARKETING YOUR PRODUCT
SHEEP, LEVEL II
Activity Sheet 17, Market Options

Most market lambs are sold at a _____ auction. Sheep may be sold electronically by _____ or _____ auction. Large volume producers may sell _____ to a feedlot or packer. When the price is based on the carcass merit, it is called _____ and _____.

You may sell wool to a local _____ or directly to a _____. Some producers solicit _____ bids from several buyers. Many small producers may get together and form a wool _____.

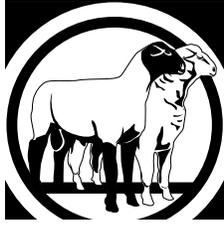
_____ may be sold privately, in public auctions or consigned sales. Old rams and ewes sold at public auctions are called _____.

MARKETING YOUR PRODUCT
SHEEP, LEVEL II
Leader's Key, Activity Sheet 17, Market Options

Most market lambs are sold at a public auction. Sheep may be sold electronically by teleauction or computer auction. Large volume producers may sell direct to a feedlot or packer. When the price is based on the carcass merit, it is called grade and yield.

You may sell wool to a local buyer or directly to a warehouse. Some producers solicit sealed bids from several buyers. Many small producers may get together and form a wool pool.

Breeding stock may be sold privately, in public auctions or consigned sales. Old rams and ewes sold at public auctions are called culls.

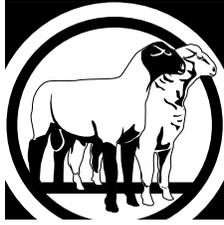


Kansas 4-H Sheep Leader Notebook

Level III

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Advancing in the Sheep Project

by Reaching Goals

Sheep, Level III

What Members Will Learn . . .

ABOUT THE PROJECT:

- To set goals for their sheep project
- To explore various areas for sheep projects

ABOUT THEMSELVES:

- Understanding the importance of overcoming barriers

Materials Needed:

- Flip chart and markers or chalkboard and chalk
- Sheep Member Guide and Annual Report (MG 37)
- Activity Sheet 1, Barriers to Reaching My Goals (Two copies)

ACTIVITY TIME NEEDED: 40 MINUTES

ACTIVITY

As you become older, you can branch out into a variety of areas related to the sheep project. This lesson is prepared to guide members into different areas of interest through a goal-setting process.

Some lesson suggestions might be:

- Sheep Judging with Oral Reasons
- Castrating, Docking, Hoof Trimming
- Common Sheep Diseases
- Determining Age of Sheep
- Condition Scaring
- Lamb Market Trends

GOAL SETTING

After having had time to see all the topics that can be addressed when raising sheep, it is time to make some goals for the year.

Let's think about possible barriers that might prevent us from reaching our goals.

BARRIERS

It is important to know how to cope with and eliminate barriers that might stop you from reaching your goals. Some major barriers to reaching goals can include time, money, resources, knowledge, or ability.

Leader Notes:

List these on the board.

Ask the members what different things they would like to learn about sheep.

Hand out Sheep Member Guide and Annual Report, MG 37.

In groups of two or three members, fill out question 1 on Activity Sheet 1.

Leader Notes

ACTIVITY

In groups of two or three members, fill out question 2 on Activity Sheet 1.

When you have completed question 1, fill out your Sheep Member Guide and Annual Report, for MAP STEPS 1-3.

The best way to deal with barriers is to design strategies of how you will overcome the barrier.

For each step that you've listed on your Sheep Member Guide and Annual Report, identify a barrier that you think could possibly prevent you from reaching your goal.

Now identify with two or three group members some ways of overcoming those barriers in question 3.

For question 4, identify what you think will be the biggest personal barrier you will encounter this year and how you plan to overcome it.

Now, using your Sheep Member Guide and Annual Report, complete MAP STEPS 4-7. Use a second copy of Activity Sheet 1, "Barriers to Reaching Goals," to analyze your second major goal.

DIALOGUE FOR CRITICAL THINKING:

Share:

1. What is a barrier to reaching goals that has to do with time?
2. What is a barrier to reaching goals that has to do with money?

Process:

3. Why is it important to know possible barriers that might prevent you from reaching your goals?
4. How will you overcome barriers that prevent you from reaching your goals?

Generalize:

5. What frustrations occurred when you discussed barriers? Why?
6. How do you deal with the frustrations that result from working with barriers?

Apply:

7. What are some barriers that you may face in the future?

GOING FURTHER:

- Teach this goal-setting process to other 4-H members or groups.

ACTIVITY

Leader Notes

REFERENCES:

Author:

James P. Adams, Extension Specialist, 4-H and Youth Programs, Kansas
State University

Reviewed By:

Clifford Spaeth, Extension Specialist, Animal Sciences and Industry,
Kansas State University
Sheep Design Team

ADVANCING IN THE SHEEP PROJECT BY REACHING GOALS
SHEEP, LEVEL III

Activity Sheet 1, Barriers to Reaching My Goals

1. **BARRIER:** What might be a barrier to reaching a goal that could include?

time: _____

money: _____

resources: _____

knowledge: _____

ability: _____

other barriers: _____

2. **OVERCOMING BARRIERS:** What are some barriers that you might encounter when reaching your goals?

For MAP STEP 2

Barrier 1: _____

Barrier 2: _____

Barrier 3: _____

Barrier 4: _____

Barrier 5: _____

3. **STRATEGIES FOR OVERCOMING BARRIERS:** How will you overcome the barriers that might prevent you from reaching your goal?

For MAP STEP 2

Strategy 1: _____

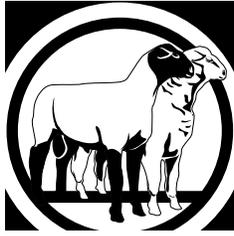
Strategy 2: _____

Strategy 3: _____

Strategy 4: _____

Strategy 5: _____

4. **YOUR PERSONAL BARRIER:** What do you think will be your biggest barrier to overcome during the next year for this project and how do you plan to overcome it?



Ethical Sheep Fitting and Showing

Sheep, Level III

What Members Will Learn . . .

ABOUT THE PROJECT:

- Materials and equipment needed to fit their lamb
- How fitting techniques depend on breed or lamb type

ABOUT THEMSELVES:

- Their feelings about ethical principles

Materials Needed:

- Lambs with different types of wool
- clippers
- curry comb
- wool card
- Activity Sheet 2, Ethical/Unethical Showing Practices
- Member Handout 1, Kansas 4-H Sheep Showmanship Score Card

ACTIVITY TIME NEEDED: 60 MINUTES

ACTIVITY

How you prepare sheep for the show ring is determined by the kind of animal (market lamb or breeding sheep) and the breed of sheep being shown. The purpose is to enhance the appearance and welfare of the sheep so that it looks and feels the best it can. A healthy comfortable animal will look best!

MARKET LAMBS:

Market lambs are generally shown slick shorn. That includes every part of the lamb above the knees and hocks, even the head. An electric clipper with a 23 or 24 tooth comb does a nice job. If a lamb has a lot of wool, it may be easier to shear it first with a 13 tooth comb. The more teeth on the comb, the closer the wool is trimmed. You want as little as possible left on the lamb at the time of the show. A wooly lamb will feel soft to the judges hand. The judge will prefer a lamb that feels firm and muscular. Also, washing the lamb the morning of the show will make the hide a little tighter, giving the lamb a firmer handle. The judge will not appreciate getting wet, so allow enough time for the lamb to dry. It also helps to spray lambs with a fly repellent as any sheep in short fleece is vulnerable to fly strike.

Leader Notes

Review Level I & II lessons on washing and fitting before doing this lesson.

1. Leader or parent should bring several breed magazines for the 4-Hers to see how their breed(s) is fit at the major shows.
2. If possible, have the most experienced member, or an outside "expert" give a demonstration to the entire group.
3. This discussion is designed to take what you have already learned from the level I and II lessons on fitting, washing and preparing your lamb for show, and expand on them. Also included are a few helpful hints for each breed or type of lamb to help the member exhibit the lamb to its greatest advantage.

Distribute Member Handout 1, Kansas 4-H Sheep Showmanship Score Card, and discuss.

Leader Notes

ACTIVITY

BREEDING SHEEP:

SOUTHDOWNS:

Southdowns are fit and shown in much the same manner as market lambs. A Southdown should be slick shorn from head to rump. A small amount of wool can be left over the rump, dock and rear leg. With the hand shears, blend in the rump, make the dock square and accent the legs to enhance their muscular shape.

WOOL BREEDS:

When fitting wool breeds, there are some subtle differences in technique and equipment as compared to fitting meat breeds. Some additional equipment includes a stiff-bristle brush and a 13-tooth rake comb (for a 3 inch Shearmaster). The experienced fitter should curry the fleece before cutting out the lamb. This saves carding time before the outer fleece is removed. The 13-tooth comb easily cuts through the dense fleeces of wool breeds. After cutting out, the fleece length could vary from 1 to 4 inches over the entire body.

Unlike the meat breeds, you must leave at least 1 to 1 1/2 inches of wool along the sides so the judge can evaluate the fleece for variability. Also, you must leave wool on the lower rib unlike the meat breeds where the belly is slick shorn.

Most of the shaping can be done with the shearmaster during the process of cutting out. Then, work the fleece with a wet, stiff-bristled brush. This makes it easier to cut. Use the wool card and hand shears to put the desired finish on the fleece. There are different wool cards for meat breeds and wool breeds. A card with fewer teeth can more easily penetrate a dense fleece. Rub down the fleece with a towel and warm, soapy water. This cleans the fleece and pulls out loose ends for the final trimming.

The shaping of the rear leg is slightly different from the meat breeds. Cut the wool way down in the hock area and give the outer leg a larger, fuller appearance. In some cases, (Columbias & Corriedales) the legs are washed up to the brisket or flank, but it isn't necessary. The face and ears should also be washed.

Because of the variability in fleece length on different parts of the body, you will have variation in color. Dirt penetrates the outer part of the fleece giving it a gray appearance. The closer you get to the skin, the less dirt, hence the wool is yellowish. Just from an eye appeal standpoint, it looks best if the sheep is all one color. Rubbing the fleece with a damp towel helps spread the dirt evenly. Fill a small bucket half full with water and add some dirty wool to it. Mix it up until you have a greasy mud/water solution. Use a stiff-bristle brush to rub this mixture on to the fleece. This gives the entire fleece a natural coloring. A spray bottle can also be used to apply this mixture to the fleece. It may take several applications to achieve the desired effect.

ACTIVITY

Leader Notes

Most people don't blanket wool breeds anymore. However, it's still okay.

MEAT BREEDS:

If you do a good job of cutting out, it shouldn't take much work to prepare the lamb for show. After washing the lamb, allow it to dry. Remember, the wool should be a little damp so it will cut evenly and pack together. But, if it's too wet it may cut too easily, and look choppy. If the lamb gets too dry, wet it with a spray bottle.

With the lamb up on the trimming stand, go over the wool with a curry comb. This will make carding much easier. Next, card the wool thoroughly. If a lamb has a lot more wool than needed, a shearmaster (preferably with a 13-tooth comb) can be used to trim off the excess. It is faster than using the hand shears, but if you take too much off, you can't put it back on. By slick shearing the belly and part way up the front and rear legs, you can make the lamb look taller. If any wool is trimmed with the electric clipper, you must re-card the lamb before trimming with the hand shears. Also, pick any straw or debris out of the fleece before trimming as these may dull or damage the blades. Trim the lamb as described in the level 1 lesson. When finished, stand back and observe the lamb from a distance. If the lamb doesn't look quite right, card it up and trim it over again. It may be a good idea to look at pictures of your breed from a magazine. How does your breed look at the major shows and sales? Try to make your lambs look like those. Also, try to observe the older members and open class sheep. Compare your fit job to theirs.

Length, especially in the loin, is an important quality in breeding sheep. The loin is measured from the last rib to the point of the hip bone. Find these areas on your lamb. You can make your lamb look longer loined by trimming just a little extra wool off the area from the 2nd to last rib to just past the point of the hip.

Anywhere on the body where a patch of hair or wool sticks out should be trimmed to give it a smooth appearance. Several breeds have wool on their heads or down on their legs. These areas should be carded and trimmed. Many breeds have preferred styles for these areas. Consult a breed magazine for tips.

If you have a black faced breed, such as Suffolk or Hampshire, a product called purple show oil can make your lamb more eye appealing. Use a rag to rub a little of the oil on the face, ears and legs to make them shine.

Dr. Jeff Goodwin, University of Idaho, Extension 4-H and Youth Specialist, lists criteria or questions to ask to determine if a fitting or showing practice is ethical or unethical:

1. Does it violate the federal drug and food (FDA) law? Have you fed or given any antibiotics or given your lamb any medicine that has a withdrawal time before it can be processed for food?

Review Member Handout 1, Kansas 4-H Sheep Showmanship Score Card, using these criteria.

Leader Notes

ACTIVITY

Use Activity Sheet 2, Ethical/Unethical Showing Practices, as a sample to discuss ethical and unethical practices.

2. Is it a fraudulent misrepresentation of the animal?
3. Does it compromise the welfare of the animal? Most fitting and showing practices can be evaluated based on these three questions. If there is still a concern, use a fourth question:
4. Does the practice have anything to do with real world agriculture? Ninety-nine percent of the practices in question can be sorted right or wrong by the use of these four questions.

DIALOGUE FOR CRITICAL THINKING:

Share:

1. What was the hardest aspect of fitting your lamb? Easiest?
2. What have you done before to fit your lamb for show?

Process:

3. Why do market lambs and breedings lambs differ in their fitting?
4. What are the questions to ask to help determine if a fitting or showing practice is right or wrong?

Generalize:

5. How do you decide if something is right or wrong?

Apply:

6. How will you act differently in the future as a result of this discussion? Why?

GOING FURTHER:

7. Attend a purebred livestock show and witness the fitting techniques used.

REFERENCES:

Washing Your Lamb—Level I

Basic Fitting—Level II

Wes Limesand, Shepherd, North Dakota State University Sheep Unit
“Line in the Sand” video by Dr. Jeff Goodwin, University of Idaho

ACTIVITY

Leader Notes

Author:

Jeremy Geske, Former Extension Assistant, Kansas State University
James P. Adams, Extension Specialist, 4-H and Youth Programs, Kansas
State University

Reviewed by:

Clifford Spaeth, Extension Specialist, Animal Sciences and Industry,
Kansas State University
Sheep Design Team

**ETHICAL SHEEP FITTING AND SHOWING
SHEEP, LEVEL III**

Member Handout 1, Kansas 4-H Sheep Showmanship Score Card

100 Points Possible

A. Appearance of Lamb

**Perfect Score
30 Points**

1. Cleanliness

15

- a. Wool clean and free of foreign matter.
- b. Flanks, face, nose, ears, feet and legs clean.

2. Trimming

15

- a. The final decision on length of fleece is left to the individual show. Fleece should be slick shorn on market lambs.
- b. Fleece of breeding ewes trimmed to a length of 3/8- to 3/4-inch or, in the case of a wool breed, a length which is appropriate for the standard of that breed.
- c. Back, side and legs of breeding sheep may be trimmed to emphasize the merits of that breed, depending on individual breed characteristics.
- d. Feet trimmed so that lamb walks and stands naturally and correctly.

B. Showing Lamb

**Perfect Score
50 points**

1. Posing and Changing Position

35

- a. Lamb kept well posed at all times but showman not engaged in undue fussing or maneuvering.
- b. Lamb shows evidence of training as indicated by responsiveness to handling.
- c. Lamb shown from front when judge is viewing it from rear or left side; otherwise lamb shown from left side. Show officials should request movement of exhibits accordingly.
- d. Exhibitor shows while standing or in a half-kneeling (one knee on ground) position except when moving lamb to a new position.
- e. Lamb led only from left side with left hand under jaw and right hand to help control lamb if necessary.
- f. Reasonable distance from next animal maintained at all times.
- g. Proper to let lamb relax but not out of position when lamb is not visible to judge.

**ETHICAL SHEEP FITTING AND SHOWING
SHEEP, LEVEL III**

Member Handout 1, Kansas 4-H Sheep Showmanship Score Card

- h. Lamb braced by grasping under the chin with both hands, pulling downward and applying backward pressure or braced with knee to cause lamb to hold its back rigid but straight while being handled. All four feet should be firmly on the ground.

2. Cooperation With Judge **15**

- a. Awareness of position of judge maintained but not made obvious.
- b. Body not permitted to obstruct view of judge.
- c. Lamb maneuvered into position for benefit of judge's inspection.

C. Appearance of Lamb **Perfect Score
20 Points**

1. Appearance **10**

- a. Showman well-groomed and clothes clean and neat.
- b. Suggested that no headgear be worn in class.
- c. Extremes in color and fit not appropriate. Full length jeans in subdued, solid colors are appropriate.
- d. Official shirt (or blouse) provided by show management is considered appropriate as well as any shirt of subdued, solid color.

2. Merits **10**

- a. Brings lamb into ring promptly.
- b. Responsive to judge's and ringmaster's requests.
- c. Works quickly but not abruptly.
- d. Recognizes and corrects faults of lamb quickly.
- e. Not distracted by persons and things outside ring.
- f. Shows animal, not self.
- g. Does not leave ring until released by ring official.
- h. Displays a courteous and sportsmanlike attitude while at the show.
- i. Prepared to give prompt answers to questions related to the 4-H sheep project.
- j. Upon instruction of the ringman or judge, to move lamb to new position, priority is to get to that position and set up the lamb.

D. Following are Reasons for Disqualification

- 1. Use of artificial coloring.**
- 2. Lifting front feet from the ground when bracing.**

ETHICAL SHEEP FITTING AND SHOWING

SHEEP, LEVEL III

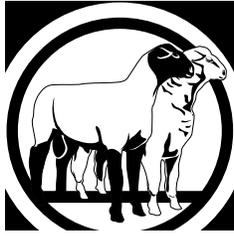
Activity Sheet 2, Ethical/Unethical Showing Practices

Check the appropriate box

Ethical

Unethical

- | | | |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | 1. Polishing or cleaning the hooves of a lamb. |
| <input type="checkbox"/> | <input type="checkbox"/> | 2. Using powder to minimize the effect of black fiber. |
| <input type="checkbox"/> | <input type="checkbox"/> | 3. Injection of an anti-inflammatory agent to help a crippled animal walk at a show. |
| <input type="checkbox"/> | <input type="checkbox"/> | 4. Giving a lamb a diuretic to meet a maximum weight requirement. |
| <input type="checkbox"/> | <input type="checkbox"/> | 5. Scheduling a daily feeding around a sheep weigh-in. |
| <input type="checkbox"/> | <input type="checkbox"/> | 6. Placing ice bags on a lamb to make it feel firmer at a show. |
| <input type="checkbox"/> | <input type="checkbox"/> | 7. Severe restriction of feed and water for several days to meet a maximum weight requirement. |
| <input type="checkbox"/> | <input type="checkbox"/> | 8. Normal exercise. |
| <input type="checkbox"/> | <input type="checkbox"/> | 9. Excessive exercise. |
| <input type="checkbox"/> | <input type="checkbox"/> | 10. Injection of an antibiotic. |
| <input type="checkbox"/> | <input type="checkbox"/> | 11. Holding the front feet of a lamb off the ground to force it to brace and feel firmer. |
| <input type="checkbox"/> | <input type="checkbox"/> | 12. Slapping or hitting a lamb on the dock to get it to brace. |



Sheep Judging with Oral Reasons

Sheep, Level III

What Members Will Learn . . .

ABOUT THE PROJECT:

- The definition of oral reasons
- Terminology used in sheep reasons
- How to take notes during a judging class
- How to write a set of reasons

ABOUT THEMSELVES:

- How to develop written and verbal communication skills
- How to improve organization skills
- Ways to develop and build self confidence

Materials Needed:

- Member Handout 2, Reasons Terminology for Market Lambs
- Member Handout 3, Reasons Terminology for Breeding Lambs
- Member Handout 4, Oral Reasons Notes Guide
- Member Handout 5, Oral Reasons Outline
- Judging notebooks and placing cards
- Several classes of sheep or slides of sheep (4 per class)

ACTIVITY TIME NEEDED: 60 MINUTES

ACTIVITY

Judging contests and oral reasons teach members to make decisions and defend those decisions. It will improve their public speaking ability as well as increase self confidence. In addition, learning to effectively and accurately evaluate livestock will aid them in selecting their own breeding stock and show lambs.

For example, if describing a heavy muscled, long bodied lamb, you might say “he was a thicker topped lamb that carried more muscle down his top

Leader Notes

Second and third year members can begin learning to write and give reasons on sheep classes. This will improve their overall ability to judge sheep. Note: Young members need to be encouraged to write and read a short set of reasons, but not pressured to memorize and give long sets of reasons.

In a previous lesson, we learned what to look for when judging lambs. This lesson goes into a little more detail on what to look for when judging sheep than the previous lesson. The terminology will help you express your reasons.

Wherever possible, show illustrations or give examples of good vs. poor animals.

Leader Notes

Pass out Member Handout 2, Reasons Terminology for Market Lambs, and discuss the terms.

Pass out Member Handout 3, Reasons Terminology for Breeding Lambs.

In a later lesson, we'll learn some terms that relate capacity to production.

ACTIVITY

and through his hind saddle. When viewed from behind, he showed me more natural thickness and muscle shape through his leg." Or, if describing a lean lamb, you might say "he was a trimmer made lamb that was leaner down his top, and carried less waste and condition across his ribs and through his middle."

As you remember, we judge market lambs on what we think their carcass quality would be. When you give reasons, you want to talk about differences in muscle and fat between the lambs. In another lesson, we'll talk about adding some carcass and slaughter terminology to the reasons.

JUDGING BREEDING STOCK:

In a previous lesson, we talked about some important traits of breeding sheep. We'll divide the terminology into several categories.

For example, when describing a ewe lamb that is big framed, and appears to be later maturing, you might say "she showed me the most elevation at the shoulder, the most extension from end to end, was longer necked, was longer and more youthful appearing about her head and stood on more length of cannon (bone between the hoof and knee) indicating to me that she is later maturing and should continue to grow and be the largest ewe at maturity."

The industry wants lambs that are big and will continue to grow and be large at maturity as opposed to lambs that do most of their growth early, and don't get very big at maturity. Lambs that have short legs, short necks, and short stubby faces may not grow very large.

For example, when describing a level topped, good footed lamb, you might say "she was straighter and strongest down her top, carried out squarer over her dock and set down more correctly on her feet and legs."

For example, when describing a big bodied, thick made ram, you might say "he was a higher volumed ram that showed me more width across his top, was bolder sprung and carried more depth and expansion through his chest floor."

For example, when describing a structurally correct, up-headed, long bodied ewe, you might say "she caught my eye as the most complete, best balanced ewe in the class. A proud fronted ewe that was more fault free on her feet and legs..."

BREED CHARACTER:

Each breed has a certain appearance that is considered ideal, and it is different for every breed. There are too many breeds to go through each one. Members should become familiar with how the more common breeds are supposed to look. This includes such things as face and leg color, horned or polled, the presence or absence of wool on the face and the size and shape of the head and ears.

ACTIVITY

Leader Notes

Here are some examples:

Suffolk should be black about the points (head, ears and legs) and have a long pendulous ear.

Hampshires should have a complete wool cap on the forehead, and have some wool on the lower leg.

Columbias should not have black or brown on the face, ears or nose.

FLEECE:

Some breeds have wool on the forehead and cheeks. If there is too much wool around the eyes, it may impair vision and that is undesirable. In black faced breeds, the fleece should be free from black fibers.

For wool breeds, the fleece should be fine, dense, uniform and have a long staple length. More fleece qualities are discussed in the lesson on wool and wool judging.

Taking notes for oral reasons is very important. You need to develop a system that works best for you. You may have your own abbreviations and notations that will help you remember the class later on. At the top of the page, write the name of the class and how you placed it. Organize the rest of the page so you have three large blocks for notes about each pair (best to 2nd best, 2nd to 3rd, and 3rd to 4th). Along the right side, you may leave a small column for grants (advantages of the lower placing lambs over the lamb above them). And at the very bottom, leave a small space to sum up the 4th place lamb and conclude the reasons.

Let's look at Member Handout #4, Oral Reasons Notes Guide.

The sooner you decide on a placing, the more time you have to take notes. The more time you have, the more extensive your notes can be. Write down the obvious, most important things first. As time allows, write down the less important or more subtle differences. Its also a good idea to write down descriptive terms (color, breed) of the lambs to help you remember the class.

Giving oral reasons can make you nervous at first, but it gets easier every time you do it. In no time, giving reasons will become easy. When giving reasons, speak clearly, be honest, and be confident. Giving reasons is simply telling the official why you placed the lambs the way you did. Always start by telling the name of the class and your placing. Then say the reasons you placed the top lamb over the 2nd best lamb. Try to say the most important things first (such as size and structure) and the minor differences last. Then say any advantages the 2nd place lamb had over the first lamb (grants). Repeat this for the middle and bottom pairs. End the reasons by mentioning any positive qualities of the last place lamb and some general reasons why it wasn't as good as the other lambs. A good, complete set of reasons should last about two minutes. Try to give the reasons without looking at your notes. Try not to say the exact same thing

Refer to Member Handout #5, Oral Reasons Outline.

Leader Notes

ACTIVITY

for each pair. Use a variety of terms, but be accurate. As long as you give your honest opinions, you'll do well.

As you get more practice, you can use a wider variety of terms and add in transition words/phrases to give your reasons a nice smooth flow. If you are unsure what a term means, you better not use it. If you sound like you don't know what you are talking about, or you say things that aren't true, you won't get a very good score.

DIALOGUE FOR CRITICAL THINKING:

Share:

1. What process of taking notes and organizing thoughts do you use to defend your placing?
2. What was the most difficult or easiest when preparing your reasons?

Process:

3. What skills/knowledge do you need to take notes and prepare a set of reasons? (parts of animals, etc.)
4. What is the significance of being able to explain and defend a decision?

Generalize:

5. What did you learn about your ability to organize thoughts?
6. How will this reasoning process help you make other decisions?

Apply:

7. How do you think this process of judging, notetaking, and giving an oral defense will help you in the future?

GOING FURTHER:

1. Participate in sheep judging practices.
2. Participate in livestock judging contests.
3. Observe experienced members giving oral reasons.

REFERENCES:

Live Animal Carcass Evaluation And Selection Manual, Boggs and Merkel
4-H Livestock Judging Guide (S92)

ACTIVITY

Leader Notes

Author:

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SHEEP JUDGING WITH ORAL REASONS

SHEEP, LEVEL III

Member Handout #2, Reasons Terminology for Market Lambs

Desirable	Undesirable	Desirable	Undesirable
General Appearance		Middle	
nicer balanced	poorly balanced	trimmer or neater middle	wasty middle
meatier, more muscular, heavier muscled	light-muscled	cleaner through middle	heavy middle
straight lined	loose-framed	tighter middled	
firmer handling	soft-handling	Rump and Dock	
more correctly finished	overfinished	wider at the rump or dock	pinched at the dock
trimmer	wasty	squarer at the rump or dock	droopy rumped
firmer	rangy	more nearly level rump	short rump/dock
thicker	narrow	longer rump	tapers at rump narrow rump/dock
more stylish	pelty	Leg	
smoother made	plain, coarse	meatier, more muscular leg	light-muscled
more powerfully made	slack-framed	heavier leg	flat leg
longer bodied	frail	thicker leg	soft leg
bigger framed	small-framed	plumper, more bulging leg	short leg
nicer profiling	plain made	firmer leg	narrow, shallow
Head, Neck, Breast, Chest		meatier through the stifle	short, narrow stifle
neater	coarse	deeper leg	
trimmer front end	wrinkled about the neck	fuller leg	
wider chest	ewe-necked	Finish	
longer neck	heavy-fronted	more desirable degree of finish	thin, bare
taller fronted	narrow-chested	firmer handling	soft finish
	short fronted	harder down his top	soft handling lamb
	low fronted	more correctly finished	overfinished
Shoulders		more uniform finish	
heavier muscled forearm	coarse-shouldered	trimmer	
smoother shoulder	open-shouldered	Carcass Merit	
neater, tighter shoulder	weak behind the shoulders	meatier or heavier muscled carcass	
Back, Loin, Ribs		more correctly finished carcass	
thicker back or loin	narrow made	higher percent of hindsaddle	
stronger back or loin	narrow down the top	longer, trimmer carcass	
more muscular loin	shallow loin	higher percentage of salable lean	
meatier down the top	easier in the back	higher percent of preferred cuts	
stronger top	weak top	more desirable yield grade	
more natural thickness	shallow-ribbed	hang a carcass with more product from the last rib back	
deeper loin edge	flat-ribbed	will have more rack, loin and leg	
more spring of rib	shallow-loined		
deeper ribbed	short-loined		
more muscular turn over the loin	short hindsaddle		
fresher, more muscular top			
meatier rack			
longer hindsaddle			
longer from the last rib back			
firmer handling down his top			

SHEEP JUDGING WITH ORAL REASONS**SHEEP, LEVEL III****Member Handout #3, Reasons Terminology for Breeding Lambs**

Desirable	Undesirable	Desirable	Undesirable
General Appearance		Back, Loin, Rump	
longer, stretchier	short-coupled	thicker back or loin	shallow-loined
growthier, bigger	narrow-made	longer loined	narrow down the top
larger framed	shallow-bodied	stronger back or loin	short-loined
more size and scale	small-framed	straighter topped	easy in the back
nicer balanced	low-set	more muscular loin	weak top
more structurally correct	conventional patterned	stronger top	pinched at the dock
more rugged, heavier boned	poorly balanced	more natural thickness	droopy-rumped
thicker made	plain	wider at the rump and/or dock	short rump
heavier muscled	light muscled	meatier at the dock	tapers over the rump
straight lined		more nearly level rump	
more capacious (larger volumed)		longer rump	
Head and Neck		Underpinning	
more (breed) character	lacks breed character	squarer placed legs	stands bowlegged behind
more open faced	lacks femininity	more correct in the set of legs	cow-hocked
more femininity	plain-headed	stands out wider in front or behind	weak pasterns
freer from wool on his/her ears	wool blind, wooly headed	stands more correctly on all four legs	stands close
trimmer fronted	off in the mouth	more substance of bone	too much set to the hock
longer necked	coarse, plain ewe-necked	more rugged bone, heavier bone	posty-legged
Shoulder, Ribs, Middle		stronger pasterns	
more muscular shoulder	open-shouldered		knock-kneed
neater, tighter shoulder	coarse-shouldered		fine-boned
wider chested	constricted in the heart		sickle-hocked
more capacious	narrow chest		buck-kneed
roomier middle	tight forerib		
bolder sprung	flat-ribbed		
bolder spring of rib	shallow-ribbed		
deeper ribbed			
deeper bodied			
Leg and Twist		Fleece	
meatier, more muscular leg	light-muscled leg	denser, tighter	open fleece
heavier leg	flat leg	more uniform grading	cottony fleece
thicker leg	short leg	heavier shearing fleece	lacks character
longer	narrow, shallow leg	longer staple	contains black fiber
deeper and thicker through his/her lower leg	round and tight in his/her muscle structure	more character about the fleece	short staple
		freer from black fiber	lacks uniformity

SHEEP JUDGING WITH ORAL REASONS

SHEEP, LEVEL III

Member Handout #4, Oral Reasons Notes Guide

Class Name _____

Placing _____

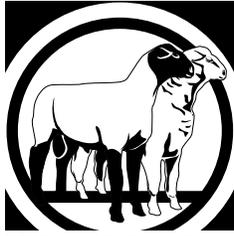
Compare	Grant	Criticize

**SHEEP JUDGING WITH ORAL REASONS
SHEEP, LEVEL III**

Member Handout #5, Oral Reasons Outline

- I. Introduction
 - “I placed this class of *class name 4-3-2-1.*”
- II. Top Pair Paragraph
 - A. Introductory Sentence
 - B. Top Sentence
 - C. Furthermore Sentence
 - D. In Addition Sentence
 - E. Grant Sentence
 - F. Criticize Sentence
- III. Middle Pair Paragraph
 - A. Introductory Sentence
 - B. Top Sentence
 - C. Furthermore Sentence
 - D. In Addition Sentence
 - E. Grant Sentence
 - F. Criticize Sentence
- IV. Bottom Pair Paragraph
 - A. Introductory Sentence
 - B. Top Sentence
 - C. Furthermore Sentence
 - D. In Addition Sentence
 - E. Grant Sentence
 - F. Criticize Sentence
- V. Bottom Individual Paragraph

SHEEP JUDGING WITH ORAL REASONS



Condition Scoring

Sheep, Level III

What Members Will Learn . . .

ABOUT THE PROJECT:

- Recognize varying conditions of lambs
- Proper degree of condition for the stage of growth of the lamb

ABOUT THEMSELVES:

- How to evaluate a situation with varying factors

Materials Needed:

- Member Handout #6, “Loin Region Parts”
- Member Handout #7, “Sheep Condition Scoring”
- Transparency of Member Handout #7, “Sheep Condition Scoring” (optional)
- Group of ewes of varying condition
- Pictures of different sheep to score (optional)

ACTIVITY TIME NEEDED: 60 MINUTES

ACTIVITY

Body condition scoring is a simple but useful procedure which can help producers make decisions concerning ewe flock nutrition and optimizing performance. Body condition score is a subjective measure of the degree of muscle and fat cover on a ewe.

Scoring is done by using the hand to feel the muscle and fat around the vertebrae in the loin region.

The vertebrae have, in addition to the central spinal column, a spinous process (vertical) and two transverse (horizontal) processes. Feel for the spine in the center of the ewes back, behind the last rib and ahead of the hip bone. Also, feel for the tips of the transverse processes.

Condition scores range from 0 to 5 with 0 being the thinnest and 5 representing the fattest. Typically, over 90% of the flock will fall within the scores 2, 3 or 4 and 70 to 80% will be 3 or 4. For more distinction, half scores (2.5 and 3.5) may be added for those sheep who fall between 2 and 3, or 3 and 4. Sometimes scores are given in tenths (2.6, 3.4, 3.8 etc.), if a high degree of accuracy is desired. Such distinction may not be necessary as ewes with condition scores of 2 to 4 will generally be productive and may not require a special ration.

Leader Notes

This lesson would work the best with sheep to practice on . If this is not possible try to obtain slides or pictures of sheep with varying conditions.

Pass out Member Handout #6, “Loin Region Parts” and point out the different parts to focus on when scoring sheep.

Pass out Member Handout #7, “Sheep Condition Scoring” and point out the differences in each condition. Possibly make a transparency of handout and review it on an overhead.

A guideline for determining condition score is as follows:

Condition Zero

- spine prominent and sharp
- no fat cover
- wasted muscle structure
- transverse processes protrude

Sheep is extremely thin, unthrifty and weak. Skeletal features are very prominent. Eyes appear sunken and ewe may separate herself from the flock.

Condition One

- spinous process prominent and sharp
- no fat cover
- transverse process easily felt

Sheep is unthrifty and thin, but agile. Skeletal structures prominent but no apparent muscle loss. Has strength to remain with the flock.

Condition Two

- spinous process prominent but smooth
- slight fat cover
- muscle fullness
- transverse processes rounded, but felt with pressure

Sheep is thin, but strong and thrifty with no apparent muscle loss. No evidence of fat, but skeletal features do not protrude.

Condition Three

- spinous process rounded and smooth
- some fat cover
- muscle fullness
- transverse processes felt with hard pressure

Sheep is thrifty, with evidence of fat over the shoulder, on the fore rib and across the tail head.

Condition Four

- spinous process only evident as a line
- considerable fat cover
- transverse processes can not be felt

Moderate fat deposits give the sheep a smooth appearance. Firm fat deposits become evident in the chest and over the tail head.

Condition Five

- spinous process not detectable
- transverse processes not detectable

Sheep is excessively fat. Excess fat lacks firmness. Sheep appears uncomfortable.

Now that we know how to condition score sheep, how do we determine what the appropriate condition score should be? There are several opinions on this. Desired condition score may vary depending on the environ-

ACTIVITY**Leader Notes**

ment, the price of feed, the value of lamb and wool and the stage of production.

Most producers realize when their sheep are too thin; however, many don't realize when their sheep are too fat. If your sheep have too much condition then you are wasting money by feeding too much.

Here are some general guidelines for ewe condition, concerning the stage of production. At breeding time, ewes should be condition 2 or 3 but on an increasing plane of nutrition. Throughout gestation, ewes should range from 3 to 4. At the end of gestation, the ewe should be on a stable plane of nutrition. She will require more nutrients for her rapidly developing fetus. If a ewe loses weight at this time, she may be vulnerable to ketosis. On the other hand, if you feed them too much, it could cause higher birth weights. During lactation, ewes will likely lose weight even when on a high plane of nutrition as they will (or should) be putting all the nutrition into milk for their lambs. After weaning, and before breeding, is a time known as the dry period (or maintenance). The ewe isn't producing anything so it's okay for her to be thin. During this stage, it is seldom economical to supplement the ewe so she'll gain weight. By the end of the dry period, the ewe should be at least condition 2, but she should have been able to regain her weight loss by grazing.

No matter how much emphasis you place on condition scores, you should at least be able to identify three groups of sheep within your flock. Those that are too thin should be separated and fed to gain weight. Those that are too fat should be separated and fed to lose weight. Those that are just right should be kept on the same nutritional plane.

DIALOGUE FOR CRITICAL THINKING:**Share:**

1. What was the hardest thing to recognize when scoring sheep? Easiest?
2. Was it easier or harder to recognize the condition score of sheep after you practiced with a few?

Process:

3. What is the most important thing to look for when assigning a score?
4. Why is body condition scoring necessary? What changes could you make to change the score?

Generalize:

5. What other projects consider condition important? Why?
6. What problems are encountered when you use visual appraisal alone to determine condition of a product?

Leader Notes

ACTIVITY

Apply:

7. What other factors can be used to evaluate products? When and how?

GOING FURTHER:

1. Visit a locker plant and see the difference of fat on sheep with varying body condition scores.

REFERENCES:

SID Sheep Production Handbook

Author:

Jeremy Geske, Former Extension Assistant, Kansas State University
James P. Adams, Extension Specialist, 4-H and Youth Programs, Kansas
State University

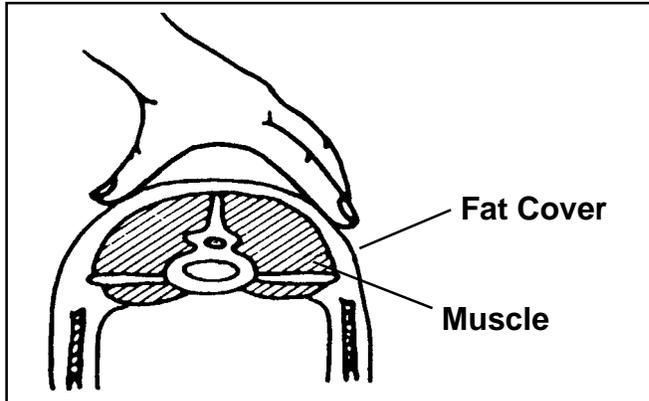
Reviewed by:

Clifford Spaeth, Extension Specialist, Animal Sciences and Industry,
Kansas State University
Sheep Design Team

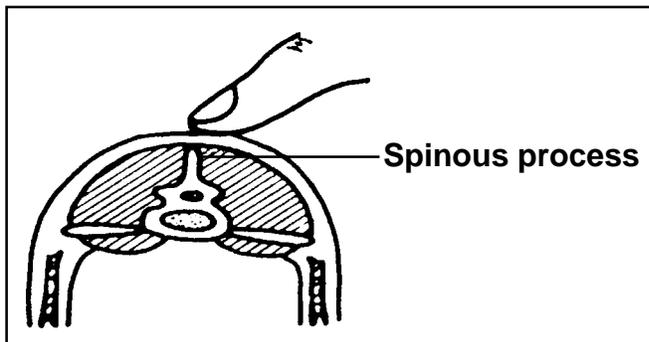
CONDITION SCORING

SHEEP, LEVEL III

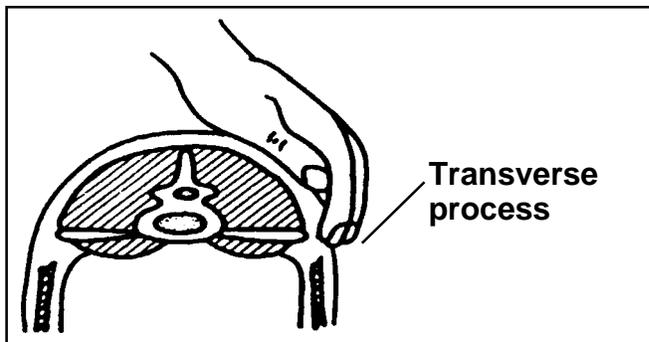
Member Handout #6, Loin Region Parts



Feel for fullness of muscle and fat cover.



Feel for the spine in the center of the sheep's back behind the last rib and anterior to the hipbone.



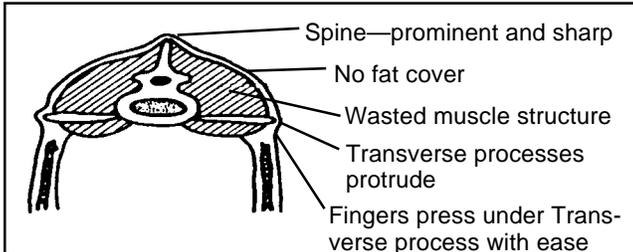
Feel for the tips of the Transverse process.

CONDITION SCORING

SHEEP, LEVEL III

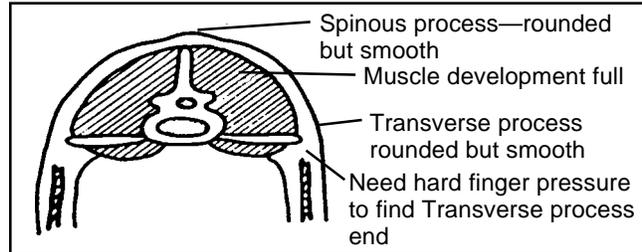
Member Handout #7, Sheep Condition Scoring

Body Condition Zero



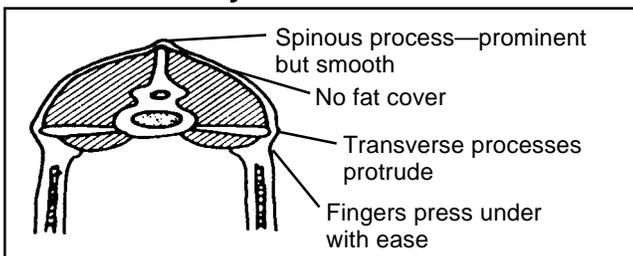
Sheep is extremely thin, unthrifty and weak. Skeletal features very prominent, e.g. backbone, shoulder blades and ribs. Wasted muscle tissue evident. Eye socket is prominent and sunken. May be humped back and isolates self from flock.

Body Condition Three



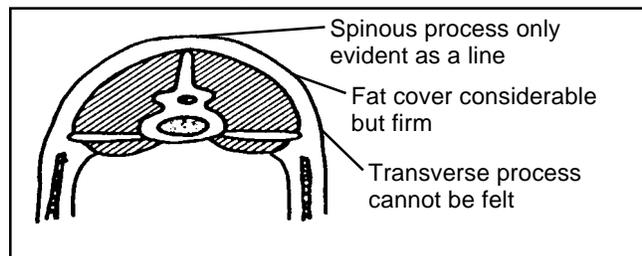
Sheep are thrifty with evidence of limited fat deposits in fore rib, over top of shoulder, backbone, and tail head. Hipbone remains visible.

Body Condition One



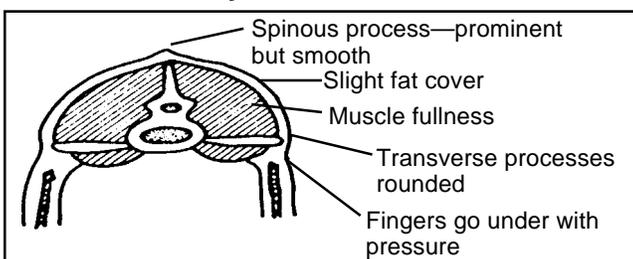
Sheep is extremely thin, unthrifty but agile. Skeletal features are prominent with no fat cover. No apparent muscle tissue degeneration. Has strength to remain with flock.

Body Condition Four



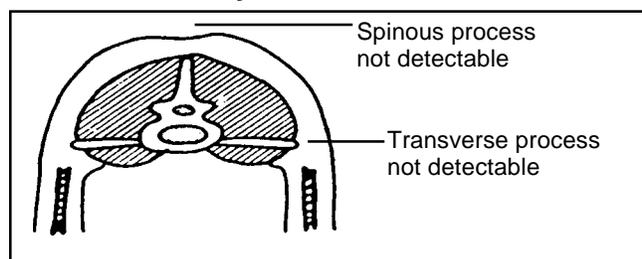
Moderate fat deposits give the sheep a smooth external appearance over the shoulder, back, rump and fore rib. Hip bone is not visible. Firm fat deposition becomes evident in brisket and around tail head.

Body Condition Two

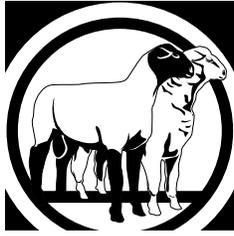


Sheep is thin but strong and thrifty with no apparent muscle structure wasting. No evident fat cover over the backbone, rump and ribs, but skeletal features do not protrude.

Body Condition Five



Sheep are extremely fat with the excess detectable over the shoulder, backbone, rump and fore rib. Excess fat deposits in brisket, flank, and tail head regions lack firmness. Sheep appear uncomfortable and reluctant to move about. Quality fleeces are generally found.



Ram Breeding Soundness Evaluation

Sheep, Level III

What Members Will Learn . . .

ABOUT THE PROJECT:

- The four major parts of a breeding soundness evaluation
- Characteristics of high and low quality semen

ABOUT THEMSELVES:

- Importance of evaluation
- Their consumer skills

Materials Needed:

- Activity Sheet #3, “Male Ovine Reproductive Tract”
- Leader Key—Male Ovine Reproductive Tract
- Activity Sheet #4, “BSE Quiz”
- Leader Key—BSE Quiz
- An intact ram or diagram of the ram’s reproductive tract to display during the discussion.
- Flip chart and markers

ACTIVITY TIME NEEDED: 45 MINUTES

ACTIVITY

The ram is generally the most important (valuable) sheep in the flock. After all, he is responsible for half the genetics of the next lamb crop. His increased importance stems from the fact that a single ram can be mated to a large number of ewes. The exact number of ewes depends on the size and terrain of the breeding pasture, the age of the ram and several other characteristics. When using ram lambs as sires, a ratio of 15–25 ewes per ram is often used. Mature rams can be mated to 30, 40 or even more ewes. A ram should be exceptional in terms of exemplifying the characteristics you desire and he must be highly efficient in terms of his reproductive capacity.

In most cases, it would not be economically feasible to perform a reproductive exam on all your ewes, as each ewe only makes up a small portion of the next lamb crop. It is; however, relatively simple and generally cost effective to put your ram(s) through a breeding soundness examination. Most veterinarians routinely perform this exam.

There are 4 parts to a ram breeding soundness examination. The first part is a **physical evaluation** of the ram’s body condition and structure. Rams should be in good shape at the start of the breeding season, as they will likely lose weight (up to 12% of their body weight) during mating. If a

Leader Notes

Have a veterinarian perform a Breeding Soundness Evaluation (BSE) demonstration.

Refer to previous lessons on judging and condition scoring. Begin listing four main parts of BSE on a flip chart.

Leader Notes

ACTIVITY

Pass out Activity Sheet #3, "Male Reproductive Tract" and have members fill in the blanks to review anatomy.

ram is too thin, he may stop breeding or even die. The ram's structure, especially his feet and legs, is also important. A ram must be sound as he may have to cover a lot of ground during the breeding season. A lame ram won't breed many ewes.

The second part is a **reproductive tract exam**. The prepuce and sheath should be checked for deformity, infection or blockage. The testicles should be palpated and checked for epididymitis. Testicles that are too soft or too hard may be an indication of sterility. Also, scrotal circumference should be measured. Mature rams should have at least 32cm scrotal circumference in order to insure satisfactory reproductive performance. Ram lambs should have approximately 28cm scrotal circumference to insure that they have reached puberty. Larger scrotal circumference is directly related to sperm production/output. To measure scrotal circumference, grasp the testicles, gently but firmly pull them all the way down into the scrotum. Slip a circular tape measure around the widest part and read the measurement.

List good semen characteristics on a flip chart.

The third part is the **semen evaluation**. Semen is collected, generally by electro-ejaculation, but other methods are available. Semen pH should be about 6.8. Higher pH (about 7.4) indicates a poor sample. A good sample should have about 75% motility, whereas a poor sample may only have 15% motility. A good ejaculate will contain about 1.4 billion sperm cells. Poor samples may contain less than 1 billion sperm cells. A good sample will contain about 80% live, normal sperm. A poor ejaculate might only have 40% live, normal sperm. A good sample should also have less than 25% abnormalities. A ram that gives a poor semen sample may have trouble settling ewes and producing viable embryos. If a ram fails a semen evaluation, he should be tested again to make sure. Also, semen evaluation should be done near the breeding season as rams don't need viable semen in the "off" season.

A fourth part, which may or may not be included, is a **mating desire evaluation**. This tries to measure the ram's libido. It is often difficult to get an accurate measure of a ram's mating desire; therefore, it isn't always included in the BSE. Theoretically, a ram with more mating desire could be mated to a larger number of ewes. The only way to evaluate mating desire is to observe the behavior of the ram while he's with the ewes. Does he actively, aggressively seek out the ewes in heat or does he seem disinterested?

Pass out Activity Sheet #4, "BSE Quiz." Let members work in pairs to review knowledge learned.

A breeding soundness examination is the first step in managing rams for optimum breeding performance. Selecting the most fertile ram may not only improve the percent lamb crop, but also allow a larger ewe to ram ratio reducing the ram cost.

DIALOGUE FOR CRITICAL THINKING:

Share:

1. Have you ever had a non-productive ram? How did you know?

ACTIVITY

Leader Notes

2. Have you ever conducted or helped with a ram breeding soundness evaluation? What happened?

Process:

3. Why do you think a breeding soundness evaluation is necessary?
4. Why is the ram referred to as the most valuable sheep in the flock?
5. What are some desirable ram semen characteristics?
6. Are there any parts of the evaluation that could be ignored? Why or why not?

Generalize:

7. When buying other things, should you conduct a type of evaluation? What should you evaluate? Why?
8. What does the adage “Buyer Beware” mean to you?

Apply:

9. What are some resources you can use to evaluate future purchases?

GOING FURTHER:

1. Observe a veterinarian conducting a BSE.
2. Attend a production ram sale that uses BSEs.
3. Contact someone to talk on consumer fraud.

REFERENCES:

Author:

Jeremy Geske, Former Extension Assistant, Kansas State University
James P. Adams, Extension Specialist, 4-H and Youth Programs, Kansas State University

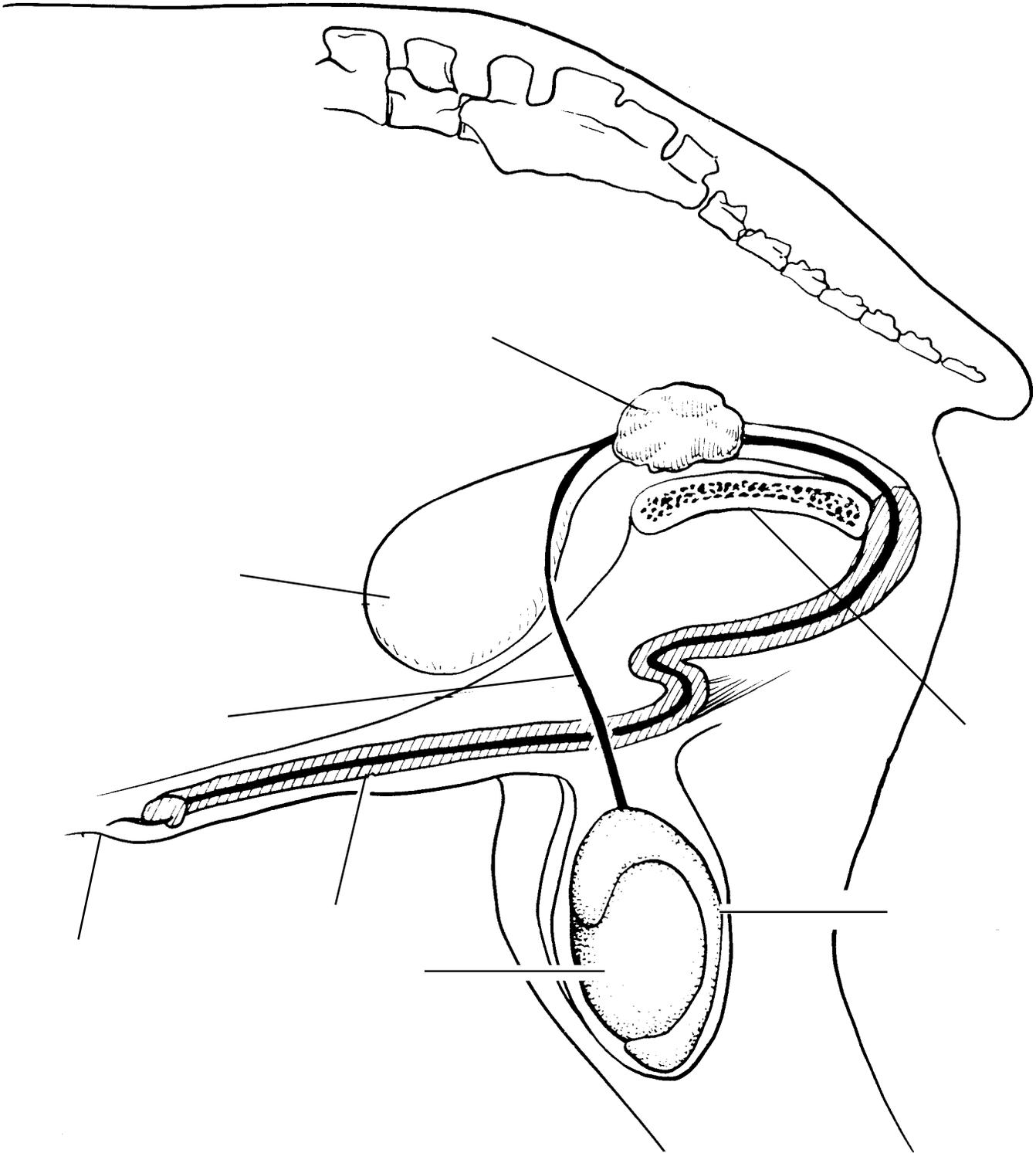
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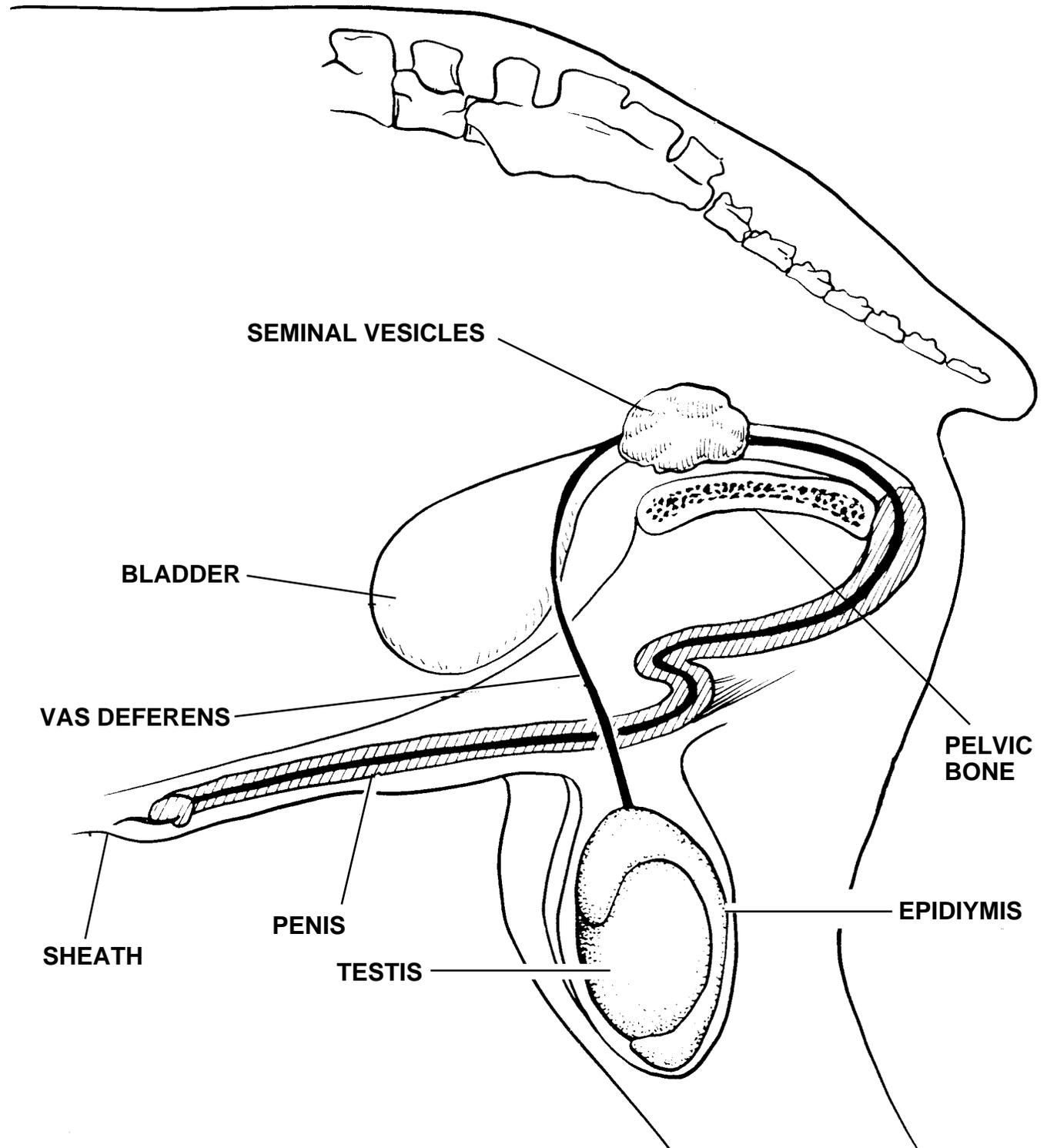
RAM BREEDING SOUNDNESS EVALUATION

SHEEP, LEVEL III

Activity Sheet #3, Male Ovine Reproductive Tract



RAM BREEDING SOUNDNESS EVALUATION
SHEEP, LEVEL III
Leader Key—Male Ovine Reproductive Tract



RAM BREEDING SOUNDNESS EVALUATION

SHEEP, LEVEL III

Activity Sheet #4, BSE Quiz

1. List the 4 parts of the breeding soundness examination.

(1) _____

(2) _____

(3) _____

(4) _____

2. Why is the ram's reproductive ability so important?

3. If you had 500 ewes, approximately how many mature rams would you need for breeding? _____

If you were using only ram lambs how many? _____

4. Why is the physical structure of the ram important?

5. How would you determine if a ram had a high degree of mating desire?

6. Of the following 10 characteristics, circle the ones which would indicate a "good" semen sample.

A) 1.5 billion sperm cells

B) 80% live, normal sperm

C) pH of 7.3

D) 2.1 billion sperm cells

E) 83% motility

F) 20% motility

G) 15% abnormalities

H) 43% abnormalities

I) 33% live normal sperm

J) pH of 6.8

RAM BREEDING SOUNDNESS EVALUATION

SHEEP, LEVEL III

Leader Key—BSE Quiz

1. List the 4 parts of the breeding soundness examination.

(1) physical evaluation

(2) reproductive tract exam

(3) semen evaluation

(4) mating desire evaluation

2. Why is the ram's reproductive ability so important?

Reproduction is the ram's function in the flock. Without good reproductive ability, lambing will be low, and profits will be lost.

3. If you had 500 ewes, approximately how many mature rams would you need for breeding? about 10–15

If you were using only ram lambs how many? about 20–25

4. Why is the physical structure of the ram important?

To continue breeding all ewes the ram must be in top physical condition. He must cover a lot of ground and be sound as a lame ram cannot breed.

5. How would you determine if a ram had a high degree of mating desire?

Observe the behavior of the ram with the ewes. If he actively and aggressively seeks out ewes, then he has an acceptable level of mating desire.

6. Of the following 10 characteristics, circle the ones which would indicate a "good" semen sample.

(A) 1.5 billion sperm cells

(B) 80% live, normal sperm

C) pH of 7.3

(D) 2.1 billion sperm cells

(E) 83% motility

F) 20% motility

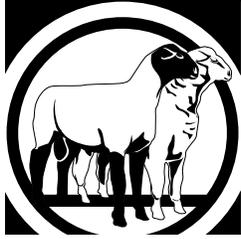
(G) 15% abnormalities

H) 43% abnormalities

I) 33% live normal sperm

(J) pH of 6.8





The Ruminant Digestive System

Sheep, Level III

What Members Will Learn . . .

ABOUT THE PROJECT:

- Examples of ruminants and non-ruminants
- The four compartments of the ruminant stomach
- The basic parts and functions of the ruminant digestive system

ABOUT THEMSELVES:

- The process of digestion
- The differences between monogastric and ruminant digestion

Materials Needed:

- Member Handout #8, “Ruminant and Monogastric Digestive Tracts”
- Member Handout #9, “Parts of the Ruminant Stomach”
- Chalkboard and chalk (optional)

ACTIVITY TIME NEEDED: 45 MINUTES

ACTIVITY

Leader Notes

When you feed your lamb, the feed is used for energy and converted to meat. This takes place through the lamb’s digestive system. The main purpose is to convert feed to energy for maintenance, growth and activity.

Farm animals have two distinct types of digestive systems.

1. Ruminant
2. Simple or monogastric

Cud-chewing animals such as sheep, cattle and goats have a ruminant system. Ruminants have a stomach with four compartments. Non-ruminants have simple stomachs and include man, horses, swine, poultry, cats and dogs.

The ruminant digestive system has several advantages over the non-ruminant digestive system. The ruminant digestive tract is larger, allowing ruminants to eat larger quantities of roughage (hay, grass, silage). The digestive tract (aided by bacteria in the rumen) is also more efficient in utilizing crude fiber. Likewise, monogastric animals are not as efficient in utilizing the nutrients found in roughage and other high fiber feedstuffs.

Have members name some examples of ruminants and monogastric animals.

1. Ruminant (cud-chewing): Cattle, Sheep, and Goats
2. Non-Ruminant: Horses, Swine, Dogs, and Cats

Leader Notes

Pass out Member Handout #8, "Ruminant and Monogastric Digestive Tracts." See if members can name and discuss these functions before listing.

Point to the parts as you discuss them.

Can describe each part or divide group into teams and alternate asking questions. What is the first part of the alimentary canal to function?

What does the pharynx do?

Describe the esophagus.

ACTIVITY

Let's look at the ruminant digestive system.

The digestive tract performs five major functions:

1. food intake
2. storage
3. digestion
4. absorption
5. elimination of waste

The functions take place within the digestive tract. It is sort of like a hollow, tube-like assembly line, except instead of building something, this tract takes it apart. Each feedstuff is broken down into smaller parts until it can be used or eliminated. The digestive process prepares food for absorption and use by the lamb's body. Enzymes break the feed down into simple compounds.

The organs that make up the digestive tract can be sorted into two categories.

1. Alimentary canal—The canal is a continuous tube extending from the lips to the anus. The digestive process occurs within the alimentary canal. The walls of the canal are covered with involuntary muscles which mix the feed with digestive juices and move it along the tract. The parts of the canal are the mouth, pharynx, esophagus, stomach, small intestine, cecum, large intestine and anus.
2. Accessory organs—While not actually a part of the tube, these organs provide several functions which aid in the digestive process. Included in this category are the teeth, tongue, salivary glands, liver and pancreas.

Let's discuss the parts of the alimentary canal.

Mouth—The mouth is the first part of the alimentary canal. Its functions are food intake and mastication (chewing). Here, saliva is mixed with food to moisten it for easy swallowing and to begin digestion.

Pharynx—The pharynx is the membrane that directs food to the esophagus and keeps it out of the respiratory tract.

Esophagus—The esophagus is a long muscular tube allowing food to move from the pharynx to the stomach.

Stomach—We often hear that ruminants have four stomachs. Actually, its just one stomach with four compartments. These four compartments

ACTIVITY

make it easier for sheep to digest large amounts of feed (both roughage and concentrate).

The first stomach compartment is the rumen or paunch. It is a large compartment where feed is stored. The stored feed is regurgitated as cud and rechewed. The rumen reticulum is a fermentation chamber that hosts a large microbial population.

The reticulum is known as the honeycomb. It is also the hardware stomach as foreign materials which may injure the digestive tract are trapped here if swallowed. Feed is agitated, fermented and digestion begins.

The third part is the omasum or manyplies. Here, food is ground into smaller particles and liquid is removed.

The fourth compartment is the abomasum or true stomach. Digestive juices are produced here. This is similar to the non-ruminant stomach.

Small intestine—Food is further digested and absorbed by the blood. The liver secretes bile into the small intestine to neutralize acidity and allow enzyme action to take place.

Large intestine—Non-absorbed material passes into the large intestine where digestion and absorption continue.

Anus—All non-digested materials are eliminated from the canal and excreted out the anus.

Let's discuss the accessory organs. The teeth chew and grind the food into small particles and the tongue rolls and turns the food as it is being chewed. The salivary gland secretes saliva to moisten the food for swallowing. The liver secretes bile and the pancreas secretes pancreatic juices into the small intestine to neutralize acidity and aid in digestion.

Normally, about four days are required for food to pass through the digestive tract of ruminants. The usual time in each part is:

rumen/reticulum—61 hours

omasum—8 hours

abomasum—3 hours

small intestine—7 hours

large intestine—8 hours

Water passes through the system and is absorbed more quickly than food. Some grains are easily digested and pass through the system more quickly than harder-to-digest roughage, such as hay.

Leader Notes

Pass out Member Handout #9, "Parts of the Ruminant Stomach". Name the four compartments of the sheep stomach.

What happens to food in the reticulum?

What is the name of the third compartment of the ruminant stomach?

The last compartment is the only place where digestive juices are produced. What is it called?

What is the function of the small intestine?

What is the function of the large intestine?

What is the last part of the alimentary canal?

How long do you think it takes for feed to pass through the ruminant digestive tract? List the alimentary tract parts and food passage hours.

Leader Notes

ACTIVITY

Not all the feed your lamb eats is absorbed and used for maintenance, growth or production. Only the nutrients that pass through the walls of the alimentary canal are used. Some of the feed leaves the body undigested. Several factors, including feed composition, feed intake and animal differences, affect the digestibility of a feedstuff.

DIALOGUE FOR CRITICAL THINKING:

Share:

1. What was the easiest part of the digestive system to understand? Most difficult? Why?

Process:

2. Discuss the five functions of the digestive system. What problems would occur if each function was omitted one at a time?
3. What are the advantages/disadvantages of the ruminant digestive system?

Generalize:

4. What conclusions can be made about a monogastric digestive system? (Efficiency?, Capacity?, Problems?)
5. How does understanding the digestive system assist you in maintaining efficiency in your livestock projects?

Apply:

6. How important is it to understand the digestive system if you are deciding to feed lambs in a feedlot or on pasture?

GOING FURTHER:

1. Make a drawing of the ruminant stomach.
2. Give an illustrated talk on the ruminant digestive system.
3. Visit a research area and observe the digestive tract in action.
4. Study which feeds are more digestible than others.
5. Visit a feed mill and ask about digestibility of feeds.

REFERENCES:

Kansas 4-H Beef Leader Notebook (LN-1), 2nd ed.

Author:

Jeremy Geske, Former Extension Assistant, Kansas State University
James P. Adams, Extension Specialist, 4-H and Youth Programs, Kansas State University

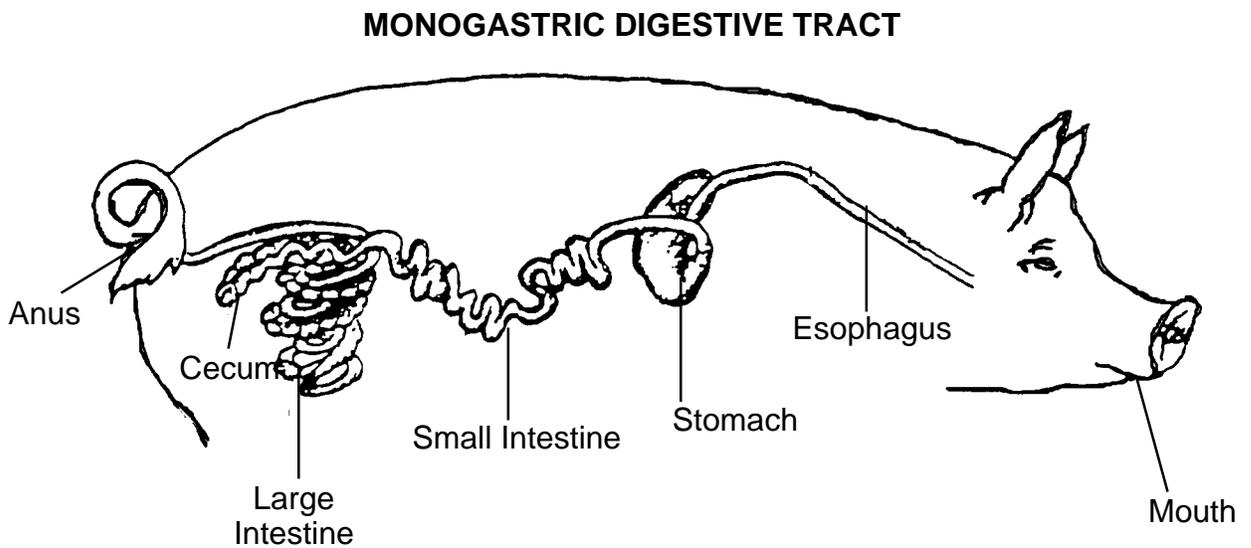
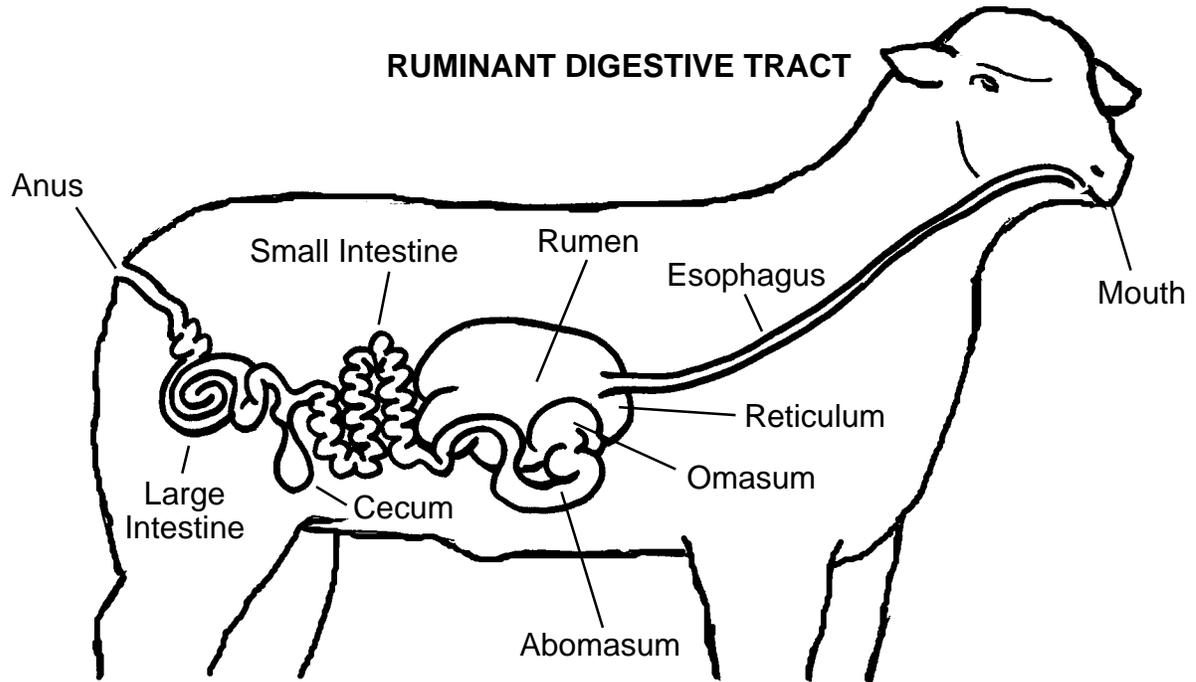
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THE RUMINANT DIGESTIVE SYSTEM

SHEEP, LEVEL III

Member Handout #8, Ruminant and Monogastric Digestive Tracts



**THE RUMINANT DIGESTIVE SYSTEM
SHEEP, LEVEL III**

Member Handout #9, Parts of the Ruminant Stomach

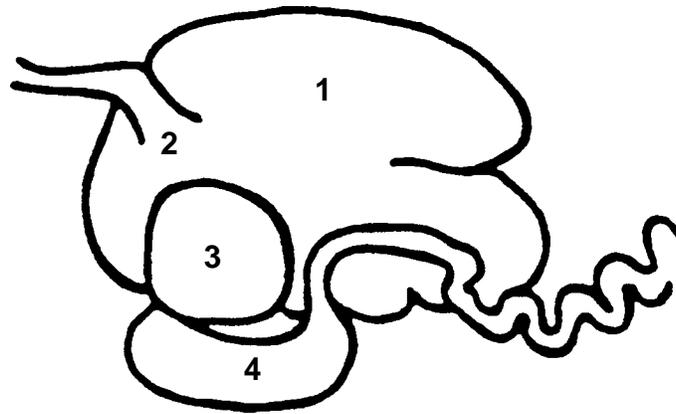
Parts of the Ruminant Stomach

1. Rumen

2. Reticulum

3. Omasum

4. Abomasum



1. Rumen

- Functions as a storage area for food
- Aids in the breakdown of coarse particles through bacterial action

2. Reticulum (honeycomb)

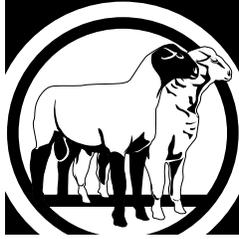
- Honeycomb-like walls retain foreign materials that could injure the digestive system
- Also called the hardware stomach
- Functions are similar to the rumen

3. Omasum

- Liquid is removed from the feed by muscle contractions
- Breaks up coarse particles in feed

4. Abomasum (true stomach)

- Digestive juices that are needed to break down food are secreted
- These include: hydrochloric acid, pepsin, renin and lipase



Balancing Sheep Rations

Sheep, Level III

What Members Will Learn . . .

ABOUT THE PROJECT:

- The proper nutrition sheep need at varying stages of growth and maintenance
- What nutrients different feeds contain
- How to balance a ration to meet nutrient requirements

ABOUT THEMSELVES:

- Value or need for adjustments in everyday living situations

Materials Needed:

- Member Handout #10, “Nutritional Requirements of Sheep”
- Member Handout #11, “Nutrient Content of Feedstuffs”
- Member Handout #12, “Ration Balancing Example”
- Transparency of Member Handout #12 (optional)
- Activity Sheet #5, “Ration Balancing Worksheet”
- Calculator
- Pencils and overhead projector or flip chart and markers

ACTIVITY TIME NEEDED: 60 MINUTES

ACTIVITY

Many sheep rations are premixed at the feed mill due to the equipment and technology available for more precise mixing and balancing of antibiotics and other feed additives. However, it is important to understand how this process works. It is often more economical for larger producers to raise the feed and balance their own rations.

Creep feeding is a method of providing supplemental feed for lambs prior to weaning. The value of creep feeding depends on the operation. It is an essential part of intensive production systems, while it may only be used periodically in other situations. Lambs dropped and raised in dry lot will make their most efficient gains during the first 100—120 days of life.

Here are some situations when creep feeding is generally advantageous.

- When lambs are weaned early (less than 60 days old), they should be started on creep prior to weaning. Therefore, creep feeding is important for early weaning and accelerated lambing programs.
- Fall and winter born lambs should be started on creep unless pasture conditions allow for rapid growth without supplementation.
- Twin and triplet lambs born late in the lambing season may be creep fed to catch the older lambs.

Leader Notes

Leaders must allow extra preparation time to work through the examples. Alternatives would be to invite a professional nutritionist to your meeting or conduct the lesson at a local feed mill where a computer would be used to input all of the data and balance and mix the ration.

Leader Notes**ACTIVITY**

- Creep feeding in range operations only during conditions of drought, when supplementation will allow lambs to be sold as market lambs instead of feeders.

Lambs should be started on creep about ten days after birth. Although they won't consume a significant amount, it gets their digestive system adjusted and forms the habit of eating grains. Regardless of the production program, creep feeding will not be economical unless the feeding system and ration allow for adequate intake of feed. If the lambs don't eat enough to grow, then there is no benefit from creep feeding.

Palatability is the most important quality of the ration for young lambs. A ration containing soybean meal, corn, alfalfa and molasses is very palatable and provides the necessary protein and energy for growth. As the lambs get older, pelleting the ration may increase intake and improve the handling qualities of the ration, but it also costs more.

Creep rations do not have to be complex. A creep ration must be palatable, provide the nutrients required by the lambs (particularly energy and protein), and it should be economical. Creep rations should contain at least 15% protein. Many producers start the lambs on 18-21% protein, gradually decreasing to 15—17% as the lambs get older. Antibiotics should also be included in the creep ration. Most creep rations contain about 15—20% roughage and 80—85% concentrate (grain). Rations should contain about 70% TDN, .7% calcium and .35% phosphorus. It is very important to maintain the calcium to phosphorus ratio of 2:1. A trace mineral salt mixture formulated for sheep should be added at .5% of the ration. Many rations include five percent molasses for increased palatability. Vitamin A and a small amount of vitamin E are generally added as well.

Several factors must be considered before a feeder can determine an optimal feeding program for his lambs.

- the desired performance level
- the kind of lamb
- the available ingredients (& costs)
- nutrient levels of the feedstuffs
- feed additives
- physical characteristics of the feed and ingredients
- method of feeding

Let's discuss each of these considerations. The optimal level of performance for most feeder situations is maximum growth. If finishing lambs on pasture, less than maximum may be desired. In the latter case, profit is determined by low input costs rather than fast, efficient growth.

The kind of lamb along with the desired performance level affects the nutritional requirements. The age, size and genetic make-up may influence requirements. The NRC Nutritional Requirements of Sheep has

ACTIVITY

Leader Notes

tables listing the nutrient requirements of several types of sheep as well as nutritional content of common feedstuffs.

Next, consider the source of the ingredients of the ration. Sheep rations are generally formulated by first selecting an energy source. Corn, milo or barley could be used as the total grain portion of a lamb ration. Wheat and oats are other common ingredients; however, they are mixed with corn, milo or barley. Cost is usually the major concern when selecting a grain energy source. Cottonseed meal and soybean meal are two excellent supplemental protein sources for lamb rations. Once again, cost is the major consideration. Many different roughages can be included in lamb rations. The choice depends on cost and availability. Alfalfa is a popular ingredient. If the roughage makes up more than 20% of the ration, the energy value becomes more important. If the roughage makes up only a small portion of the ration, physical characteristics appear more important than energy content.

The NRC tables can be used as guidelines to determine nutrient levels required by the sheep as well as the nutrient content of feedstuffs. Many producers have a sample of the ration analyzed to see if it actually does meet the lambs needs.

Feed additives have no nutritional value, but they can improve efficiency and growth. If used improperly, they can adversely affect performance and increase production costs. Feed additives include antibiotics like Aureomycin as well as performance enhancers such as Lasalocid (Bovatec).

Each ingredient may have different mixing and handling ingredients that need to be considered. For example, molasses or fat may reduce dust and decrease ingredient separation. The size and texture of some roughages may prevent them from effectively being used in self feeders.

The method of feeding is also a consideration. Self feeders allow for more efficient use of labor. The size of the operation can be increased as you don't need bunk space for all the lambs at once. In hand feeding operations, the feeder has more control over feed consumption.

DIALOGUE FOR CRITICAL THINKING:

Share:

1. What was the most difficult thing to do when balancing a ration? Easiest?
2. How does it feel to know that you will feed your lamb exactly what it needs?

Pass out Member Handout #10, "Nutritional Requirements of Sheep" and discuss different levels of nutritional needs.

Pass out Member Handout #11, "Nutrient Contents of Feedstuffs."

Use Activity Sheet #5, "Ration Balancing Worksheet," to collect data to use when balancing an actual ration.

Pass out Member Handout #12, "Ration Balancing Example," and work through with the members. It would be helpful to work through the problems on transparency so all can follow along.

Leader Notes

ACTIVITY

Process:

3. What would happen if you fed your lamb the same ration all the time?
4. Why do different lambs require different rations?
5. Give examples of recommended times to creep feed. What is the advantage in each of these situations that dictate creep feeding?

Generalize:

6. How do you make adjustments in your other projects to meet new needs or to avoid problems?

Apply:

7. How can you apply what you learned about making adjustments and changes to new situations?

GOING FURTHER:

1. Visit a feed store and view the different types of feed and what purpose they have.
2. Develop rations for different types of sheep.
3. Check the ration that is being fed at home and make sure that it is meeting the lamb's needs.

REFERENCES:

SID Sheep Production Handbook
NRC Nutrient Requirements of Sheep
Kansas 4-H Beef Leader Notebook (LN-1), 2nd ed.

Author:

Jeremy Geske, Former Extension Assistant, Kansas State University
James P. Adams, Extension Specialist, 4-H and Youth Programs, Kansas State University

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Sheep Design Team

BALANCING SHEEP RATIONS SHEEP, LEVEL III

Member Handout #10, Nutrient Requirements of Sheep

BW, lb	ADG/loss, lb	Feed ² Intake Per hd, lb	TDN, lb	Nutrients per Animals		
				CP, lb	Ca, g	P, g
EWES—Maintenance						
110	0.02	2.2	1.2	0.21	2.0	1.8
132	0.02	2.4	1.3	0.23	2.3	2.1
154	0.02	2.6	1.5	0.25	2.5	2.4
176	0.02	2.9	1.6	0.27	2.7	2.8
198	0.02	3.1	1.7	0.29	2.9	3.1
Flushing—Two Weeks Prebreeding and First Three Weeks of Breeding						
110	0.22	3.5	2.1	0.33	5.3	2.6
132	0.22	3.7	2.2	0.34	5.5	2.9
154	0.22	4.0	2.3	0.36	5.7	3.2
176	0.22	4.2	2.5	0.38	5.9	3.6
198	0.22	4.4	2.6	0.39	6.1	3.9
Nonlactating—First 15 Weeks Gestation						
110	0.07	2.6	1.5	0.25	2.9	2.1
132	0.07	2.9	1.6	0.27	3.2	2.5
154	0.07	3.1	1.7	0.29	3.5	2.9
176	0.07	3.3	1.8	0.31	3.8	3.3
198	0.07	3.5	1.9	0.33	4.1	3.6
Last Four to Six Weeks Gestation (180-225% lambing rate expected)						
110	0.50	3.7	2.4	0.43	6.2	3.4
132	0.50	4.0	2.6	0.45	6.9	4.0
154	0.50	4.2	2.8	0.47	7.6	4.5
176	0.50	4.4	2.9	0.49	8.3	5.1
198	0.40	4.4	2.5	0.47	6.4	4.6
First Six to Eight Weeks Lactation Suckling Singles						
110	-0.06	4.6	3.0	0.67	8.9	6.1
132	-0.06	5.1	3.3	0.70	9.1	6.6
154	-0.06	5.5	3.6	0.73	9.3	7.0
176	-0.06	5.7	3.7	0.76	9.5	7.4
198	-0.06	5.9	3.8	0.78	9.6	7.8
First Six to Eight Weeks Lactation Suckling Twins						
110	-0.13	5.3	3.4	0.86	10.5	7.3
132	-0.13	5.7	3.7	0.89	10.7	7.7
154	-0.13	6.2	4.0	0.92	11.0	8.1
176	-0.13	6.6	4.3	0.96	11.2	8.6
198	-0.13	7.0	4.6	0.99	11.4	9.0
Early-weaned Lambs—Rapid Growth Potential						
22	0.55	1.3	1.1	0.35	4.9	2.2
44	0.66	2.6	2.0	0.45	6.5	2.9
66	0.72	3.1	2.4	0.48	7.2	3.4
88	0.88	3.3	2.5	0.51	8.6	4.3
110	0.94	3.7	2.8	0.53	9.4	4.8
132	0.77	3.7	2.8	0.53	8.2	4.5

Source: *Nutrient Requirements of Sheep*, 6th Revised Edition, 1985, The National Academy of Sciences

BALANCING SHEEP RATIONS
SHEEP, LEVEL III

Member Handout #11, Nutrient Content of Feedstuffs

	Dry Matter (percent)	Crude² Protein (percent)	TDN² (percent)
Roughages			
Fescue hay	88.5	10.5	54
Brome hay	90.0	10.3	55
Alfalfa hay	89.2	17.1	58
Prairie hay	92.0	5.8	51
Concentrates			
Corn, shelled	86.5	9.9	91
Barley	88.1	13.3	81
Oats	89.5	13.5	77
Grain sorghum (Milo)	87.0	10.1	84
Molasses, cane	76.0	5.0	75
Protein Supplements			
Cottonseed meal	92.5	44.3	74
44% Soybean meal	89.0	51.5	81
49% Soybean meal	89.8	56.7	84
Mineral Supplements			
		Calcium (percent)	Phosphorus (percent)
Ground limestone	98.0	34.0	.02
Dicalcium phosphate	96.0	22.0	18.65

¹From United States—Canadian Tables of Feed Composition, Second Rev., 1972, National Academy of Sciences.

²Expressed on a dry matter basis

BALANCING SHEEP RATIONS SHEEP, LEVEL III

Member Handout #12, Ration Balancing Example

Part of balancing rations is combining ingredients to get the desired nutrient level. One method of determining how much of each ingredient to add is the "Pearson Square" method.

If we look at the NRC tables, we see that 88 pound lambs with the potential for rapid growth will eat 3.3 lbs. of dry matter per day. Of that, they need 2.5 lbs. of TDN and .51 lbs. of crude protein. We won't worry about the other nutrients at the moment. We can convert protein and energy requirements to percent by dividing by total pounds of dry matter. The lambs need 76% TDN and 15.5% crude protein.

Let's say we have corn and soybean meal for ingredients. We check the NRC tables to find that corn has 87% TDN and 10.1% protein on a 100% dry matter basis. The soybean meal has 85% TDN and 47.7% crude protein. As you can see, both feeds have more than enough TDN, so protein is our concern.

Let's set up the Pearson Square. Put the percent protein of the feedstuffs along the left side and the desired percent (requirement) in the middle.

corn	10.1		
		15.5	
soybean	47.7		

Calculate the differences diagonally ($15.5 - 10.1 = 5.4$) ($47.7 - 15.5 = 32.2$) and total the differences. Divide each difference by the total to get the percent of each feed.

corn	10.1		32.2	
		15.5		
soybean	47.7		5.4	/ 37.6 = 14.4% soybean meal

Let's use the same requirements but substitute barley for corn. The NRC table tells us that barley has 86% TDN and 13.5% crude protein.

barley	13.5		
		15.5	
soybean	47.7		

barley	13.5		32.2	/ 34.2 = 94.2% barley
		15.5		
soybean	47.7		2.0	/ 34.2 = 5.8% soybean meal

Now let's see if we can meet the protein requirement with barley and alfalfa. Alfalfa has 17% crude protein.

barley	13.5		
		15.5	
alfalfa	17.0		

barley	13.5		1.5	/ 3.5 = 42.9% barley
		15.5		
alfalfa	17.0		2.0	/ 3.5 = 57.1% alfalfa

BALANCING SHEEP RATIONS
SHEEP, LEVEL III

Member Handout #12, Ration Balancing Example (cont.)

We've met the protein requirement, but does it meet the TDN requirement?

Alfalfa has 56% TDN.

$$\begin{array}{r} \text{Alfalfa at } 56\% \times .571 = 32\% \\ + \text{barley at } 86\% \times .429 = \underline{36.9\%} \\ \hline 68.9\% \end{array}$$

That mixture only provides about 69% TDN and the requirement is 76%, so we are deficient in energy.

Balancing rations is a lot more complicated than this, but this should give you an idea of how to start. Practice the Pearson Square method with different feed ingredients and different requirements.

BALANCING SHEEP RATIONS

SHEEP, LEVEL III

Activity Sheet #5, Ration Balancing Worksheet

SHEEP DESCRIPTION (w/stage of reproduction cycle): _____

NUTRITIONAL REQUIREMENTS: Crude Protein: _____ TDN: _____

RECOMMENDED DAILY DRY MATTER INTAKE: _____

FEEDS	LB. FED DAILY	% DM	LB. DM DAILY	% PROTEIN	LB. PROTEIN DAILY	% TDN	LB. TDN DAILY
	(a)	(b)	(c=axb)	(d)	(cxd)	(e)	(cxe)
1.							
2.							
3.							
4.							
5.							
TOTALS	lb.	lb.	lb.	lb.	lb.	lb.	lb.

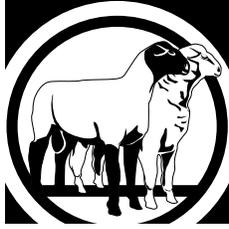
53-Sheep, Level III

NUTRIENT CONCENTRATION IN RATION DRY MATTER:

% PROTEIN = LB. PROTEIN DAILY/LB. DM DAILY × 100 = _____%

% TDN = LB. TDN DAILY/LB. DM DAILY × 100 = _____%





Ewe's Production Cycle

Sheep, Level III

What Members Will Learn...

ABOUT THE PROJECT:

- Ewe production cycle
- Nutritional needs of a ewe

ABOUT THEMSELVES:

- Nutritional needs and changes during their life span

Materials Needed:

- Member Handout #13, "Ewe Year"
- Activity Sheet #6, "Ewe Weight Change"
- Leader Key—Ewe Weight Change

ACTIVITY TIME NEEDED: 60 MINUTES

ACTIVITY

Leader Notes

When determining the nutritional and management needs of the ewe flock, the ewe's stage of production should be considered. In other words, what is the ewe doing for you, the producer, which might require special care.

Let's consider a typical year, represented in the form of a circle.

Month 1 represents the month your breeding season begins. The reproductive cycle of the ewe is approximately 17 days. Since not all ewes become pregnant on the first cycle, a breeding season is typically at least two cycles long (about 34 days). Some breeding seasons may be longer. At this time the ewe is ovulating and conceiving. Nutrition is important to insure satisfactory ovulation rates. Actually, nutrition may be more important just prior to the breeding season, but that will be discussed later.

The gestation length of the ewe is about 148 days or just under 5 months. During this time, the ewe is carrying and supporting a developing fetus and may be gaining weight. Most of this period isn't too critical except for the last month and a half. During the last third of gestation, the fetus is undergoing most of its development as it prepares for birth. Ewes not getting enough feed at this time may suffer from pregnancy toxemia (ketosis). The last part of gestation and throughout the lambing season is the most important time in terms of the care and attention required by the ewe flock.

Pass out Member Handout #13, "Ewe Year" and discuss the cycle of production.

Leader Notes

ACTIVITY

Logically, the lambing season will typically be about the same length as the breeding season. Once a ewe gives birth, lactation (milking) begins. The ewe's highest nutritional needs occur during lactation. She needs nutrients to maintain herself and produce milk for her rapidly growing lamb(s). Ewes raising multiple lambs require even more nutrients. The length of lactation varies depending on the operation. It may last anywhere from 2 to 4 months. Ewes will typically lose weight during lactation.

After weaning, and before the next lambing season, is a time known as the dry period. During this time the ewe isn't doing much of anything except growing wool. Her nutritional and care requirements are the lowest at this time. Basically, they can be left alone to graze and will do just fine. The last two weeks of the dry period, (prior to the next breeding season) the ewe must gain the weight lost during lactation. In a procedure known as "flushing," the ewes are put on a higher plane of nutrition, either being fed some grain or being moved to a fresh pasture. Increasing the plane of nutrition may increase the ovulation rate. Increased ovulation rates can lead to a higher lamb crop percentage and more potential for profit. The length of the dry period is 2 to 4 months, depending upon the length of lactation.

The diagram on Activity Sheet, Ewe Weight Change, illustrates the typical change in weight during the year for a 160 pound ewe giving birth to and raising twins.

Pass out Activity Sheet #6 "Ewe Weight Change" and have them fill in the blanks provided.

DIALOGUE FOR CRITICAL THINKING:

Share:

1. What did you already know about the ewe's production cycle?
2. What new things did you learn?

Process:

3. Why are the three months including late gestation and lactation so critical in terms of nutrition?
4. When are the ewe's highest nutritional needs? Lowest? Why?

Generalize:

5. Do you think there are certain times of the year when you need more nutrition? When? Why?

Apply:

6. How do the nutritional needs of various family members change? Outline nutritional needs from birth to senior citizen.

GOING FURTHER:

ACTIVITY

Leader Notes

REFERENCES:

SID Sheep Production Handbook

Author:

Jeremy Geske, Former Extension Assistant, Kansas State University

James P. Adams, Extension Specialist, 4-H and Youth Programs, Kansas
State University

Reviewed by:

Clifford Spaeth, Extension Specialist, Animal Sciences and Industry,

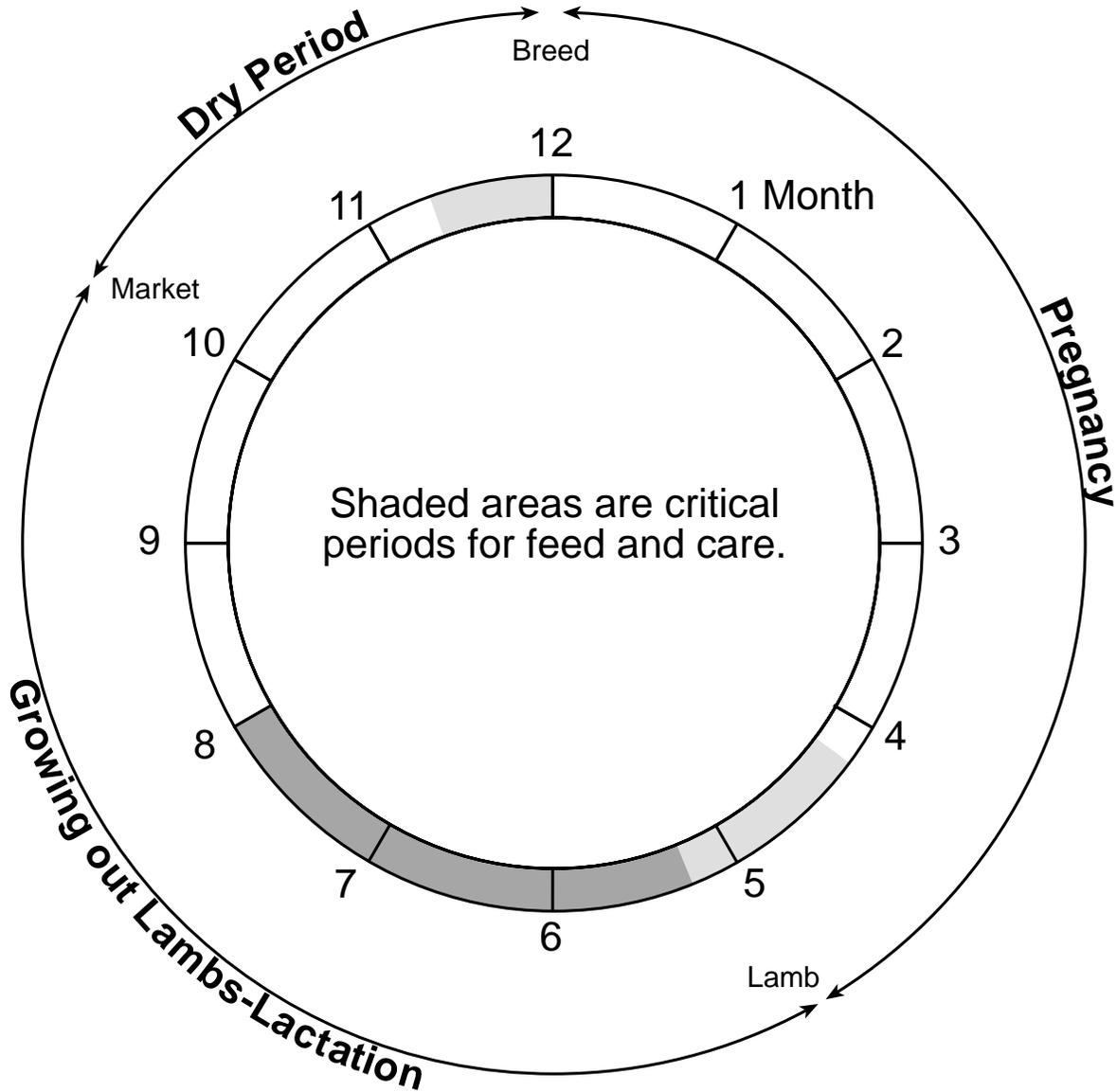
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Sheep Design Team

EWE'S PRODUCTION CYCLE

SHEEP, LEVEL III

Member Handout #13, Ewe Year

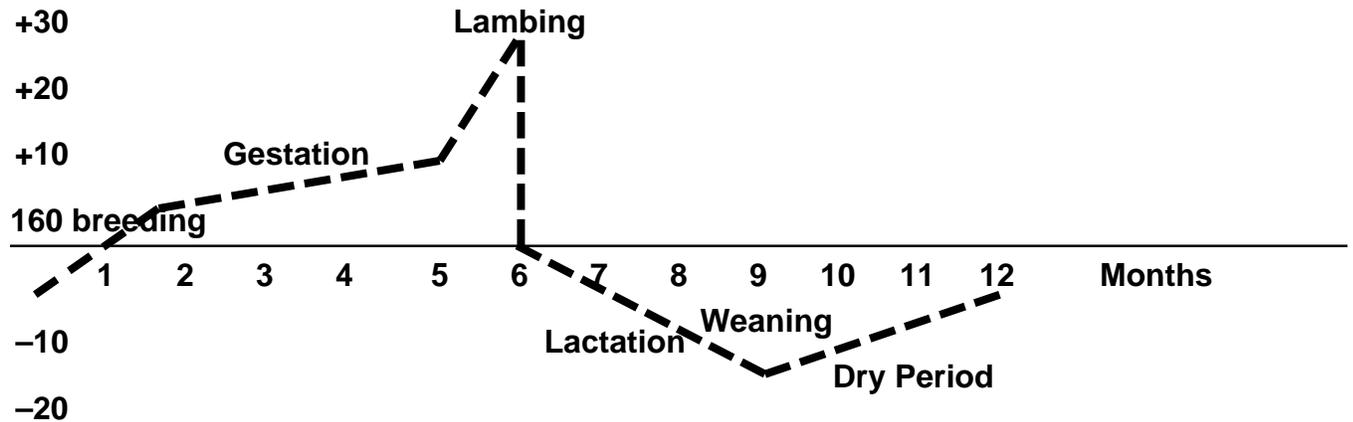


EWE'S PRODUCTION CYCLE

SHEEP, LEVEL III

Activity Sheet #6, Ewe Weight Change

Ewe weight change during the year for 160 pound ewe giving birth to and raising twins



Note: Changes expected for ewe raising a single lamb are approximately 2/3 of the above changes.

1. During what stage of production are the ewe's nutritional needs their highest? And why?
2. Why is the last 1/3 of gestation so critical for the ewe flock?
3. The typical length of the ewe's reproductive cycle is _____ days.
 - The gestation length is approximately _____ days.
 - Assuming that no lambs are born premature, calculate the expected due date of the first lambs if the breeding seasons starts on August 10. _____
 - When could you expect the first lambs if the breeding season started on November 15?

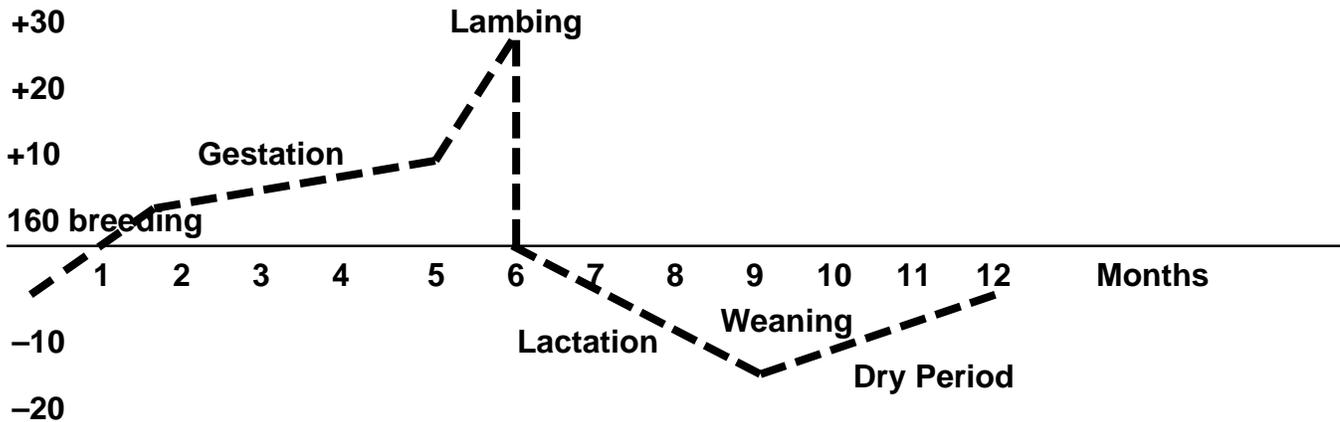
4. What is flushing? And why is it done?
5. Diagram the production cycle of your own flock. Include the actual months. Are there any differences from the example production diagram?

EWE'S PRODUCTION CYCLE

SHEEP, LEVEL III

Leader Key—Ewe Weight Change

Ewe weight change during the year for 160 pound ewe giving birth to and raising twins



Note: Changes expected for ewe raising a single lamb are approximately 2/3 of the above changes.

1. During what stage of production are the ewe's nutritional needs their highest? And why?

Last 1/3 gestation—to prevent ketosis

Lactation—milk production for lambs

2. Why is the last 1/3 of gestation so critical for the ewe flock?

Rapid fetal growth increases nutritional demands of ewe

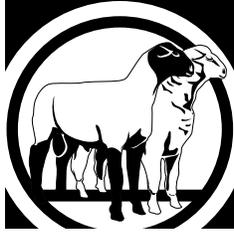
3. The typical length of the ewe's reproductive cycle is 17 days.

- The gestation length is approximately 148 days.
- Assuming that no lambs are born premature, calculate the expected due date of the first lambs if the breeding seasons starts on August 10. **Approx. January 2-5**
- When could you expect the first lambs if the breeding season started on November 15? **Approx. April 8-10**

4. What is flushing? And why is it done?

Increasing the nutritional level of ewe just prior to breeding with grain or fresh pasture. Flushing is done to increase ovulation rate in hopes of getting more multiple births to increase percent lamb crop and potential profit.

5. Diagram the production cycle of your own flock. Include the actual months. Are there any differences from the example production diagram?



Castrating, Docking, Hoof Trimming

Sheep, Level III

What Members Will Learn . . .

ABOUT THE PROJECT:

- Proper methods to castrate lambs and dock tails
- How to properly trim hooves

ABOUT THEMSELVES:

- Significance of sequence and order

Materials Needed:

- Castrating knife
- All-in-one castrator
- Emasculator
- Elastrator and elastrator band
- Burdizzo pinchers
- Electric docker
- Hoof trimmers
- Optional—pictures or video describing docking, castration and hoof trimming.
- If possible, live lambs for hoof trimming practice

ACTIVITY TIME NEEDED: 60 MINUTES

ACTIVITY

Leader Notes

Docking, castration and hoof trimming are three management practices that every sheep producer needs to know. We are going to discuss the various methods of docking and castration and at the end we'll practice trimming hooves.

Docking is a necessary practice as manure would cling to the tail and become a prime spot for fly attacks and infection. Castration is necessary to prevent unwanted matings. Also, for slaughter purposes, the packers prefer castrated males to intact males.

There are many acceptable methods for docking (de-tailing) and castration (removal of the testicles). The one you choose will probably be based on personal preference. If proper sanitation techniques are used, good results can be achieved with any of the recommended methods. If, however, tools are used improperly and strict sanitation is not followed, the results could be disastrous in terms of stress and even death loss of the lambs. Docking and castration ideally are accomplished before the lambs are two weeks old.

Leader Notes

ACTIVITY

A knife can be used for docking and castration. It should be sharp, and disinfected periodically throughout the procedure. Hold the knife on the tail at the desired point (leave the dock about one inch long) and pull through in one motion. To castrate, place the lamb in a sitting position, remove the end of the scrotum with the knife and pull the testicles out. Lambs can be ruptured if castrated improperly.

An emasculator can be used for docking. It has a crushing effect which may reduce bleeding.

The all-in-one castrator is a good tool. It has a scissor blade which may be used to cut off the tail and remove the end of the scrotum. It also has a grabbing, plier-like end which can be used to grasp the testicles and pull them out.

An elastrator can be used to apply heavy rubber bands to the tail and scrotum. The bands cut off circulation and the tail or scrotum will fall off in about two weeks. During warm weather or in areas where tetanus is a problem, the elastrator should not be used. The elastrator is very painful for about half an hour, but it is a completely bloodless method of docking and castration. When using the elastrator to castrate, make sure both testicles are on the outer side of the band.

The burdizzo may be used to castrate lambs. It is a heavy metal pincher that crushes the spermatic cord without breaking the skin of the scrotum. The cord should be worked to one side of the scrotum and pinched. Repeat for the other side. Do not attempt to pinch both cords at the same time. The pinched cord doesn't allow blood into the testicle, which causes them to eventually shrink and disappear. This method is not always 100% effective if the burdizzo is not adjusted properly.

Show the hoof trimmers.

Trimming hooves is an important task in most sheep operations.

In some cases a sheep's hooves will grow too long, causing difficulty in walking. This problem is easily corrected by trimming off excess hoof, much like trimming your fingernails when they get too long. Set the sheep over its dock. One at a time, examine each hoof for excess growth. Use the trimmers to clean off any manure from the bottom of the hoof. This should give you a clear view of the hoof. Trim the outer hoof wall down until it appears slightly pink. If you cut too much off, it will bleed. Also, the points of the hooves should be snipped off.

If live sheep are available, give a hoof trimming demonstration, then let members try trimming hooves.

For larger sheep, you may need some type of restraining chute or another person to hold the sheep while you trim the hooves.

DIALOGUE FOR CRITICAL THINKING:

Share:

1. What procedure was the hardest to understand? Easiest?
2. What method of castration do you use? Why?

ACTIVITY

Leader Notes

Process:

3. Why is docking important?
4. Why do sheep need their hooves trimmed?
5. Which method of castration is most effective? Why?

Generalize:

6. How important are these management practices in other livestock projects?
7. What is the significance of doing things in sequence or a prescribed order?

Apply:

8. When and where will sequence and order be important in the future?

GOING FURTHER:

1. Observe a shepherd or veterinarian processing lambs.

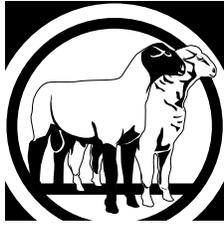
REFERENCES:

Author:

Jeremy Geske, Former Extension Assistant, Kansas State University
James P. Adams, Extension Specialist, 4-H and Youth Programs, Kansas State University

Reviewed by:

Clifford Spaeth, Extension Specialist, Animal Sciences and Industry,
Kansas State University
Sheep Design Team



How Old are Your Sheep?

Sheep, Level III

What Members Will Learn . . .

ABOUT THE PROJECT:

- The growth of teeth on their sheep
- The method to determining sheep's age

ABOUT THEMSELVES:

- The importance of dental hygiene

Materials Needed:

- Activity Sheet #7, Determining the Age of Sheep
- Leader Key—Determining the Age of Sheep
- Group of Sheep of Varying Ages

ACTIVITY TIME NEEDED: 45 MINUTES

ACTIVITY

The age of a sheep may be important for a variety of management decisions. Many people mark the age (year of birth) on the ear tag. However, ear tags may fall out. If you decide to purchase some ewes, you should know how to check the ages. If the exact age of a sheep is not known, there is a relatively simple method for estimating it. A sheep's age can be estimated by examining its mouth.

Sheep have no upper incisor teeth, only bottom incisors. Baby lambs have 4 pairs of small, temporary incisors. As the sheep ages, those teeth are replaced by permanent incisors.

As a general rule, sheep will get one pair of permanent incisors each year for 4 years. Sheep will not have more than 4 pairs of incisors. To determine the age of a young ewe, count the incisors and divide by two. After a little practice, it will be easy to tell the difference between permanent and temporary incisors. As a sheep ages past 4 years, the permanent incisors began to wear down and spread apart. Age can only be approximated at this stage. An experienced shepherd may be able to accurately estimate the age of old ewes by the varying degree of wear and spreading, but it takes a lot of practice. In very old ewes, some or all of the incisors may be missing.

Even in young sheep, age determination is not an exact science. Lambs usually get their "yearling" pair of incisors at 12-15 months of age, but this

Leader Notes

Read through the discussion and have members practice aging several sheep.

Ask the members if they can tell by looks alone how old a sheep is. Discuss the different growth rate of sheep (maybe use people as example) and that it is hard to tell how old they are simply by how big they are.

Pass out Activity Sheet #7, "Determining the Age of Sheep."

Leader Notes

ACTIVITY

could vary by a couple months. As you can imagine, if a sheep only gets a permanent pair of incisors every 16 months, she could be over 5 years old and only have a four-year-old mouth. Also, some sheep may get two pairs of incisors at 14 months of age. There are exceptions to the rule, but it is the best available method for estimating the unknown age of a sheep.

DIALOGUE FOR CRITICAL THINKING:

Share:

1. Is it hard to open the sheep's mouth to see their teeth?
2. Did the sheep you "mouthed" have the correct number of teeth for it's age? How do you know?

Process:

3. Why is it important to know a sheep's age?
4. How else can you determine age? Is it very accurate? Why or why not?
5. Why might the number or condition of teeth not be accurate?

Generalize:

6. How might your teeth become damaged? What can you do to prevent damage to your teeth?
7. How do you decide when to go to the dentist?

Apply:

8. How do your teeth change as you get older?
9. What can you do to maintain healthy teeth throughout adulthood?

GOING FURTHER:

1. Conduct an experiment to show the wear on teeth due to sugar. If a member has lost a tooth recently place it in pop for a few days and see what happens. Put another in plain water and compare the results.
2. Visit a ranch and practice mouthing on old ewes or rams. See if the members can determine the correct age.
3. Have a dentist come and discuss why proper dental hygiene is so important.

REFERENCES:

SID Sheep Production Handbook

Author:

Jeremy Geske, Former Extension Assistant, Kansas State University
James P. Adams, Extension Specialist, 4-H and Youth Programs, Kansas State University

ACTIVITY

Leader Notes

Reviewed by:

Clifford Spaeth, Extension Specialist, Animal Sciences and Industry,
Kansas State University
Sheep Design Team

HOW OLD ARE YOUR SHEEP?

SHEEP, LEVEL III

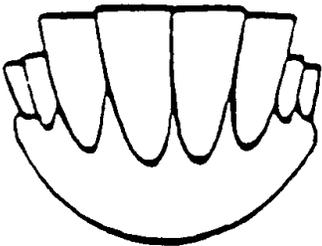
Activity Sheet 7, Determining the Age of Sheep

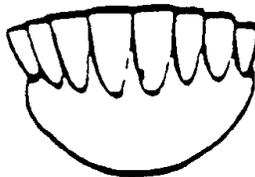
A. What is a more common term for determining the age of sheep?

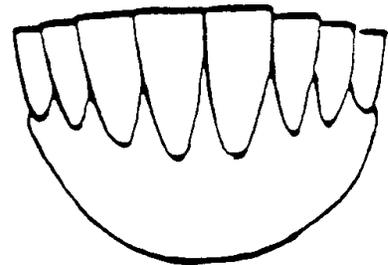
B. Place a T (for True) or an F (for False) in each blank.

- ___ 1. A sheep's age can be determined by looking at its upper jaw.
- ___ 2. An animal with two pairs of permanent incisors is probably 2 years old.
- ___ 3. Sheep replace one pair of temporary incisors with a pair of permanent incisors each year for 4 years.
- ___ 4. A "full mouth" has 5 pairs of permanent incisors.
- ___ 5. The upper jaw has no incisor teeth in the front.
- ___ 6. At 5 or 6 years of age, permanent teeth begin to wear down.
- ___ 7. "Gummers" are baby lambs.
- ___ 8. All of a lamb's teeth are small.

C. Using "mouthing" techniques, how old are the following sheep?







HOW OLD ARE YOUR SHEEP?

SHEEP, LEVEL III

Leaders Key, Determining the Age of Sheep

A. What is a more common term for determining the age of sheep?

mouthing

B. Place a T (for True) or an F (for False) in each blank.

 F 1. A sheep's age can be determined by looking at its upper jaw.

 T 2. An animal with two pairs of permanent incisors is probably 2 years old.

 T 3. Sheep replace one pair of temporary incisors with a pair of permanent incisors each year for 4 years.

 F 4. A "full mouth" has 5 pairs of permanent incisors.

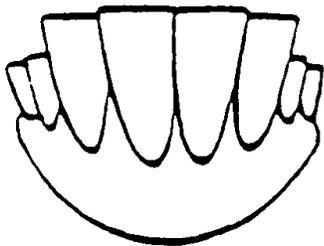
 T 5. The upper jaw has no incisor teeth in the front.

 T 6. At 5 or 6 years of age, permanent teeth begin to wear down.

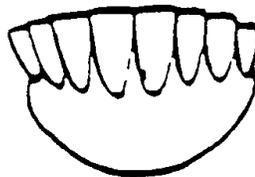
 F 7. "Gummers" are baby lambs.

 T 8. All of a lamb's teeth are small.

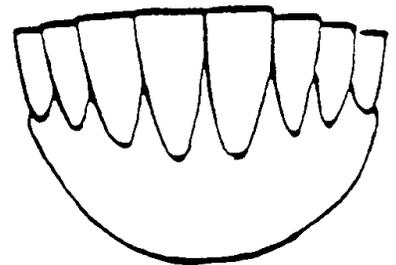
C. Using "mouthing" techniques, how old are the following sheep?



2 years old

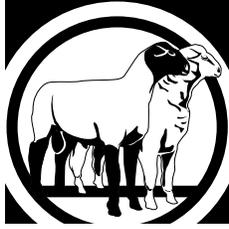


lamb teeth



4 years old





Common Sheep Diseases

Sheep, Level III

What Members Will Learn...

ABOUT THE PROJECT:

- How to identify a sick sheep
- Identify the symptoms of sheep diseases
- How to prevent common sheep diseases

ABOUT THEMSELVES:

- Preventive health practices are often most effective
- How the amount and kind of food affects your body

Materials Needed:

- Activity Sheet #8, Sheep Disease Worksheet
- Member Handout #14, Common Sheep Diseases
- Pictures illustrating normal vs. infected tissues/animals of as many of the diseases as possible.

ACTIVITY TIME NEEDED: 60 MINUTES

ACTIVITY

Prevention and control of diseases can be a critical task for many sheep producers. In this lesson, we will discuss some of the common ailments of sheep. We will talk about symptoms and possible treatments; however, the focus will be on prevention. The best cure for any sickness is to prevent it from happening in the first place.

Let's start with the nutritional diseases. Starvation is the major cause of lamb death in the U.S. In some cases, a ewe may not allow a lamb to nurse, or maybe she doesn't have enough milk for one or more of her lambs. In the case of multiple births, a less aggressive lamb may not get enough milk. A ewe might develop mastitis or sore mouth on her udder. In either case, it becomes too painful for her to allow her lamb to nurse. The best way to prevent starvation is to pay close attention to the young lambs. Make sure they are getting enough milk. If the ewe can't take care of it, the lamb may have to be reared artificially. Check the udders of the ewes to make sure they are producing milk and that it is available to the lambs. As you observe the newborn lambs, any that appear weak or thin might be suffering from starvation.

White muscle (stiff lamb) disease is a degeneration of skeletal and cardiac muscle usually occurring from 3 to 8 weeks of age. Lambs appear stiff and often unable to stand or walk. It results when lambs are deficient in

Leader Notes

This lesson is intended for educational use only, not for the basis of diagnosis. When encountering any health management situation, consult your local veterinarian. To get members involved, divide into small groups or assign each member a disease or two a week before this lesson to research and report back to the group. Members can take notes on Activity Sheet #8, "Sheep Disease Worksheet."

Leader Notes**ACTIVITY**

vitamin E and selenium. It can be treated with an injectable vitamin E-selenium solution. It is prevented by providing a selenium supplement in the ewes ration prior to lambing and during lactation. Do not overdose with selenium as toxicity may occur.

Water belly, or urinary calculi, can be a problem in young male sheep. Stones form a blockage in the urethra, in wethers and rams. It is caused by an improper calcium to phosphorous ratio. Symptoms include abdominal discomfort, kicking at the stomach, straining and frequent attempts at urination. The stones usually become lodged in the urethral process as it is the narrowest part of the urinary tract. If the stone is lodged there, that part can simply be snipped off. If the stones cannot be removed, death usually occurs. Blockage may result in rupture of the urethra or bladder. Urinary calculi can be prevented by maintaining the proper calcium to phosphorous ratio in the ration. Also, keep an adequate salt and water supply available. Urination on a regular basis will remove the stones before they become large enough to cause problems.

Acidosis (founder) usually occurs in sheep that have recently been switched to a high concentrate ration. This causes the rumen bacteria to die, and the acid/base relationship becomes imbalanced. Sheep suffer from discomfort, get depressed and may die. To treat the animal, the rumen must be emptied. Administering mineral oil, antacids and electrolytes may help. To prevent lactic acidosis, do not expose the sheep to large amounts of concentrates if they aren't used to it. When changing rations, do so gradually, allowing the sheep's stomach time to adjust.

Polio is a disease of the central nervous system. It usually occurs in feeder lambs on a high concentrate diet. It is caused by a thiamine deficiency. Symptoms include blindness, staggering, and depression as a result of brain deterioration. Treatment is a thiamine (vitamin B1) injection. To prevent polio, avoid feeding moldy concentrates and avoid rapid increases in the concentrate portion of the ration.

Sheep are ten times more susceptible to copper toxicity than cattle. It is closely associated with low molybdenum levels. Once the toxic level is reached, red blood cells are destroyed, resulting in death. Copper poisoning is prevented by monitoring the copper levels in the ration. Symptoms include the rapid onset of anemia, accelerated respiration, thirst and weakness. The skin and mucous membranes may become bright yellow.

Pregnancy toxemia (ketosis, twin lamb disease) is a metabolic disorder of overly thin or fat ewes in late gestation. It is caused by a diet deficient in energy (for multiple fetuses). Ewes will lag behind, grind their teeth and often go down. Treatment includes glucose intravenously or oral propylene glycol. It is easily prevented by providing the proper nutrition to ewes in late gestation. Excessive environmental stress may also increase the occurrence of ketosis.

ACTIVITY**Leader Notes**

When sheep are grazed on lush pastures, it may result in low magnesium levels; a disease called grass tetany. Symptoms include loss of appetite, stiff gait, staggering, twitching and convulsions. It can be treated with magnesium sulfide or magnesium oxide. To prevent grass tetany, make sure a mineral supplement with high magnesium levels is available when pastures are lush.

Hypocalcemia (milk fever) is the result of low calcium levels during lactation. Ewes are hyper-excitable and may regurgitate food through the nostrils. It can be treated by administering calcium borogluconate. From a nutritional standpoint, be aware of the increased calcium demand put on the ewe by the nursing lambs.

Prussic acid (cyanide) poisoning occurs when sheep are grazing on sorghum or sudan hybrids during conditions of drought or frost. The result is death by asphyxiation. If detected early enough, sodium thiosulfate may neutralize cyanide. Prevent by avoiding exposure to drought or frost stressed sorghum or sudan hybrids.

Most of the nutritional diseases are the result of improper levels of some nutrient. Take the time to monitor the needs of your sheep. Be sure that your ration meets those needs and you shouldn't have much trouble with nutritional diseases.

Enterotoxemia type C (bloody scours) and type D (overeating) are diseases of young lambs. Type C causes diarrhea, convulsions and abdominal pain. Type D is more likely to cause death. An injection of C&D + Tetanus (one to the ewe prior to lambing and a booster to the lamb) should prevent enterotoxemia and tetanus. The cause of enterotoxemia is a clostridial organism.

Tetanus (lockjaw) is another clostridial disease associated with docking and castration. Signs include stiffness and labored breathing. Prevent tetanus through cleanliness and vaccination with C&D + Tetanus. To prevent these and other clostridial diseases (black leg, malignant edema) a 7-way or 8-way vaccine can be used.

Navel ill is a bacterial infection of the navel. Bacteria, such as *E. coli* gain entrance to the abdominal cavity through the navel of newborn lambs. Proper sanitation will prevent this problem. Also, dipping or spraying the navel with an iodine solution will help prevent navel ill.

Scours (diarrhea) in young lambs may be caused by a variety of factors. Bacteria, such as *E. coli*, unsanitary conditions and changes in diet may be the leading causes. The major symptom is diarrhea, and this may lead to thin, weak lambs. Lambs with scours need to be rehydrated with liquids and electrolytes. A variety of things can be done to help prevent scours. Proper sanitation may do as much as anything. Some producers feed antibiotics (terramycin) or sulfas to pregnant ewes just prior to lambing.

Leader Notes**ACTIVITY**

Lambs must receive colostrum to aid their immune system in combating scours.

Several diseases may cause abortion in sheep including salmonellosis, leptospirosis and listeriosis. We will only discuss the three major abortifacants. In the case of any abortions, it is imperative to remove the aborted fetuses so the pregnant ewes will not come in contact with them.

Enzootic abortion (EAE) is commonly vaccinated for. It is caused by a chlamydia organism that may also affect humans. Usually it will cause a large number of ewes to abort during late gestation. In addition to the vaccine, feeding aureomycin or terramycin during the entire gestation period may help prevent EAE.

Vibriosis (not the same as cattle vibriosis) is the other abortion disease that is commonly vaccinated for. It is caused by a campylobacteria. Symptoms include abortions in late gestation and stillborn or weak lambs. It is usually controlled by vaccination prior to breeding. Always vaccinate new additions to the flock.

Toxoplasmosis is another common abortion disease of sheep. It is caused by a coccidial organism. It is carried by domestic cats and may be a human health risk as well. It is spread when cats excrete feces into the feed supply. It may be prevented by feeding rumensin and tetracycline. It helps to keep a constant cat population. Avoid introducing new cats to the established population and get rid of any feral cats. Try to keep cats away from the feed supply.

Blue tongue is caused by a virus and is transmitted by a biting insect. It causes a leakage in blood vessels resulting in swelling of the extremities (above the hooves, ears, etc.). Fever may be present as well as lesions on the lips and face. Lameness and loss of condition may result. It may cause sterility in rams. There is no treatment except easing the secondary symptoms. There are vaccinations available; however, there are several strains of the blue tongue organism, making prevention difficult.

Caseous lymphadenitis commonly affects old ewes. It is an infectious, contagious disease of the lymph system. Signs include boils and abscesses. Treat by lancing and draining the abscesses and cleaning them with iodine. Often, this disease is only diagnosed after slaughter.

Ovine progressive pneumonia (OPP) is another common disease of old ewes. It is a slowly developing disease caused by a retrovirus. It is often transmitted to nursing offspring who will develop symptoms later in life. The retrovirus damages lung tissue. Infected individuals often have a mild cough, nasal discharge and labored breathing as well as being thin and unthrifty. There is no treatment. Prevent it by not buying infected breeding stock. A blood test is available and infected sheep can be culled. In some cases, OPP does not cause enough economic loss to make it worth the effort to eradicate it.

ACTIVITY**Leader Notes**

Pneumonia is a common cause of baby lamb death. There are various bacterial and viral organisms that affect stressed lambs. Symptoms include coughing and abnormal breathing (rattling). Treatment options include sulfas, terramycin and penicillin. Prevention primarily involves management. Reduce as much of the stress on baby lambs as possible. Insure colostrum intake by newborn lambs.

If pneumonia is suspected, call a veterinarian for proper diagnosis and treatment. Prolonged coughing may cause rectal prolapse (protruding rectum) which is also associated with high concentrate feeding and short docking; both common in show lambs.

Mastitis (blue bag) may affect ewes during lactation. Bacteria infects the udder causing it to become hard, sore and swollen in conjunction with a high fever. Often, lambs won't be allowed to nurse. A treatment (streptomycin) is available; however, infected ewes should be culled as part or all of their udder may be permanently damaged. Proper sanitation is the best preventative measure.

Foot rot is a highly contagious disease caused by the interaction of two bacteria (*Dichelobacter modosus* and *Fusobacterium necrophorum*) and the proper environmental conditions. It occurs in warm damp areas in the presence of foot injuries or untrimmed hooves. The most conspicuous symptom is lameness. Treatment is at least 90% trimming hooves. There are also foot baths available. Prevent foot rot by regularly trimming hooves and avoiding muddy conditions. A vaccine is available (Footvax) that may aid in prevention. At all costs avoid purchasing stock from a breeder known to have a problem with foot rot.

Ram epididymitis is a venereal disease caused by a *Brucella ovis* organism. It causes hardening and scarring of the epididymis and testicles. This leads to poor conception rates and sterility. There is no treatment. It is generally spread through homosexual activity between rams. There is a blood test available. Rams should be tested annually. Infected individuals should be isolated immediately and culled.

There are many other diseases that can affect sheep. Some (sore mouth and club lamb fungus) are discussed in other lessons. When designing a disease prevention program, consider the possible economic loss and compare that to the cost of the preventative measure. It may not be economically feasible to try to prevent every single disease. Proper nutrition and sanitation will greatly reduce many health risks. Consult your local veterinarian when designing a health program for your sheep.

Provide each member a copy of Member Handout #14, "Common Sheep Diseases," as a review and for their records.

DIALOGUE FOR CRITICAL THINKING:**Share:**

1. Have your sheep contracted any diseases? Which ones? What did you do to remedy it?

Leader Notes

ACTIVITY

2. What is the easiest thing that YOU can do to keep your sheep healthy?

Process:

3. Are nutritional diseases preventable? How?
4. What is the first thing to do if you notice your lamb is not healthy? Then what?

Generalize:

5. Are other livestock prone to these diseases?
6. Are there sheep diseases that you can contract?

Apply:

7. What can you do to maintain your own good health?

GOING FURTHER:

1. Visit a veterinarian's office and watch treatment of diseases.

REFERENCES:

SID Sheep Production Handbook
Prevention and Control of Common Sheep Disease, Wohlgemuth and
Haugen, NDSU Ext. Serv. Bulletin 34, 1987.
Animal Diseases, Solving Livestock disease problems, South, 1989.

Author:

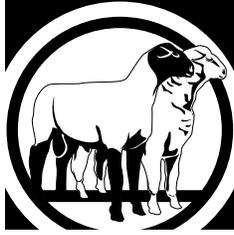
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COMMON SHEEP DISEASES**SHEEP, LEVEL III****Member Handout #14, Common Sheep Diseases**

Disease	Prevention	Symptoms	Treatment
White Muscle (Stiff lamb)	Vitamin E and selenium supplement in ewe ration	3- to 8-week old lambs are stiff and unable to walk	Inject selenium solution
Water Belly (urinary calculi)	Maintain proper calcium to phosphorus ratio in ration	abdominal pain, kicking at stomach, straining and frequent attempts to urinate (wethers and rams)	Remove stones from urethra
Acidosis (founder)	Adjust ration to high levels of concentrates gradually	discomfort, depression, death	Empty rumen by giving mineral oil, antacids, or electrolytes
Pregnancy toxemia (ketosis, twin lamb disease)	proper energy level ration for ewes in late gestation, minimize environmental stress	Ewes lag behind, grind teeth, go down	Intravenous glucose, oral propylene glycol
Grass tetany	High magnesium supplement when pastures are lush	Loss of appetite, stiff gait, staggering, twitching, convulsions	magnesium sulfide or oxide
Hypocalcemia (milk fever)	Be aware of increased calcium needs by nursing ewes	ewes are hyperexcitable, may regurgitate food through nostrils	calcium borogluconate
Prussic acid poisoning (cyanide)	Do not graze or feed drought or frost stressed sorghum or sudan hybrids	death or going down immediately after grazing	sodium thiosulfate
Enterotoxemia Type C (bloody scours) Type D (overeating)	Injection of C & D to ewe prior to lambing and to lamb	Type C—diarrhea, convulsions Type D—death	antitoxin
Scours (diarrhea)	Proper sanitation—feed antibiotics or sulfas to pregnant ewes prior to lambing Colostrum fed to lamb	diarrhea, thin weak lambs	Rehydrate with liquids and electrolytes
Pneumonia	Reduce stress on newborn lambs, ensure colostrum intake	coughing, abnormal breathing (rattling)	Sulfas, Terramycin, Penicillin
Mastitis (blue bag)	Cull ewes, proper sanitation	Hard, swollen, sore udder Fever	Streptomycin



Calculating Percent Lamb Crop

Sheep, Level III

What Members Will Learn . . .

ABOUT THE PROJECT:

- The definition of percent lambing crop
- How to calculate percent lambing crop

ABOUT THEMSELVES:

- The value of formulas and ratios
- Importance of evaluation

Materials Needed:

- Activity Sheet #9, Percent Lamb Crop Formula
- Calculator
- Flip chart and markers

ACTIVITY TIME NEEDED: 30 MINUTES

ACTIVITY

Leader Notes

You may have heard many sheep producers talking about their lamb crop percentage. Just what are they talking about?

Reproductive efficiency often determines the profit or loss of a sheep operation. An accurate measure of reproductive efficiency is lamb crop percentage.

In most, but not all, sheep operations, the producer strives for as high a lamb crop percentage as possible. Other operations try to optimize lamb crop percentage. In other words, they take environment and the milking ability of the ewes into consideration. They want as many lambs as the ewes are capable of raising. The optimum may be as low as 100% or higher than 200% depending on the environment and type of ewe.

In simplest terms, lamb crop percentage can be calculated by dividing the number of lambs born by the number of ewes exposed to rams and multiplying by 100. Example: $30 \text{ lambs born} / 20 \text{ ewes exposed} \times 100 = 150\% \text{ lamb crop}$. Does this really tell us much about reproductive efficiency? It doesn't tell us how many lambs died before reaching market age, or how many open ewes we had. When determining efficiency, open ewes need to be considered as we are feeding these ewes and they aren't producing anything to pay for themselves. The lambs of other ewes must make up for them.

Show calculations on flip chart.

A more accurate method of calculating lamb crop percentage is as follows: $\text{number of live lambs (lambs born—lamb death loss)} / \text{number of}$

Leader Notes

Show calculations on flip chart.

Give members several copies of Activity Sheet #9, "Percent Lamb Crop Formula," to use when working problems.

ACTIVITY

ewes exposed \times 100. Let's consider that same flock with 30 lambs born. Let's say 5 lambs died shortly after birth. The new lamb crop percentage would be $(30 - 5 = 25) / (20) \times 100 = 125\%$ lamb crop. Although it doesn't sound as good as telling someone you had a 150% lamb crop, it is probably a more accurate account of your efficiency.

Some producers also calculate % lamb crop weaned by dividing the number of weaned lambs by the number of ewes exposed and multiplying by 100.

1. If you had 40 ewes and they raised 70 lambs, what is your percent lamb crop? Ans: $70 / 40 = 175\%$
2. If those ewes only raised 50 lambs, what is your percent lamb crop? Ans: $50 / 40 = 125\%$
3. If your ewe flock had 4 sets of triplets, 26 sets of twins and 13 singles, what is your percent lamb crop? Ans: $12 + 52 + 13 / 43 = 179\%$
4. Referring to question 3, assume that 7 lambs died at birth and what is your percent lamb crop? Ans: $70 / 43 = 162.8\%$
5. Calculate the percent lamb crop for your own flock from this year.

DIALOGUE FOR CRITICAL THINKING:

Share:

1. What was the most difficult part of the lamb crop percentage formula?

Process:

2. Why is it important to know your % lamb crop?
3. Why do you often have over 100% lamb crop?

Generalize:

4. What are some other formulas or ratios that you use often?
5. What other areas of your life do think you should evaluate every year?

Apply:

6. How and when will you use evaluations in the future?

REFERENCES:

Author:

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**CALCULATING PERCENT LAMB CROP
SHEEP, LEVEL III**

Activity Sheet # 9, Percent Lamb Crop Formula

Number of Lambs Born _____

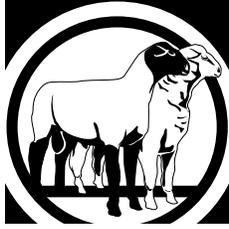
Subtract Death Loss of Lambs - _____

A. TOTAL NUMBER OF LAMBS WEANED = _____

B. TOTAL NUMBER OF EWES EXPOSED = _____

A. $\frac{\text{TOTAL NUMBER OF LAMBS WEANED}}{\text{TOTAL NUMBER OF EWES EXPOSED}}$ X 100 = _____% LAMB CROP

CALCULATING PERCENT LAMB CROP



Production Record Keeping

Sheep, Level III

What Members Will Learn . . .

ABOUT THE PROJECT:

- Ewe production records
- How to determine average daily gain and adjusted weaning and market weights

ABOUT THEMSELVES:

- Importance of record keeping in their lives
- Role of computers in record keeping

Materials Needed:

- Activity Sheet #10, Flock Production (2 pages)
- Activity Sheet #11, Ewe Production Record (P-1074) (2 pages)
- Leader Key, Flock Production

ACTIVITY TIME NEEDED: 60 MINUTES

ACTIVITY

Leader Notes

Record keeping is an extremely important part of any successful sheep operation. In addition to production records, such as weight gains and lambing record, financial records are a must. The successful sheep operator needs to record all income generated by the sheep flock as well as any sheep related expenses. By doing this, the producer can determine profitability as well as find areas where expenses could be cut. In earlier lessons, we talked about basic record keeping of income and expenses and sheep identification. Therefore, we'll concentrate this lesson on production records.

We keep records on those traits which we deem valuable, such as weight or fleece weight. Those records aid us in selection. Hopefully, the records will help us improve the genetics of our flock.

Production starts at birth, consequently, most record keeping systems are geared around lambing time. The type and amount of records kept depends on the operation. Let's review an example of the type of records that might be kept.

The first column is for lambing date or birth date. The second is for ewe identification. If you plan on registering the lambs, you'll need sire and dam ID as well as birth date, sex and birth type (single, twin, triplet). The

Hand out first page of Activity Sheet #10, "Flock Production." This information could be recorded in many different ways, depending on producer preference (pocket notebook, barn door clipboard, etc.) Production information could be recorded for each ewe on the Ewe Production Record (P-1074) or on a spreadsheet in your computer.

Leader Notes

ACTIVITY

next column is for lamb ID, followed by lamb sex. The shepherd will also commonly include a space for comments about lamb appearance and behavior, the ewe's mothering ability, or if the birth was assisted. By marking culling decisions here, the producer is less likely to forget when it comes time to sell cull ewes. Some operations keep records of birth weight, weaning weight and weight at the end of the feeding period (market weight). The date should also be recorded whenever weights are taken. This way you can adjust the weights to a common age, and comparisons will be more accurate. Also, with weights and dates, average daily gain can be calculated. You could compare how many total pounds of lamb each ewe weaned (an indication of milking ability), as well as compare average weights of offspring between sires. All these records can be combined with visual evaluation when selecting breeding stock and pairing sheep for mating.

This information, plus lambing information, can be recorded on the standard Ewe Production Record (P-1074).

If fleece quality is important to the operation, those records would be kept at shearing time. You might choose to record traits such as fleece weight or wool grade.

In most sheep operations, lambs are sold based on weight. Therefore heavier lambs and ewes and rams that produce heavier lambs are more valuable. In addition, faster gaining lambs are more efficient, thereby increasing the chance for profitability. When selecting replacements, you also need to use visual evaluation as some important traits aren't kept in the record book such as structural correctness or breed character. Using either visual evaluation or records alone when selecting replacements leaves too much room for error and may slow your progress.

If one lamb is older than another when weighed, how do we accurately compare these weights? Simply calculate a corrected weight. For example, we might wean our lambs at approximately 90 days of age. Generally, all lambs are weaned at once. Since not all were born on the same day, there will be a discrepancy in ages. If we weigh the lambs and don't correct the weights to a common age, the older lambs would have an unfair advantage. Since we recorded the lambs birth date and the date which they were weaned (weighed), we can figure out exactly how many days old each lamb is. Next take the lamb's weaning weight and subtract the birth weight. This gives us the weight gained from birth to weaning. Divide the weight gain by the days of age to get pre-weaning average daily gain. Multiply pre-weaning average daily gain by 90 and add the birth weight back in to get the corrected 90-day weight. If you do this for all the lambs, you can compare their weights on an equal basis.

You could add an adjusted weaning weight column to your form or use ewe production record.

Let's work a problem from the sample record sheet. We'll calculate lamb 95-01's corrected 90-day weaning weight. She was born on February 5th and weaned on May 2nd, making her 86 days old. Her weaning weight (98 lbs) minus her birth weight (10 lbs) equals 88 pounds. Eighty-eight divided by 86 equals 1.02 lbs/day (pre-weaning average daily gain). Multiply 1.02 by 90 and add 10 (birth weight) to get the corrected 90-day weight of 101.8 pounds.

ACTIVITY**Leader Notes**

Post-weaning average daily gain can be calculated by figuring the age in days at the end of the feeding period (when weighed) and subtract 90. Then take the end weight and subtract the corrected 90-day weight to get post-wean weight gain. Divide the weight difference by the age difference to get post-wean average daily gain.

Let's use our sample lamb 95-01 again. February 5th to June 5th is 120 days. One hundred twenty minus 90 equals 30 days. End weight of 130 lbs. minus adjusted 90-day weight of 102 lbs equals 28 lbs. Twenty-eight divided by 30 equals .93 lbs/day post-wean average daily gain.

A corrected end weight could also be calculated in the same manner as the corrected weaning weight. Not all producers record birth weight. Since differences in birth weight are usually very small, many producers don't bother to adjust for it. Also, weights could be adjusted for sex of lamb as males tend to be heavier (in many cases, males and females are not compared to each other anyway). Weights can be adjusted for how the lamb was reared (single, twin, triplet). Single lambs tend to be heavier at weaning as they have no competition for mother's milk. Weights could also be adjusted for age of dam. Very old ewes and first time lambers may not milk as well as mature two- to five-year-old ewes.

Keep in mind that the more records you keep and the more intensive your operation, the more accurate you will be; however, it also means more time and labor. Each producer needs to compare the relative value of accuracy with the cost of attaining that accuracy. Every situation is different. Each operator must find a system that works best for him/her.

In another lesson, we'll discuss more complex uses for records such as performance testing, ratios and expected progeny differences (EPDs).

DIALOGUE FOR CRITICAL THINKING:**Share:**

1. What type of flock production records do you keep? Why?
2. What calculations were the most difficult? Why?

Process:

3. What is the significance of average daily gain?
4. Why are adjusted weights important?
5. Why are production records important?

Generalize:

6. What other records do you keep? Why?

Apply:

7. How will the use of computers assist you in record keeping in the future?

Refer to the back of the Ewe Production Record (P-1074) for these adjustment factors.

Give members second page of Activity Sheet 10, "Flock Production." Let members work in pairs to answer the questions, then discuss as a group.

Leader Notes

ACTIVITY

GOING FURTHER:

1. Check out or visit various computerized record keeping systems.

REFERENCES:

Authors:

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PRODUCTION RECORD KEEPING
SHEEP, LEVEL III
 Activity Sheet #10, Flock Production

Barn Book Data 1995

	Date	ewe ID	lamb #	sex	comments
1.	2/5	91-15	95-01	F	aggressive lambs, ewe is good milker
2.	"	"	95-02	F	
3.	"	93-01	95-03	M	lamb has inverted eye lids, assisted birth
4.	2/7	89-04	95-04	F	good lambs
5.	"	"	95-05	M	
6.	"	91-11	95-06	M	ewe won't let lambs nurse
7.	"	"	lamb died		possible cull
8.	2/8	90-13	95-07	M	lamb's twin was born dead
9.	2/10	91-07	95-08	F	good lambs
10.	"	"	95-09	M	
11.	2/13	92-12	95-10	F	ewe doesn't have enough milk
12.	"	"	95-11	M	95-11 & 95-12 bottle raised
13.	"	"	95-12	M	
14.	2/15	92-04	95-13	F	good lambs
15.	"	"	lamb died		

Weight Data for 1995 Lambs

	Birth wt	wean wt	wean date	end wt	end date	sire ID
1.	10	98	5/2	130	6/5	KSU "Big Bucks"
2.	9	95	"	129	"	"
3.	18	111	"	147	"	"
4.	8	88	"	120	"	Roberts "27B"
5.	11	94	"	128	"	"
6.	13	72	"	113	"	KSU "Big Bucks"
7.	13	—	—	—	—	—
8.	10	90	5/2	124	6/5	KSU "Big Bucks"
9.	12	84	"	118	"	"
10.	14	88	"	121	"	"
11.	6	75	"	125	"	Roberts "27B"
12.	8	70	"	110	"	"
13.	6	70	"	104	"	"
14.	14	102	"	143	"	KSU "Big Bucks"
15.	12	—	—	—	—	—

PRODUCTION RECORD KEEPING
SHEEP, LEVEL III

Activity Sheet #10, Flock Production (continued)

Use the sample record sheet to answer the following questions.

1. Which of the following can be determined using the information on this record sheet (assuming all the sheep in the flock are listed)?

- | | | |
|---|---|--|
| Y | N | Corrected weaning weight |
| Y | N | Corrected end weight |
| Y | N | Pre-weaning average daily gain |
| Y | N | Post-wean average daily gain |
| Y | N | Lamb crop percentage |
| Y | N | Which ewe weaned the most total pounds of lamb |
| Y | N | How many ewes raised twins |
| Y | N | Mean post-wean average daily gain of the offspring of KSU "Big Bucks" |
| Y | N | Lamb death loss percentage |
| Y | N | Which ewe had the heaviest fleece weight |
| Y | N | Ewes that should be culled for poor mothering ability |
| Y | N | Lambs that should be culled for structural defects or poor breed character |
| Y | N | The average birth weight of the offspring of "Roberts 27B" |

2. Calculate the lamb crop percentage (assuming no open ewes or ewe death loss prior to lambing). (If necessary, review the lesson on calculating lamb crop percentage).

3. Which ram lamb had the highest post-wean average daily gain?

4. Rank the ewe lambs in order (highest to lowest) for corrected 90-day weight.

5. Which of the two sires produced offspring with a higher average corrected end (120 day) weight?

PRODUCTION RECORD KEEPING

SHEEP, LEVEL III

Leader Key, Flock Production (continued)

Use the sample record sheet to answer the following questions.

1. Which of the following can be determined using the information on this record sheet (assuming all the sheep in the flock are listed)?

- Y N Corrected weaning weight
- Y N Corrected end weight
- Y N Pre-weaning average daily gain
- Y N Post-wean average daily gain
- Y N Lamb crop percentage
- Y N Which ewe weaned the most total pounds of lamb
- Y N How many ewes raised twins
- Y N Mean post-wean average daily gain of the offspring of KSU "Big Bucks"
- Y N Lamb death loss percentage
- Y N Which ewe had the heaviest fleece weight
- Y N Ewes that should be culled for poor mothering ability
- Y N Lambs that should be culled for structural defects or poor breed character
- Y N The average birth weight of the offspring of "Roberts 27B"

2. Calculate the lamb crop percentage (assuming no open ewes or ewe death loss prior to lambing). (If necessary, review the lesson on calculating lamb crop percentage).

$$13 \div 8 \times 100 = 163\%$$

3. Which ram lamb had the highest post-wean average daily gain?

95-06

4. Rank the ewe lambs in order (highest to lowest) for corrected 90-day weight.

1. 95-13 (118.2)	3. 95-02 (99.0)	5. 95-08 (92.0)
2. 95-01 (101.8)	4. 95-04 (93.7)	6. 95-10 (85.6)

5. Which of the two sires produced offspring with a higher average corrected end (120 day) weight?

KSU "Big Bucks"

PRODUCTION RECORD KEEPING
SHEEP, LEVEL III
 Activity Sheet 11, "Ewe Production Record"

Ewe Flock Number _____ Registration Number _____ P-1074

INFORMATION ON EWES						
SIRE		BIRTH DATE		BIRTH WEIGHT		FLOCK NUMBER
DAM		WEANING DATE		WEANING WEIGHT		REG. NO.
TYPE BIRTH		120 DAY WEIGHT		YRL. WEIGHT		
Shearing Date						
Fleece Weight						

LAMBING RECORD

				Birth Information				Weaning Information							
Year	Flock #	Reg. #	Sire #	Birth Date	Birth type S TW TR	Birth Weight	Sex	How Reared S TW TR	Days of Age & Date Weighed	Actual Weaning Weight	² 120 day adjusted weight	¹ Sale Wt. Yrl. Wt.	Creep Fed	Carcass Info.	Remarks

*Use separate "Ewe Production Record" for each ewe in the purebred or commercial phase of the sheep project. You may insert additional copies of this form in your 4-H Sheep Record if the ewe remains in the flock for more than 5 years. This form should be kept current with each year the ewe remains in the project.

¹Adjusted weight (explained on next page or back of record)

²Yearling weight for replacements (next page or back of record)

90-Sheep, Level III

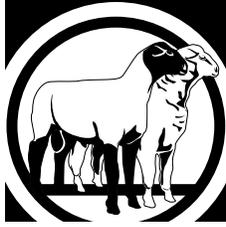
PRODUCTION RECORD KEEPING

**PRODUCTION RECORD KEEPING
SHEEP, LEVEL III**

Activity Sheet #11, Ewe Production Record (continued)

1. If the lamb is not kept as replacement stock, circle weight and record that weight. Replacement stock should be weighed when approximately 1 year of age and that weight recorded.
2. Adjusted weights are used to standardize weights of lambs. A ram lamb is expected to weigh more than a wether lamb or a ewe lamb. Also, a 3- to 6-year-old ewe is considered in her prime and is expected to supply more milk than a yearling ewe or a ewe over 6. Single lambs have access to more milk and should weigh more at weaning than a lamb raised as a twin. A conversion table is show on the right.

ADJUSTMENT FACTORS			
Multiply 120-day corrected weight by the appropriate factor			
Age of Dam			
	3 to 6 yrs. old	2 yrs. old or over 6 yrs. old	1 yr. 0
Ewe Lamb			
Single	1.00	1.09	1.22
Twin—raised as twin	1.11	1.20	1.33
Twin—raised as single	1.05	1.14	1.28
Triplet—raised as triplet	1.22	1.33	1.46
Triplet—raised as twin	1.17	1.28	1.42
Triplet—raised as single	1.11	1.21	1.36
Wether			
Single	.97	1.06	1.19
Twin—raised as twin	1.08	1.17	1.30
Twin—raised as single	1.02	1.11	1.25
Triplet—raised as triplet	1.19	1.30	1.43
Triplet—raised as twin	1.14	1.25	1.39
Triplet—raised as single	1.08	1.18	1.33
Ram Lamb			
Single	.89	.98	1.11
Twin—raised as twin	1.00	1.09	1.22
Twin—raised as single	.94	1.03	1.17
Triplet—raised as triplet	1.11	1.22	1.35
Triplet—raised as twin	1.06	1.17	1.31
Triplet—raised as single	1.00	1.10	1.25
<p>Example: To find the adjusted 120-day weight of a twin-born and reared ram lamb from a 2-year-old ewe that weighed 90 pounds at 110 days of age, make the following calculations:</p> $\frac{90 \text{ lbs}}{110 \text{ days of age}} = .82 \text{ lbs} \times 120 = 98 \text{ lbs} \times 1.09 \text{ (adjustment factor)} = 107 \text{ lbs}$ <p>The adjusted 120-day weight of the lamb would be 107 lbs.</p>			



Flock Handling Facilities and Equipment

Sheep, Level III

What Members Will Learn . . .

ABOUT THE PROJECT:

- How much space is needed per lamb when building
- The ideal facilities and what each should include

ABOUT THEMSELVES:

- Prior planning is essential for efficiency

Materials Needed:

- Member Handout #15, Small Flock Layout
- Member Handout #16, Flock Layout for up to 300 Ewes
- Member Handout #17, Footbaths
- Member Handout #18, Sheep Squeezes
- Member Handout #19, Headgate and Sheep Chair
- Member Handout #20, Blocking Stand
- Member Handout #21, Weigh Crate

ACTIVITY TIME NEEDED: 45 MINUTES

ACTIVITY

In a previous lesson, we discussed some basics about sheep handling and equipment, mostly concerning space requirements. In this exercise, we'll discuss working facilities in a little more detail, as well as look at some example illustrations of facilities, and some specific handling equipment. Keep in mind that the cost of building new facilities is usually very high; therefore, most producers are forced to adapt their existing facilities into something that works for them.

Nearly all effective and efficient sheep handling set ups have a few things in common. The system should have a directional flow, as sheep move through each part until they exit, having been treated, sorted or weighed. Sheep are gathered into holding pens, moved into smaller crowding pens and forced into a treatment chute. Sheep move single file through the chute and pass through a sorting gate where they are separated into two or more sorting pens. The system should be designed to keep the sheep moving forward on their own power with a minimum of prodding or shouting. This decreases the labor and stress for the owner and reduces the chance of injury to the sheep.

Leader Notes

Have members list or draw sample facility needs before discussing.
Distribute handouts after discussion.

Leader Notes

ACTIVITY

The gathering pen should allow five to six square feet per ewe (three to four per lamb) in the flock. If the pen is too large, too much time will be spent chasing the sheep back and forth. If the pen is too small, crowding can lead to injury. The pen should be located to allow easy access from all outlying pastures or lots. The shape is also important. Sharp corners should be avoided as sheep tend to huddle in them rather than keep moving. Rectangular pens tend to work better than square ones. Gathering pens are usually fairly large; therefore, for efficiency sake, many operators have multiple uses for this area when not working or sorting sheep. Fences and gates should be open (as opposed to solid) to allow light into the pen and reduce shadows.

Fences should be high enough to discourage jumping (as this may cause broken legs). Fence height depends on the size and temperament of your sheep. Some larger framed breeds may require fences that are four or even five feet high. There is nothing more frustrating than chasing a single sheep that has escaped the pen and disrupted your sorting.

The crowding or forcing pen is the most neglected, over-looked part of most facilities. It is vital for efficiently moving sheep into the chute. A poorly designed forcing pen is worse than none at all. Walls (fences and gates) should be solid, giving the sheep the idea that the only way out is through the chute. Most producers allow a four inch gap at the bottom to allow movement of air water and manure out of the pen. For small flocks, a semi-circular pen with a swinging gate to force the sheep into the chute works well.

The chute should allow the sheep to move through in single file, and be narrow enough that the sheep can't turn around. Sorting gates are strategically placed along the chute (especially at the end) to allow sheep to be sorted into different pens. Chutes with adjustable sides (for width) allow lambs (or smaller sheep) to be worked just as efficiently as larger sheep.

The sorting gate(s) is the most important moving gate in the entire system. It should be easy to use, quick, safe and effective. It must be light weight, durable and securely hinged. It should move freely and not have pointed edges.

Some chutes have rope operated drop gates which can be lowered into the chute to stop the flow of sheep. Other chutes may have spring-loaded, one-way gates that allow sheep to push their way forward but not back up.

The sorting pens should allow the same square feet per head as the gathering pen; however, they don't need to be as large because you'll likely have only a small portion of the flock in each one. In these, or any other pens for that matter, gates work best when located in the corners.

In some operations, an elevated loading dock (permanent or portable) is attached to the end of the working chute or a separate forcing pen. This

ACTIVITY

Leader Notes

allows sheep to be loaded into trucks or elevated trailers without lifting. An elevated dock or ramp may also be needed for forcing sheep into dipping vats.

Scales for obtaining weights are a necessity for most sheep operations. In most cases, the treatment chute has a section where the scale can be placed. You need to design a small crate that will hold one sheep at a time on the scale. The crate should allow the lamb to enter one end and out the other without disrupting the flow.

In some cases, a head gate or squeeze chute may be placed at the end of the treatment chute for cases when sheep need to be restrained. There are several designs available. Any of the devices should be safe for both owner and sheep as well as effectively restrain the sheep and provide access for the producer to treat the sheep. Some sheep squeeze devices tilt the sheep on its side. Others such as sheep chairs or cradles flip the sheep on to their dock or upside down. They need to be designed to fit the physical size of the sheep in your operation.

Some operations have footbaths for preventing and treating foot rot. The bath is built to hold a liquid chemical solution (zinc sulfate, etc.) and should fit inside the working chute. It should be six to eight inches deep. Sheep do not like standing in or walking through water, so the bath must be placed where it allows the sheep no other place to walk. Preferably, the bath should be removable so the sheep won't smell it every time they use the chute, as it could make them reluctant to move through the working system.

Small portable chutes may be designed for shearing time. The chute should have solid walls except where the shearer is located. The shearer should be able to reach over and pull the sheep out of the chute and into the shearing position in one smooth motion. Many sheep shearers have their own such chute, or they may be able to help you design one convenient for them.

Many operations utilize sheep blocking stands. Mostly they are used for fitting sheep for shows. However, they may be used to restrain sheep for other purposes. Some rams may be too large to shear the conventional way so they are shorn standing on a sheep stand. Sheep stands are generally made of metal. Some stands are a permanent height while others use hydraulic jacks to adjust the height of the sheep. These are more expensive. However, less work is needed to lift the sheep on to the stand.

DIALOGUE FOR CRITICAL THINKING:

Share:

1. Which part of the handling equipment was most confusing?
2. Have you ever worked sheep without the proper facilities? Describe the facilities and what happened.

Ask members to list basic equipment needs and discuss the purpose of each before sharing text. Distribute handouts after the discussion.

Leader Notes

ACTIVITY

Process:

3. What part do you think even the most basic facilities need? Why?
4. Why should gates be located at the corners of the pens rather than in the middle of the fence?
5. Why are corners avoided when designing gathering and crowding pens?
6. How does a properly set up facility save money for the producer?

Generalize:

7. In what other projects have you had to design or plan something before you started? Did it eventually save you time? How?

Apply:

8. What are the advantages of long-term planning?
9. How will long-term planning or goal setting affect your efficiency?

GOING FURTHER:

1. Visit an equipment manufacture and see how equipment is designed and produced.
2. Visit a sheep farm and view their facilities and have the owner explain why it is designed the way it is.

REFERENCES:

SID Sheep Production Handbook
Sheep Housing and Equipment Handbook, Midwest Plan Service

Author:

Jeremy Geske, Former Extension Assistant, Kansas State University
James P. Adams, Extension Specialist, 4-H and Youth Programs, Kansas State University

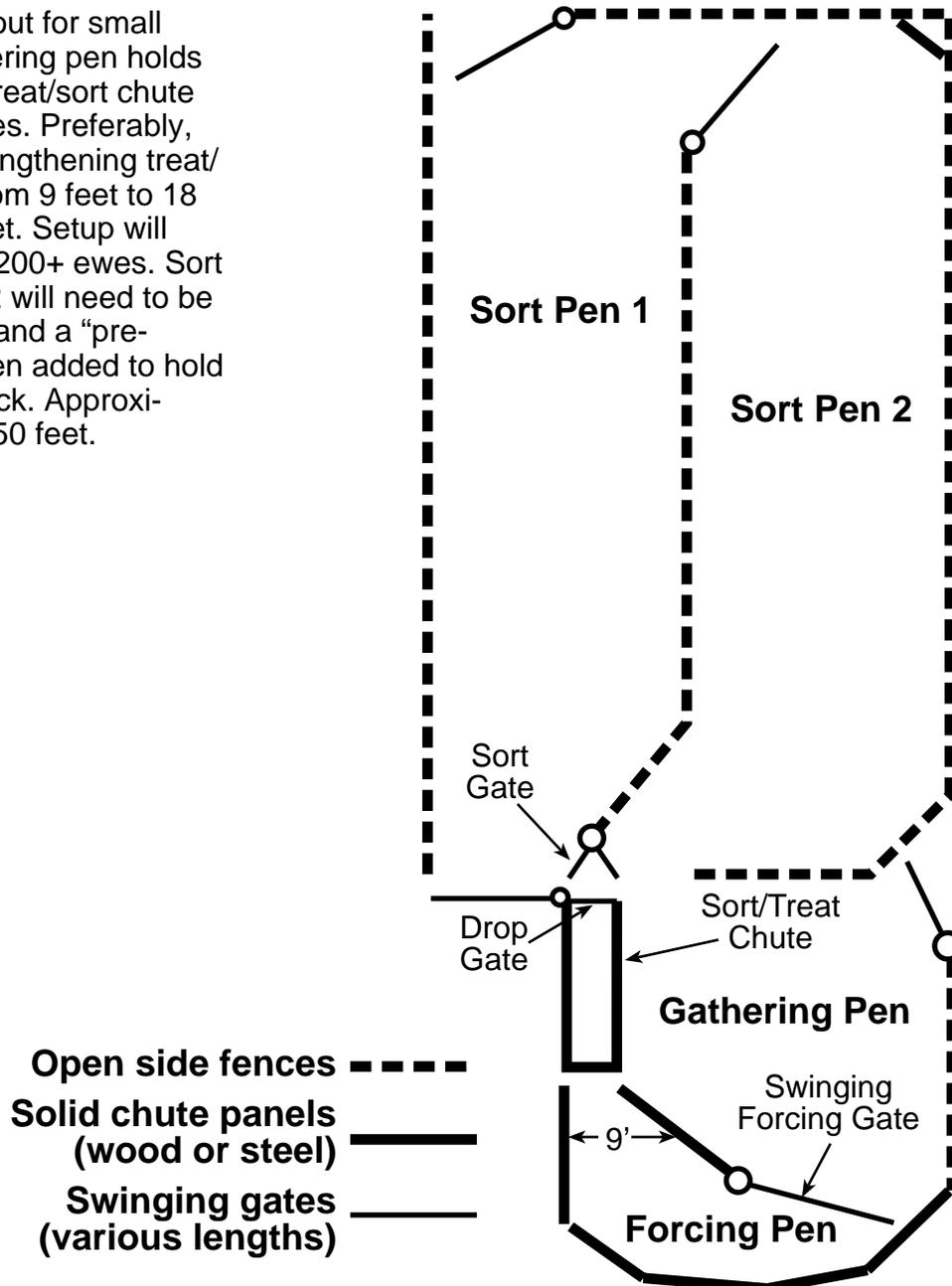
Reviewed by:

Clifford Spaeth, Extension Specialist, Animal Sciences and Industry,
Kansas State University
Sheep Design Team

**FLOCK HANDLING FACILITIES AND EQUIPMENT
SHEEP, LEVEL III**

Member Handout #15, Small Flock Layout

A simple layout for small flocks. Gathering pen holds 60+ ewes. Treat/sort chute holds 3+ ewes. Preferably, expand by lengthening treat/sort chute from 9 feet to 18 feet or 27 feet. Setup will then handle 200+ ewes. Sort pens 1 and 2 will need to be lengthened, and a “pre-gathering” pen added to hold the larger flock. Approximately 24 × 50 feet.



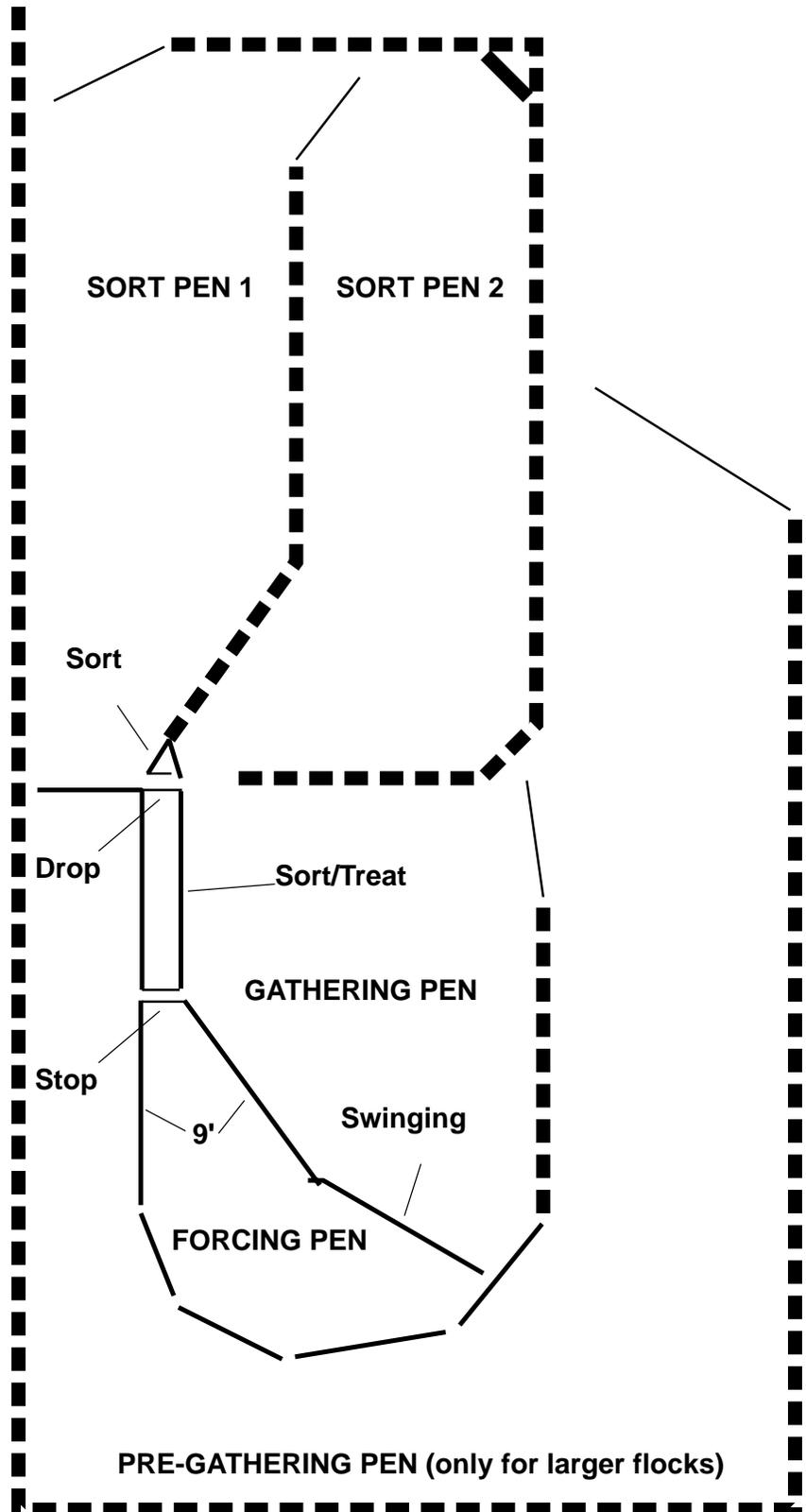
**FLOCK HANDLING FACILITIES AND EQUIPMENT
SHEEP, LEVEL III**

Member Handout #16, Flock Layout for Up to 300 Ewes

A possible simple layout for small flocks. Gathering pen holds 60+ ewes. Treatment chute holds 3+ ewes. Simply by lengthening treatment chute from 9 feet to 18 feet or 27 feet, twice as long, setup will handle 20+ ewes. By adding the extra pre-gathering pen (as illustrated) and increasing length of sort pens, setup will handle 300+ ewes.

Area covered is about 30 ft. x 60 ft.

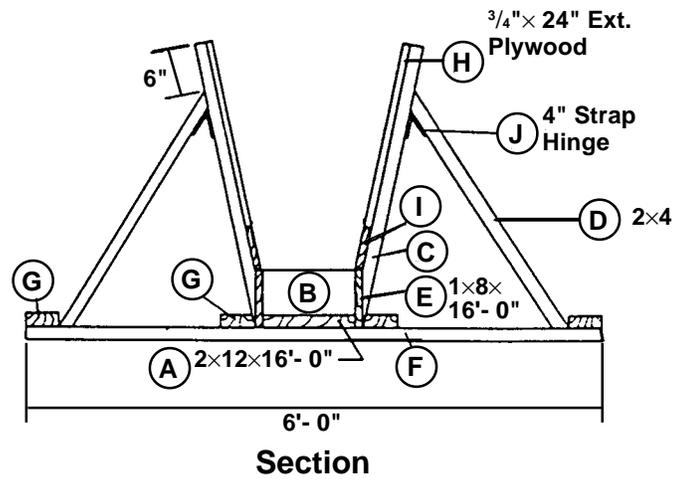
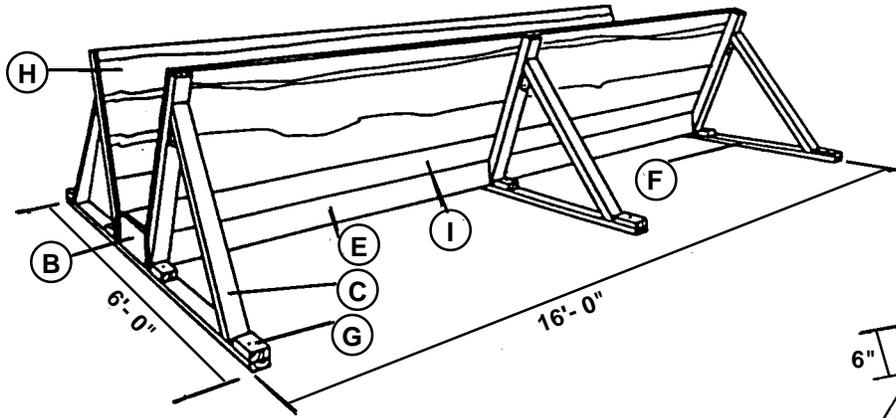
- Open side fences 
- Solid chute panels (wood or steel) 
- Swinging gates 



**FLOCK HANDLING FACILITIES AND EQUIPMENT
SHEEP, LEVEL III**

Member Handout #17, Footbaths

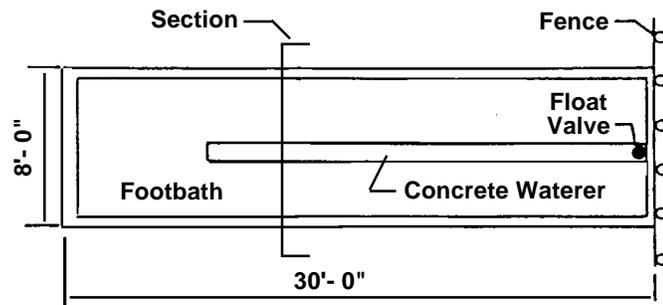
WOOD FOOTBATH



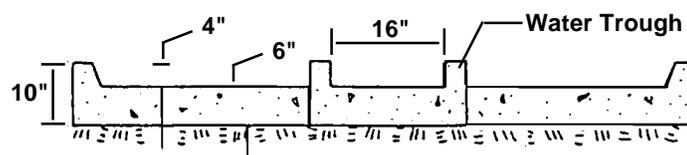
Cutting List

Item No.	Description	Item No.	Description
A	1 2x12x16' - 0"	F	3 2x4x6' - 0"
B	2 2x6x11 1/2"	G	12 2x4x4"
C	6 2x4x3' - 7"	H	2 3/4" x 24 ext. plywood
D	6 2x4x3' - 3"	I	2 1x6x16' - 0"
E	2 1x8x16' - 0"	J	6 4" strap hinges
		K	12 3/8" x 3 1/2" bolts

CONCRETE FOOTBATH SURROUNDING WATERER



Top View



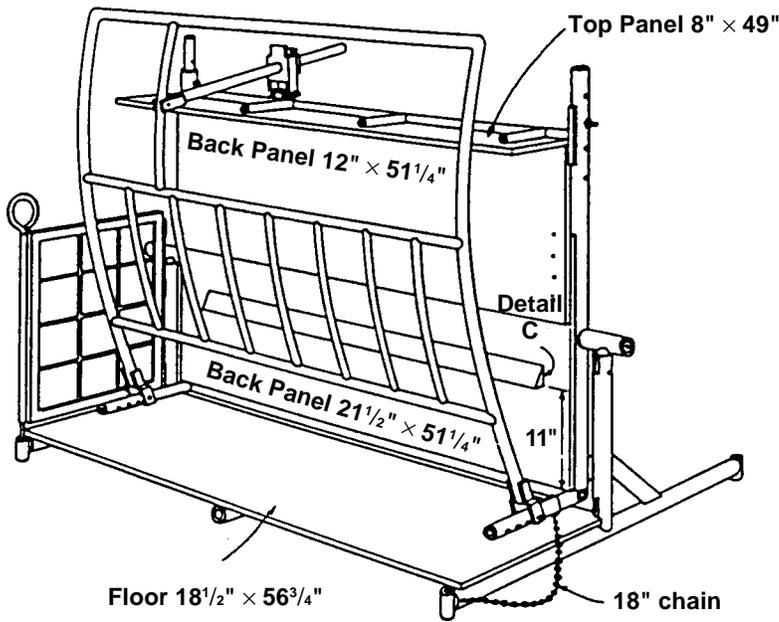
Section

FLOCK HANDLING FACILITIES AND EQUIPMENT

SHEEP, LEVEL III

Member Handout #18, Sheep Squeezes

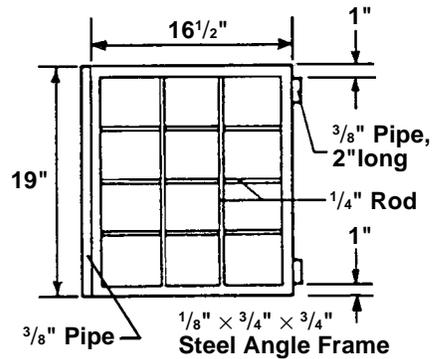
TILTING SQUEEZES



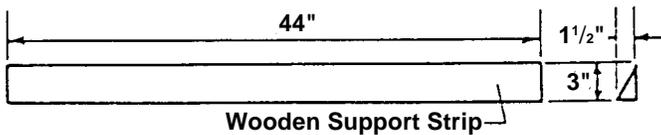
All pipes are standard size.

All joints are welded.

Panels and floor are 1/2" Ext. Plywood, fastened with 1/4" carriage bolts. Use 5/16" machine bolts in 3/8" holes.

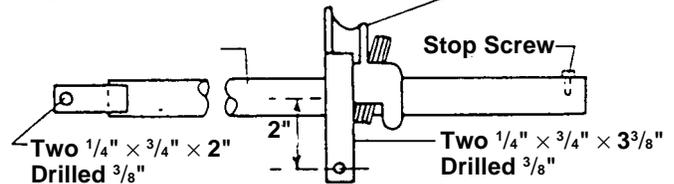


Chute Gate

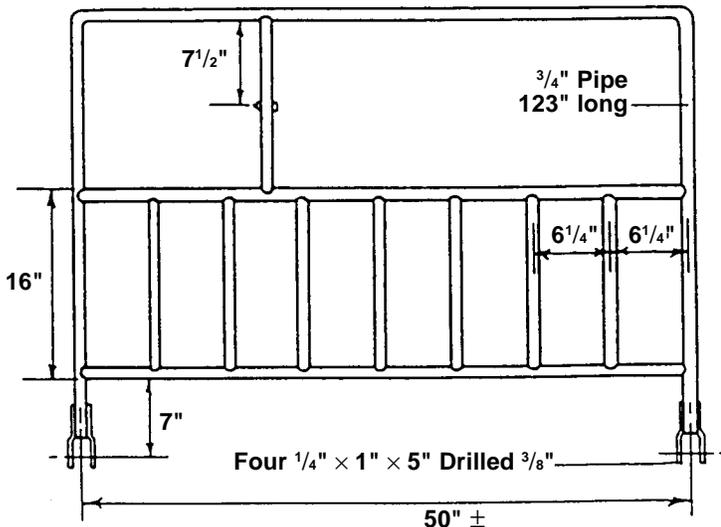


Detail C

Multiple-Disc Clutch from Wood Clamp



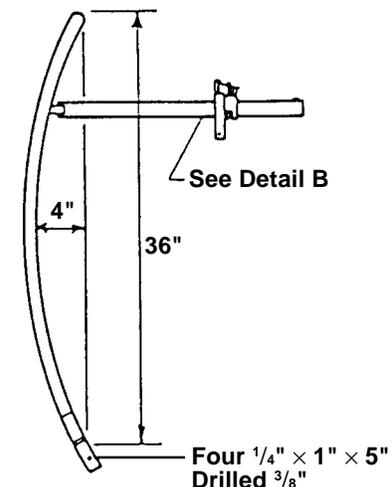
Detail B



Front

Squeeze Panel

All 1/2" Pipe Except as Noted



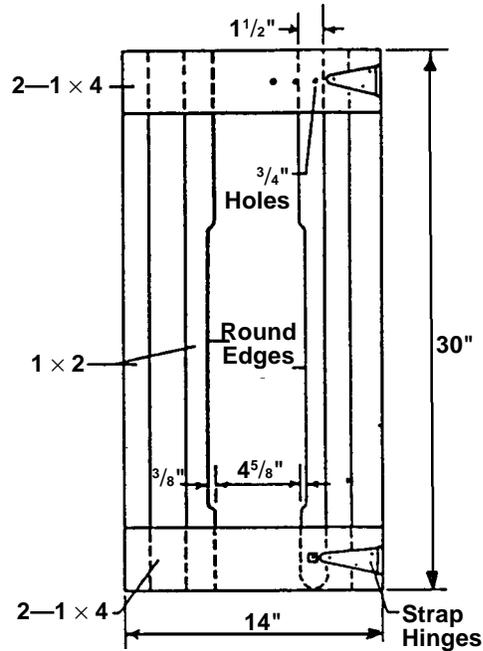
End

FLOCK HANDLING FACILITIES AND EQUIPMENT

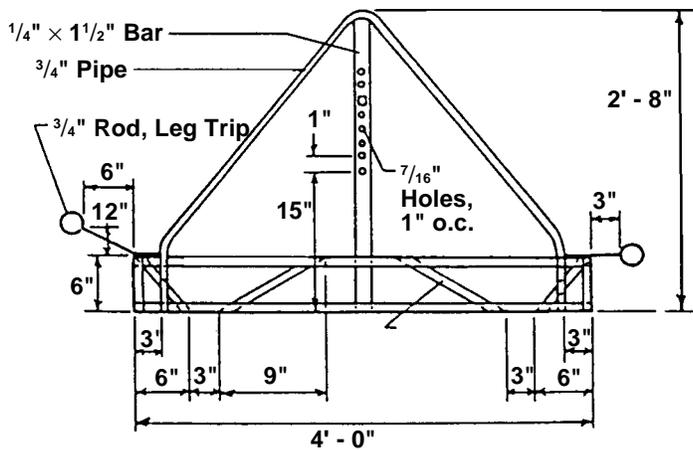
SHEEP, LEVEL III

Member Handout #19, Headgate and Sheep Chair

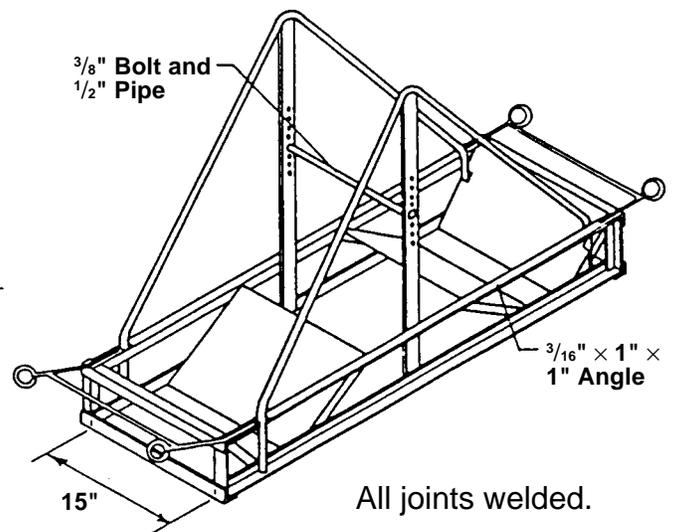
HEADGATE



SHEEP CHAIR



Side View

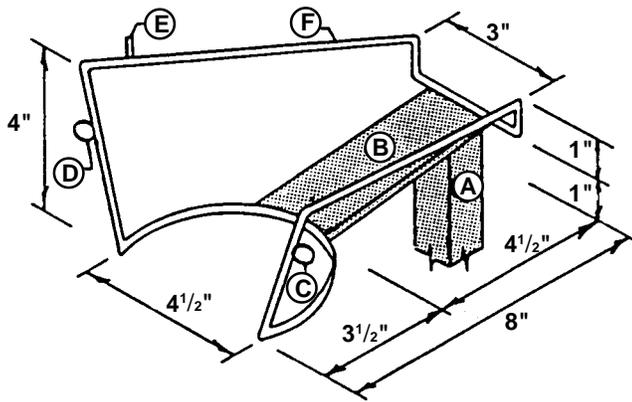


FLOCK HANDLING FACILITIES AND EQUIPMENT

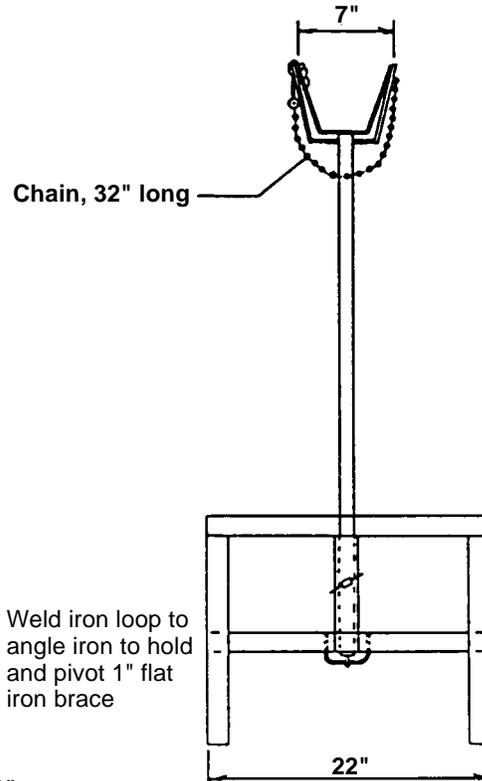
SHEEP, LEVEL III

Member Handout #20, Blocking Stand

Head Rest Detail



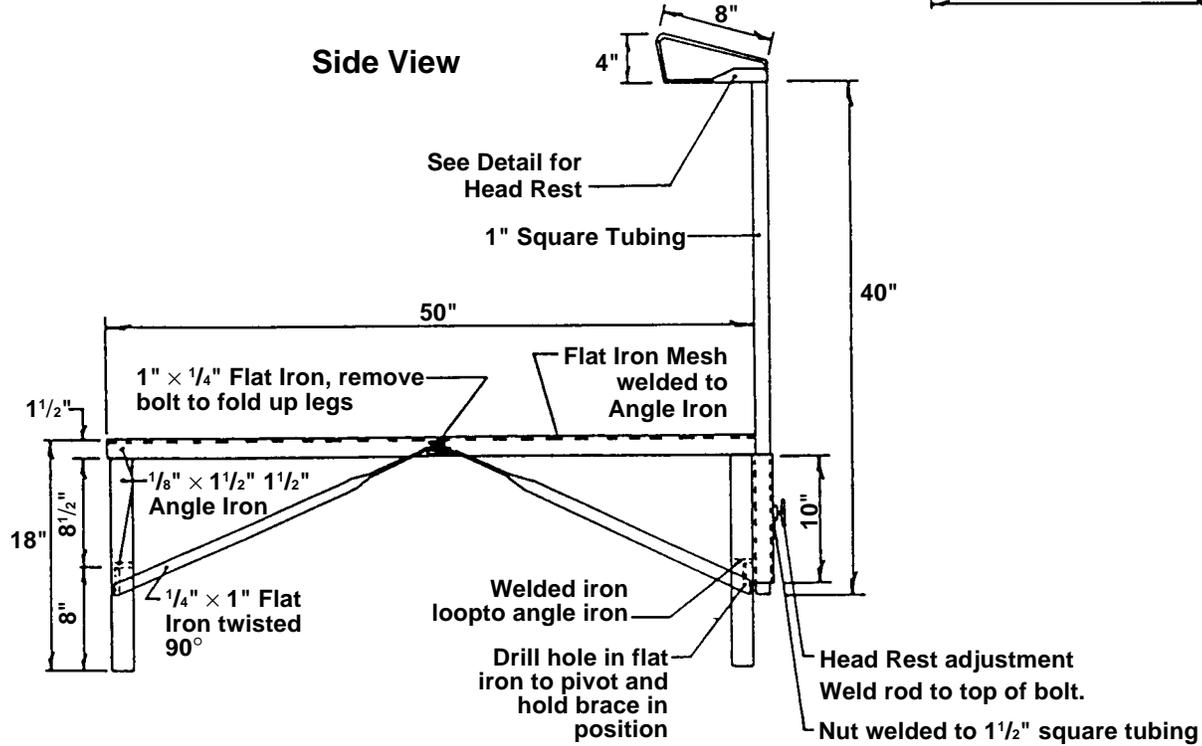
Front View of Blocking Stand



Item	Description
A	1" x 1/8" square tubing
B	1/4" x 1 1/2" x 4 1/2" strap, Brace B to A
C	fasten chain stop to this loop
D	pass chain over sheep's head and through this loop
E	hook chain on peg
F	1/8" x 40" rod

Weld iron loop to angle iron to hold and pivot 1" flat iron brace

Side View

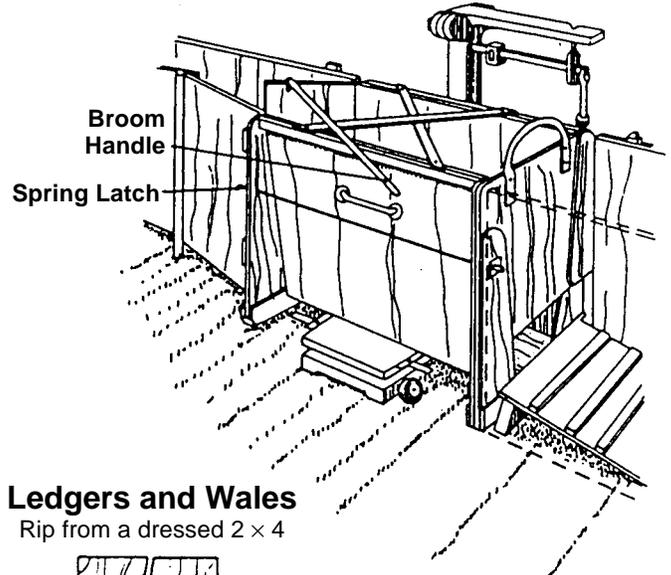
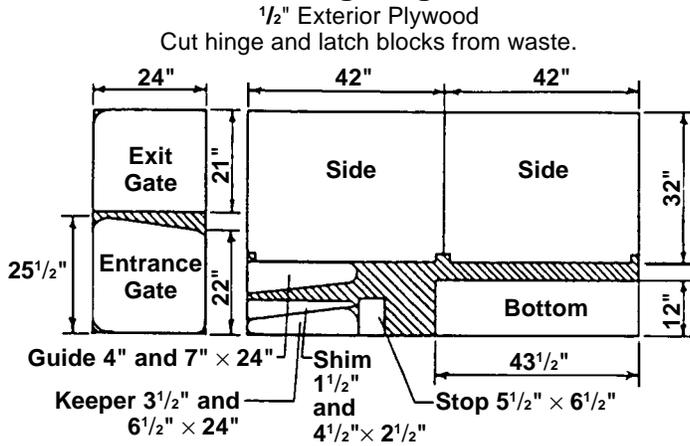


FLOCK HANDLING FACILITIES AND EQUIPMENT

SHEEP, LEVEL III

Member Handout #21, Weigh Crate

Cutting Diagram

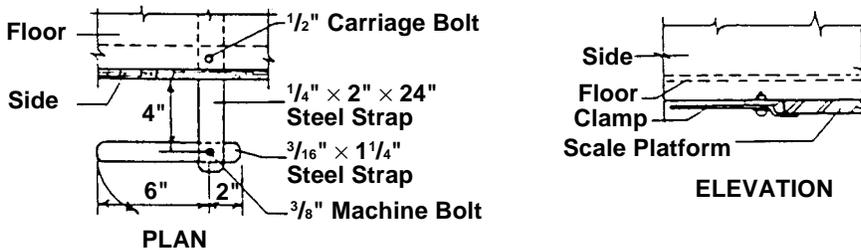


Bill of Materials

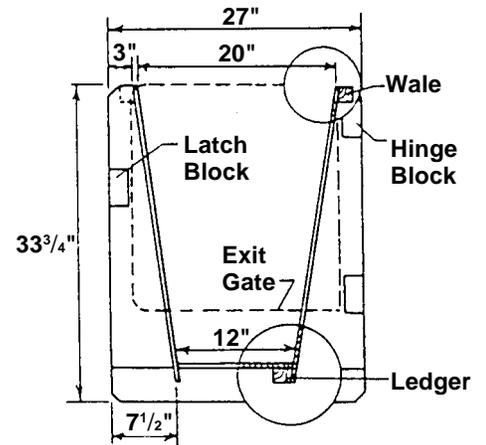
No.	Description	No.	Description
1	12 x 4 x 7' - 0"	2	spring-type hinges
1	1 x 12 x 6' - 0"	1	spring-type latch
1	1 x 4 x 10' - 0"	2	5" carrying handles
1	1/2" x 4' - 0" x 7' - 0" plywood	6' - 0"	3/16" x 1 1/4" steel strap
1	1/2" x 2' - 0" x 4' - 0" plywood	3' - 0"	3/16" x 1 1/4" steel strap
4' - 6"	3/4" metal tubing	4' - 0"	1/4" x 2" x 24" steel strap

Detail of Clamp

(4 Required)

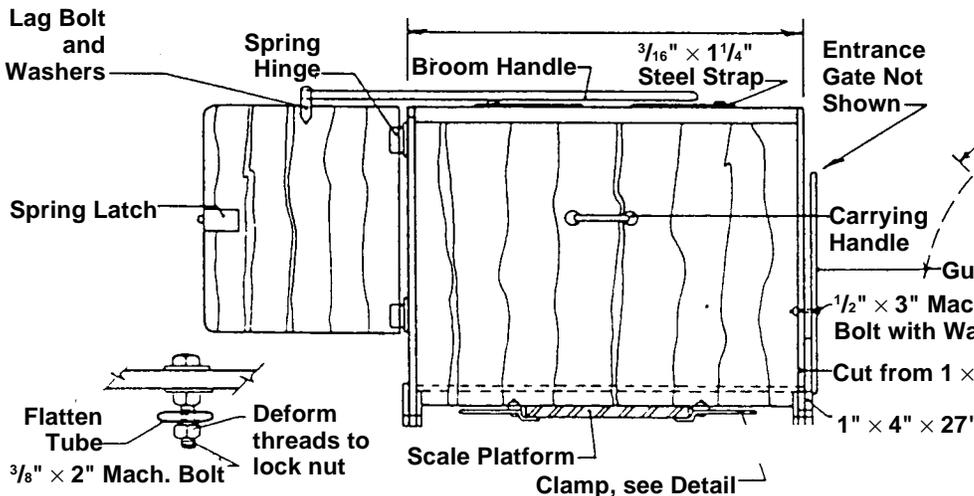


Exit End

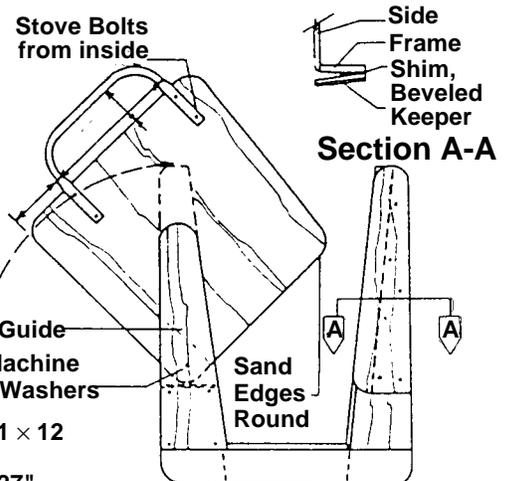


Side Elevation

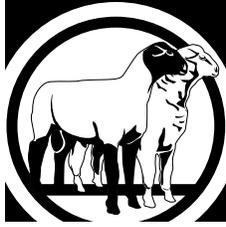
(Operator's Side)



Entrance End



FLOCK HANDLING FACILITIES AND EQUIPMENT



Sheep Management Systems

Sheep, Level III

What Members Will Learn . . .

ABOUT THE PROJECT:

- Three types of sheep operations
- Value of companion grazing

ABOUT THEMSELVES:

- Value of working together for a common purpose
- Benefits of complimentary jobs or careers

Materials Needed:

- Activity Sheet #12, Management Quiz
- Notepad, marker, easel

ACTIVITY TIME NEEDED: 30 MINUTES

ACTIVITY

Sheep operations can be classified into 3 major types; farm flock, Southwest range and Northwest range. Within each major type, there can be a variety of sub-types.

Let's discuss the farm flock operation first. As you might expect, farm flocks are typically smaller than range flocks in terms of number of ewes. Sheep are kept in small pastures or lots, as well as grazed on croplands. In many farm flocks, the emphasis is on meat production and/or prolificacy, usually at the expense of wool production. Sheep are usually grazed for 5 to 8 months, and supplemented with hay and grain when grazing is unavailable. Lambing generally occurs in January, February, or March; if barns or sheds are available. In Kansas, several operations also lamb in the fall. Lambs are usually weaned at 50 to 70 days and creep fed to market weight. Shearing occurs generally just prior to lambing. Because the sheep are kept in a smaller area, there is a greater risk of disease; therefore, a good health program is essential. Farm flocks can be purebred, seedstock operations, commercial, crossbred operations or feeder lamb operations.

In Southwest range operations, sheep are generally kept in larger, fenced-in areas. Sheep are grazed all year, with very little supplementation. Often, sheep are grazed in companionship with cattle and goats. These operations raise replacement ewe lambs for farm flocks, produce a few market lambs, but mainly produce feeder lambs. The emphasis is on wool quality. The Southwest range ewe is a small-framed, fine-wooled, Ram-

Leader Notes

Have members describe various types of sheep operations. Make a list. Classify the list after the discussion.

Ask members for farm flock characteristics, then list on flip chart. Use information here to supplement what members list.

Ask members to list characteristics of Southwest range operations.

Leader Notes

ACTIVITY

bouillet-type ewe. Little emphasis is placed on prolificacy. Lambs are born in the spring, usually in unattended pastures; as shed lambing is seldom economically feasible. Lambs aren't weaned until they are ready to be shipped to market. Shearing occurs once per year, not necessarily prior to lambing. The health program is less intense than in farm flock operations.

Ask members to list Northwest range operation characteristics.

The Northwest range operations have similar goals to the Southwest range operations with a few slight differences. They usually consist of large flocks grazed on mountain pastures. These operations utilize public lands for grazing. Wool quality is still emphasized in the ewe flock; however, the ewes are larger framed and more rugged than the Southwest range ewes, so their wool isn't quite as fine. In these operations, the type of ram may be different depending on the production goals. If they are selling replacements, then wool quality would be important in the rams. However, many of these operations produce market lambs by using a terminal cross sire. Then, there would be more emphasis on meat production. Lambs are usually pastured along with the ewes. Lambing occurs in late spring in small pastures or sheds. These operations typically utilize herders to watch over the flock as they graze the large mountain pastures.

See if members can determine and list examples of companion grazing before discussion.

Any type of sheep operation might include companion grazing where pastures and range lands are utilized by a variety of animal species. Livestock and wildlife graze on the available forage. In most cases, a rancher doesn't receive much from the wildlife that use his land. In some cases, where hunting rights are very valuable, deer may be managed in a grazing program. At least they are considered when the rancher plans the grazing routine for his livestock.

In many areas, producers are discovering the value of companion grazing. Companion grazing is when two or more species of livestock are simultaneously grazed on a pasture. If the two species are competitive (they eat the same plants), there is no added value. In most cases, the two species are complimentary. For companion grazing to be beneficial, the species must have a complimentary grazing relationship.

Let's consider sheep and cattle as an example. Complimentary grazing is possible because:

- a) Most range lands produce a wide variety of plant species.
- b) Cattle and sheep prefer different forages:
 - 1. Sheep prefer broad leaf plants
 - 2. Cattle prefer grasses
- c) Cattle and sheep get along and can live in harmony.
- d) Cattle and sheep graze different topography.

ACTIVITY

Leader Notes

If these conditions were not true, there would be no reason for companion grazing.

Sheep will do better when they graze alone. However, by utilizing companion grazing, the rancher gets more total production off a piece of land. Another reason sheep or goats are often used as companions for cattle is weed control. Sheep and goats will control weeds such as leafy spurge and keep the pastures cleaner.

Use Activity Sheet #12, "Management Quiz," as a group or individual review.

DIALOGUE FOR CRITICAL THINKING:

Share:

1. What type of sheep operation do you have? Why?
2. What other types of sheep operations have you seen?

Process:

3. What is the purpose of each type of sheep operation?
4. What is companion grazing?

Generalize:

5. What are other complimentary situations that occur in nature?
6. How are jobs and careers used to compliment each other?

Apply:

7. What jobs and careers do you think will be needed in the future to enhance current vocations?

GOING FURTHER:

1. Visit various types of sheep operations.
2. Have a career management agency share views on complimentary careers.

REFERENCES:

Dr. Don Kirby, North Dakota State University

Authors:

Jeremy Geske, Former Extension Assistant, Kansas State University
James P. Adams, Extension Specialist, 4-H and Youth Programs, Kansas State University

Reviewed by:

Clifford Spaeth, Extension Specialist, Animal Sciences and Industry,
Kansas State University
Sheep Design Team

SHEEP MANAGEMENT SYSTEMS

SHEEP, LEVEL III

Activity Sheet #12, Management Quiz

List one thing farm flock operations may have in common with Southwest range operations;

1. _____

with Northwest range operations.

1. _____

List 3 differences between farm flock operations and Southwest range operations;

1. _____

2. _____

3. _____

with Northwest range operations.

1. _____

2. _____

3. _____

List 3 things Southwest range operations may have in common with Northwest range operations.

1. _____

2. _____

3. _____

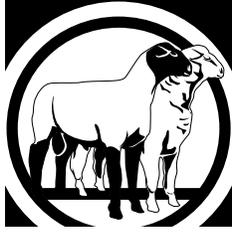
List 2 unique qualities of the Northwest range operations.

1. _____

2. _____

What are the advantages of companion grazing? _____

What types of sheep operations are found in Kansas? _____



Basic Genetic Concepts

Sheep, Level III

What Members Will Learn . . .

ABOUT THE PROJECT:

- How traits are passed from parent to offspring
- How genes influence traits
- The number of chromosomes in a sheep

ABOUT THEMSELVES:

- How different factors play a part in a final decision
- Their own genetic make-up

Materials Needed:

- Activity Sheet #13, “Gene Matching”
- Leader Key—Gene Matching
- Member Handout #22, Inheritance Transfer
- Member Handout #23, Gene Expression

ACTIVITY TIME NEEDED: 45 MINUTES

ACTIVITY

It is well known that how an animal looks and “performs” is partly due to how its parents looked and performed. However, it was not until the end of the 19th century that scientists began to understand how characteristics were passed from one generation to the next.

DNA (deoxyribonucleic acid) is the basic genetic material. DNA molecules are organized into chromosomes. Chromosomes come in pairs and are found in every cell of the body. Each cell contains the exact same set of chromosome pairs. Different species have different numbers of chromosomes. Sheep have 54 chromosomes (27 pairs).

Upon each chromosome, DNA segments are organized into genes. These genes are codes which dictate or influence all of the individual's characteristics (appearance and performance). Because chromosomes are in pairs, genes are also in pairs. The physical location of a gene on a chromosome is called the locus. The term “allele” means alternative forms of a gene. For example, the allele for tallness and the allele for shortness are alternative forms of the gene controlling the trait of height. These terms can be confusing as locus, gene, and allele are sometimes used interchangeably.

How then are these traits passed from parent to offspring? Normal body cells are called “diploid” meaning that they have a pair of each chromo-

Leader Notes

Start the lesson off by asking the question “What influences how tall you are, what color your eyes are, etc?” See if they understand that all things like this are inherited from their parents. Then pose the same question about animals. Why is it important to know this information?

Refer to Member Handout #22, “Inheritance Transfer,” to show and explain terms.

Leader Notes**ACTIVITY**

some. When the sex cells (sperm and egg) are formed, they receive only one chromosome from each pair. Hence, they are called “haploid”. In sheep, the sperm cell and the egg cell each have 27 chromosomes. During fertilization (union of egg and sperm), the zygote (newly developed fetus or unborn lamb) receives 27 chromosomes from the ram and 27 from the ewe, giving it the full compliment of 54. In other words, half of the genetics of any lamb come from its sire and the other half come from the dam.

With that in mind, we can assume that a lamb should resemble the “average” of its parents. Let’s discuss some common terminology. Phenotype is the outward appearance of an animal. It includes traits that are easily measured (height, weight, etc.). An individual’s phenotype is the result of a combination of its genotype and the environment in which it is raised. Environment may have little effect on some traits and quite large effects on others. Genotype is the genetic make-up of the individual. It can be difficult to measure as it may be hard to separate the effects of environment.

How do these genes influence the expression of traits? As you remember chromosomes, and therefore genes, come in pairs. Many traits are controlled by a single pair of genes. That does not mean that the two alleles for a certain gene have to be the same. A lamb is considered “homozygous” for a certain trait if the two alleles making up the gene pair are the same. If the two alleles are not the same, the lamb is “heterozygous” for the trait.

This may be easier to understand if we go through some examples of gene representation. In the simplest cases, a trait may be controlled by a single gene pair, and there are only two alleles. We usually represent these alleles with capital or lower case letters. For example, at locus ‘A’ a lamb might have the alleles “AA”, “Aa”, or “aa”. Capital “A” represents one possible allele and lower case “a” represents the other possible allele. A homozygous lamb would be “AA” or “aa” and a heterozygous lamb would be “Aa”.

Sometimes, the presence of one allele may affect the expression of the other allele. If one allele is “dominant”, it will mask the expression of the other allele. Usually, the “dominant” allele is represented by the capital letter and the “recessive” allele is represented by the lower case letter. For example, let’s assume tall is dominant to short. In that case, lambs with “TT” or “Tt” alleles in their gene pair would be tall, and lambs with “tt” alleles would be short. In the case of dominance, the outward appearance of a lamb can not be used to determine the difference between homozygous dominant lambs and heterozygous lambs. In some cases, two alleles may be co-dominant to each other (alleles express themselves equally). Let’s assume that tall (T) and short (t) are co-dominant. “TT: lambs would be tall, “Tt” lambs would be medium and “tt” lambs would be short. In this case, the heterozygous lamb is the average of the two

Refer to Member Handout #23, "Gene Expression," to help explain these concepts.

ACTIVITY

Leader Notes

homozygous types. In other cases, there may be incomplete dominance between alleles. In this case, one allele expresses itself to a greater extent than the other. The “TT” lamb might be 36 inches tall, the “Tt” lamb might be 34 inches tall and the “tt” lamb only 25 inches tall. In this case, there may only be a very slight difference between the homozygous dominant and the heterozygous lamb.

In many cases, there may be more than two alleles for any given gene. Also, many of the important traits in sheep are controlled by more than one pair of genes. These complexities and other genetic terminology will be discussed in other lessons.

Use Activity Sheet #13, "Gene Matching," to help review terminology.

DIALOGUE FOR CRITICAL THINKING:

Share:

1. What was the hardest thing to understand about genes? Easiest?

Process:

2. What is the difference between homozygous and heterozygous?
3. How could two tall sheep have a short lamb?

Generalize:

4. Do you think you will look a lot like your parents? Why or why not?
5. When are some times in your life that many little factors influenced a major decision?

Apply:

6. How will the issues raised in this lesson be useful in the future?

GOING FURTHER:

1. Visit a lab and look at an actual strand of DNA.

REFERENCES:

SID Sheep Production Handbook

Genetics, a guide to basic concepts and problem solving. R.P. Nickerson. 1990.

Author:

Jeremy Geske, Former Extension Assistant, Kansas State University
James P. Adams, Extension Specialist, 4-H and Youth Programs, Kansas State University

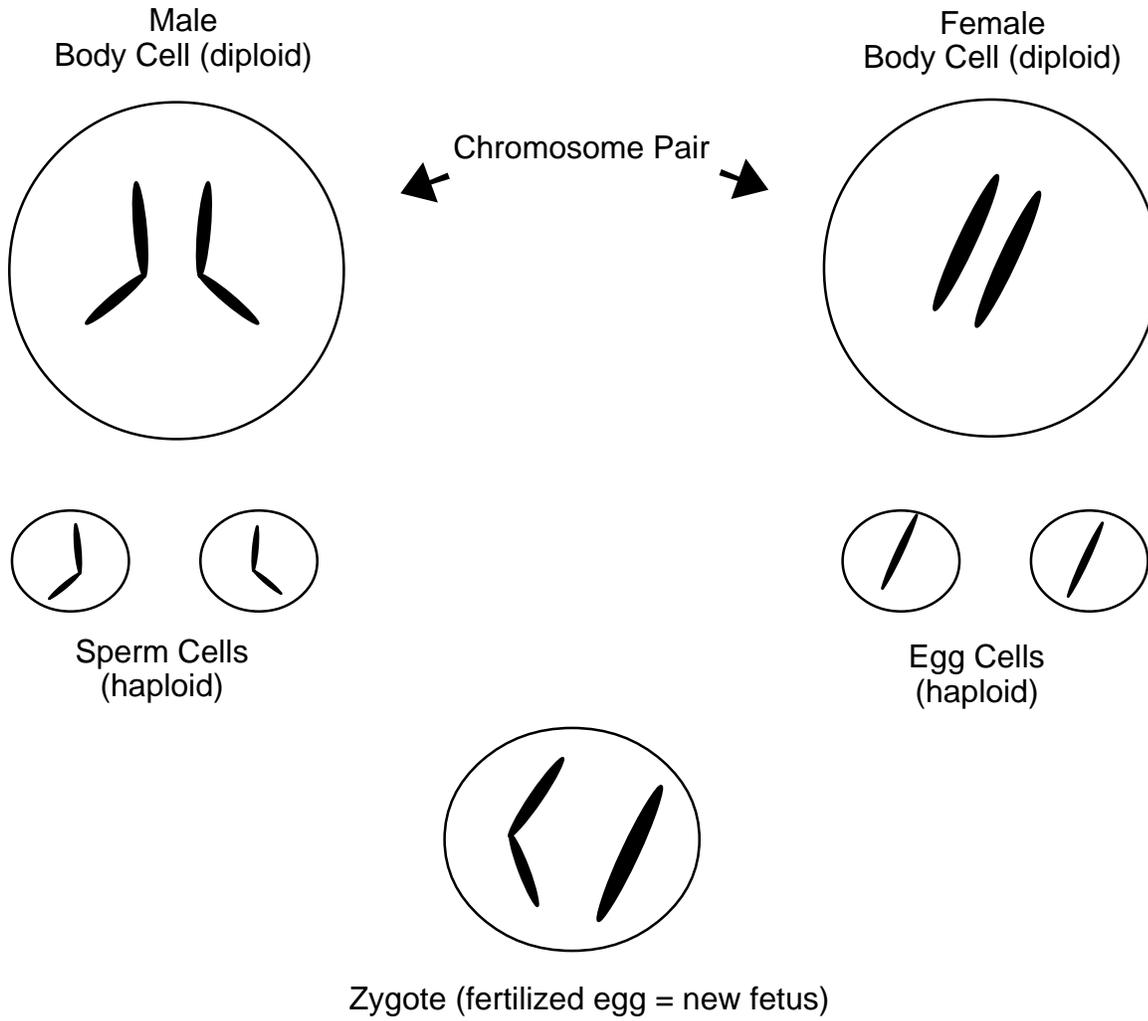
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BASIC GENETIC CONCEPTS

SHEEP, LEVEL III

Member Handout #22, Inheritance Transfer



BASIC GENETIC CONCEPTS

SHEEP, LEVEL III

Member Handout 23, Gene Expression

Single gene pairs, two alleles:

AA }
aa } Homozygous

Capital letter "A" = dominant

Lower case letter "a" = recessive

Aa → Heterozygous

Example:

T = dominant gene for tall
t = recessive gene for short
Result of mating TT x tt

		Female	
		t	t
Male	T	Tt	Tt
	T	Tt	Tt

All genotypes = Tt

All phenotypes = Tall

Mate Tt x Tt

		Female	
		T	t
Male	T	TT	Tt
	t	tT	tt

<i>Genotypes</i>	<i>Phenotypes</i>	<i>If traits were co-dominant</i>
1 TT	Tall	Tall
2 Tt	Tall	Medium
1 tt	Short	Short

BASIC GENETIC CONCEPTS

SHEEP, LEVEL III

Activity Sheet #13, Gene Matching

Match the terms to the most appropriate definition. (each answer used only once)

- | | |
|-----------------------|---|
| _____ 1. Allele | A. When a cell has a complete set of chromosome pairs. |
| _____ 2. Chromosome | B. The outward appearance of a lamb. |
| _____ 3. Diploid | C. When two alleles within a gene pair are identical. |
| _____ 4. DNA | D. Deoxyribonucleic acid, the basic genetic material. |
| _____ 5. Dominance | E. When two alleles within a gene pair are different. |
| _____ 6. Genotype | F. Sheep have 27 pairs of them. |
| _____ 7. Heterozygous | G. When one allele masks the effects of the other allele. |
| _____ 8. Homozygous | H. Alternative forms of a gene. |
| _____ 9. Locus | I. A specific physical location upon a chromosome. |
| _____ 10. Phenotype | J. The genetic make-up of an individual. |

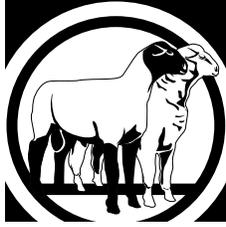
BASIC GENETIC CONCEPTS

SHEEP, LEVEL III

Leader Key—Gene Matching

Match the terms to the most appropriate definition. (each answer used only once)

- | | | |
|----------|-----------------|---|
| <u>H</u> | 1. Allele | A. When a cell has a complete set of chromosome pairs. |
| <u>F</u> | 2. Chromosome | B. The outward appearance of a lamb. |
| <u>A</u> | 3. Diploid | C. When two alleles within a gene pair are identical. |
| <u>D</u> | 4. DNA | D. Deoxyribonucleic acid, the basic genetic material. |
| <u>G</u> | 5. Dominance | E. When two alleles within a gene pair are different. |
| <u>J</u> | 6. Genotype | F. Sheep have 27 pairs of them. |
| <u>E</u> | 7. Heterozygous | G. When one allele masks the effects of the other allele. |
| <u>C</u> | 8. Homozygous | H. Alternative forms of a gene. |
| <u>I</u> | 9. Locus | I. A specific physical location upon a chromosome. |
| <u>B</u> | 10. Phenotype | J. The genetic make-up of an individual. |



Mating Systems

Sheep, Level III

What Members Will Learn . . .

ABOUT THE PROJECT:

- The definition of a system
- The advantages of heterosis
- The different types of mating systems

ABOUT THEMSELVES:

- Organization skills
- How decision making is based on expected outcome

Materials Needed:

- Member Handout #24, “Terminal Crossbreeding Systems”
- Member Handout #25, “Rotational Crossbreeding Systems”
- Activity Sheet #14, “System Quiz”
- Leader Key, System Quiz
- Pencils

ACTIVITY TIME NEEDED: 45 MINUTES

ACTIVITY

Leader Notes

Why are you raising sheep (wool production, meat production, etc.)? In other words, what is your goal? Next, choose a breed or breeds that excel in the area of your goal. Third, develop a selection program consistent with the goal. The final step is the definition of a mating system. This describes how the selected breeds or individuals will be paired during mating.

A mating system should be considered at two levels (breed and individual). For flocks that use more than one breed, the mating system will determine which breeds contribute to the ewe flock, and which are used as breeding rams. The mating system will define the manner in which the breeds are combined to produce the desired offspring (for example, replacement ewe lambs of one type and market lambs of another).

At the individual level, a mating system defines how individual rams and ewes will be paired during mating. Single sire mating is required for registered flocks; however, multiple-sire breeding pastures are common in commercial operations. In many cases, ewes are assigned at random to different rams.

Leader Notes**ACTIVITY**

Two general categories for mating systems include purebreeding and crossbreeding. Purebreeding refers to the mating of rams and ewes of a common genetic group (within a breed). The two basic reasons for purebreeding are:

1. Seedstock producer (registered sheep)
2. One breed is best adapted to the existing environment

If you choose to be a purebred producer, there are two types of mating systems you could use, inbreeding and outbreeding. Outbreeding is the mating of individuals less closely related than the average of the breed. The continual use of unrelated rams maintains the highest degree of genetic heterozygosity (aside from crossbreeding). As a result, performance tends to be higher. Also, increased heterozygosity may reduce the expression of genetic recessive defects. On the other hand, reduced homozygosity could, theoretically, lead to less uniformity in the offspring. Most purebred producers use an outbreeding system.

Inbreeding is the mating of closely related individuals. If a lamb's sire and dam are related to each other, then it will be inbred. The degree of inbreeding depends on how closely the parents are related. Inbreeding results in the increased homozygosity of gene pairs. Theoretically, this would increase the uniformity of the offspring. Reasons why producers utilize inbreeding include, the detection of genetic defects or they can't buy better breeding stock than what they produce themselves. Disadvantages of inbreeding are the increased likelihood that genetic defects will be expressed and inbreeding depression. Inbreeding depression is a reduction in performance due to reduced heterozygosity. Inbreeding depression has the greatest negative effect on reproductive performance. A less severe, and more commonly used form of inbreeding is linebreeding. When an individual is identified as being outstanding for some trait(s), an operator may wish to increase the amount of sheep in his flock with those bloodlines. He can accomplish this by continually using offspring or close relatives of the desired individual as breeding stock.

Most sheep producers (especially commercial producers) utilize some type of crossbreeding program. Crossbreeding is the mating of rams and ewes of different breeds. Crossbreeding results in increased heterozygosity, which in turn gives an increase in performance known as heterosis or hybrid vigor. Heterosis has the most positive effect on reproductive traits. Another reason for crossbreeding is to take advantage of the good qualities of two or more breeds.

A good crossbreeding program does not include the indiscriminate mixing of several breeds. It is instead, a systematic utilization of the available breed resources to produce the desired offspring. One form of crossbreeding is grading up. This is the repeated mating of ewes and their female offspring to rams of a single breed. After several generations, the sheep

ACTIVITY**Leader Notes**

will be indistinguishable from purebreds of the sire breed. This method is usually used when only rams of a particular breed are available; such as when a breed is first imported into the country. Sometimes, crossbreeding is used to develop new breeds. Once the crossbred lambs, with the desired percentage of each parent breed, are produced, they are managed as purebreds. Several breeds have been developed in the U.S. including the Columbia, Montadale, Polypay and Targhee. Most commercial producers; however, employ a systematic crossbreeding program.

There are many types of crossbreeding systems. The one to use depends on the requirements of your selection program. Most crossbreeding operations rely on purebred producers to supply replacement rams, and in some cases, replacement ewes as well.

Let's look at some examples. A sheep producer wishes to emphasize wool quality in his ewe flock, but wants to sell high quality slaughter lambs as well. He might choose Rambouillet ewes for wool production, as well as adaptability and longevity. He then mates these ewes to Hampshire rams to produce larger framed, meatier crossbred lambs (compared to straight bred Rambouillet lambs). The Hampshire cross lambs would have lower wool quality than Rambouillet lambs; therefore, it would not fit the selection goal to keep them as replacements. All crossbred lambs are sent to slaughter and replacement ewes are purchased. This is an example of a two-breed terminal crossbreeding system. Terminal crossbreeding makes maximum use of heterosis (in the lamb) and complementarity.

If the above producer did not want to purchase replacements, some of the top ewes could be bred to Rambouillet rams to produce his own replacements. Producing your own replacements does require more breeding pastures. In some cases, replacements can be purchased cheaper than they can be raised.

Let's say another producer has similar goals, except she places more emphasis on growth and muscle than the first producer. She may also choose to mate Hampshire rams to Rambouillet ewes. However, she may choose to keep those crossbred ewe lambs as replacements. The 1/2 Hampshire, 1/2 Rambouillet ewes would have less wool quality, but be better suited to meat production. The crossbred ewes would then be mated to a terminal sire, such as a Suffolk. The three breed terminal crossbreeding system also takes advantage of maternal heterosis (crossbred ewes generally are more reproductively efficient and are better milkers than purebred ewes). The drawback is that you need yet another breeding pasture. The more breeds involved does require more labor and more intensive management. If too many breeds (more than three) are involved, you start to lose some of the benefit of heterosis. This producer must also purchase some purebred Rambouillet replacements, unless she wishes to add another breeding pasture and use Rambouillet rams too.

Pass out Member Handout #24, "Terminal Crossbreeding Systems" and review them as you move through discussion.

Leader Notes

Pass out Member Handout #25, "Rotational Crossbreeding Systems," and review as you discuss.

Pass out Activity Sheet #14, "System Quiz" for review of concepts learned. It might be helpful to go over as a group.

ACTIVITY

Rotational crossing is designed to maintain high levels of heterosis while allowing convenient replacement ewe production within the flock. Let's look at an example where a producer is interested in meat production and out of season lambing. He may start with Dorset ewes and mate them to Hampshire rams. Some of the Dorset X Hampshire lambs will be kept as replacements and mated back to Dorset rams. In turn, Dorset sired ewes are mated to Hampshire rams, and so on. No purebred ewes are necessary, so there is no need to purchase replacements. Two breeding pastures are needed. The ewes in the flock will be a various mixture of Hampshire and Dorset. Since the percentage of each breed fluctuates, there is less use of complementarity than in terminal crossbreeding systems.

A third breed could be added to the rotation. The producer might choose to add Rambouillet to improve wool quality and aid in out of season breeding. In this case, Dorset ewes would be mated to Hampshire rams. The 1/2 Hampshire, 1/2 Dorset ewes would be mated to Rambouillet rams. The 1/2 Rambouillet, 1/4 Hampshire, 1/4 Dorset ewes would be mated to Dorset rams. The 5/8 Dorset, 1/4 Rambouillet, 1/8 Hampshire ewes would be mated to Hampshire rams, and so on.

Some producers use a combination of rotational and terminal crossbreeding systems. The situation is basically the same as either the two- or three-breed rotation, except the poorest producing ewes (of all breed combinations) are mated to a terminal sire. The idea is that you wouldn't keep replacements out of the poor producers anyway, so you might as well produce the best market lamb that you can. It does require an extra breeding pasture and more intensive selection procedures.

Some producers use variations of these systems; however, to get the most benefit from heterosis and complementarity a system should be followed. Putting two or three breeds of rams in one pasture with all your ewes is not a system. Mating is random, and the desired offspring might not be produced. Simply purchasing a new breed of sire every three years is not a system either. All mating systems have advantages and disadvantages compared to other systems, choose one that fits your selection goals.

DIALOGUE FOR CRITICAL THINKING:**Share:**

1. Which system is the most difficult to understand? Easiest?
2. What type of mating system do you use? Why?

Process:

3. What should be the first step in selecting a mating system?
4. Name one advantage and one disadvantage of inbreeding. What is lost when inbreeding?
5. Why is it important to have a system and not just random breeding?

ACTIVITY

Leader Notes

6. What happens if your livestock operation is not organized or systematic?

Generalize:

7. What activities do you help with that require lots of organization?
8. How does organizing affect decision making?

Apply:

9. What can you do different in the future to improve your organizational and decision making skills?

GOING FURTHER:

1. Visit with a sheep rancher and discuss their goals and how their mating systems accomplish those goals.

REFERENCES:

SID Sheep Production Handbook

Dr. Linda Martin, Associate Professor, Animal Sciences and Industry,
Kansas State University

Author:

Jeremy Geske, Former Extension Assistant, Kansas State University

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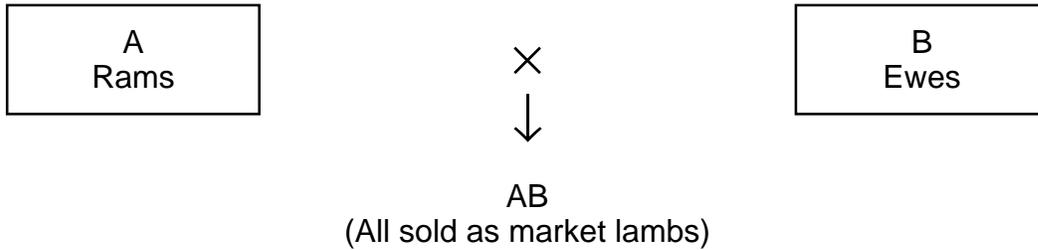
Sheep Design Team

MATING SYSTEMS

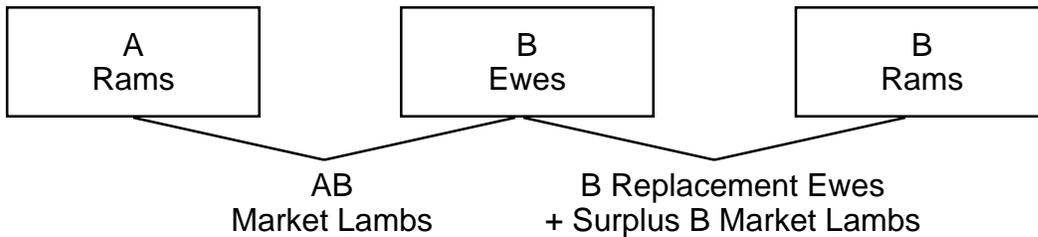
SHEEP, LEVEL III

Member Handout #24, Terminal Crossbreeding Systems

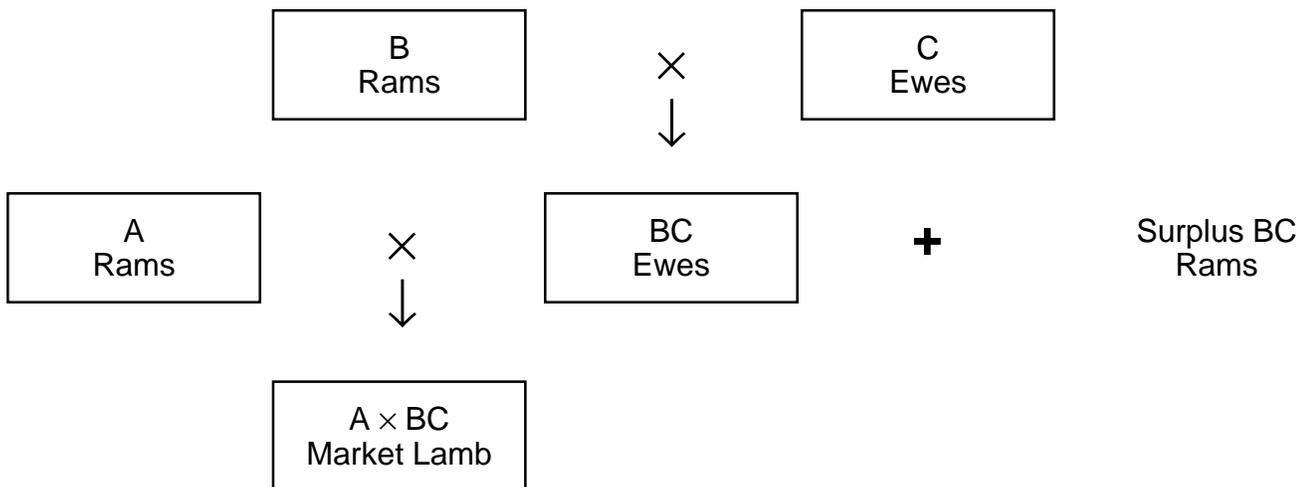
TWO-BREED TERMINAL CROSSBREEDING SYSTEM



TWO-BREED TERMINAL CROSSBREEDING SYSTEM



THREE-BREED TERMINAL CROSSBREEDING SYSTEM

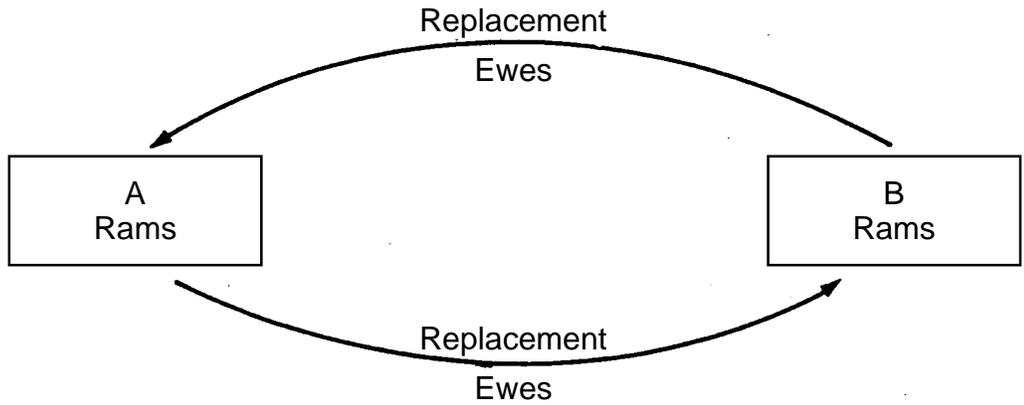


MATING SYSTEMS

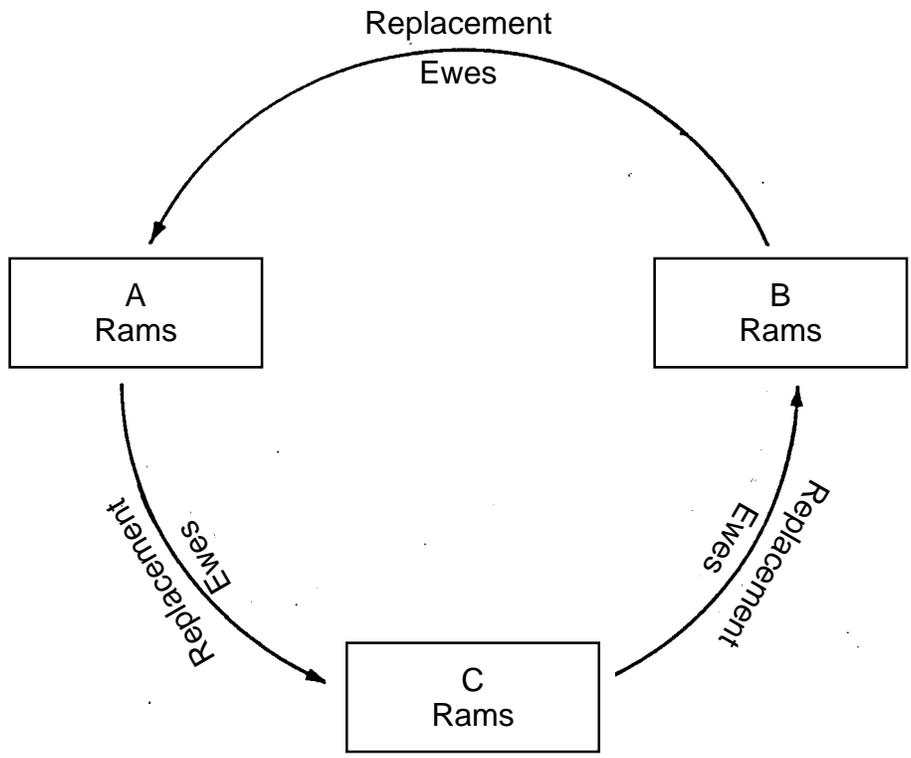
SHEEP, LEVEL III

Member Handout #25, Rotational Crossbreeding Systems

TWO-BREED ROTATIONAL CROSSBREEDING SYSTEM



THREE-BREED ROTATIONAL CROSSBREEDING SYSTEM



MATING SYSTEMS

SHEEP, LEVEL III

Activity Sheet #14, System Quiz

1. List the four steps in developing a sheep breeding program.

2. List two reasons for raising purebred sheep. _____

3. List two reasons for crossbreeding.

4. What is inbreeding?

5. How can the expression of genetic recessive defects be considered both an advantage and a disadvantage of inbreeding?

6. Choose 3 qualities (traits) you think are most important for a sheep operation (there are no wrong answers).

7. If your selection goal is to produce sheep that excel in the three areas you listed above, choose two or three breeds that could be crossed to produce the desired hybrid lamb (explain your choices).

MATING SYSTEMS**SHEEP, LEVEL III****Leader Key—System Quiz**

1. List the four steps in developing a sheep breeding program.

1. Develop selection goal—why are you raising sheep?

2. Choose appropriate breeds

3. Develop selection program consistent with goal

4. Define a mating system

2. List two reasons for raising purebred sheep.

1. Produce breeding stock

2. Maintain uniformity of lambs

3. List two reasons for crossbreeding.

1. Increase performance through hybrid vigor

2. Take advantage of the good qualities of more than one breed

4. What is inbreeding?

Mating of closely related animals

5. How can the expression of genetic recessive defects be considered both an advantage and a disadvantage of inbreeding?

Advantages:

1. Help detect genetic defects

2. Provide better breeding stock

that aren't available otherwise

Disadvantages

1. Increased likelihood that genetic

defects will be expressed

2. Decreased reproductive performance

6. Choose 3 qualities (traits) you think are most important for a sheep operation (there are no wrong answers).
-

7. If your selection goal is to produce sheep that excel in the three areas you listed above, choose two or three breeds that could be crossed to produce the desired hybrid lamb (explain your choices).
-
-





Lamb Market Trends

Sheep, Level III

What Members Will Learn . . .

ABOUT THE PROJECT:

- At what times of the year the majority of lambs are marketed
- The cost of retailing a product
- The relationship of supply and demand

ABOUT THEMSELVES:

- Effect of supply and demand on their lives
- Importance of market trends

Materials Needed:

- Activity Sheet #15, “Lamb Trend Quiz”
- Leader Key—Lamb Trend Quiz
- Flip chart and markers

ACTIVITY TIME NEEDED: 30 MINUTES

ACTIVITY

In Level II, we discussed various ways to market the products of a sheep operation. In this lesson, we'll concentrate on trends in market lamb prices. We'll also discuss the reasons the market changes as it does.

We could look at market trends in three ways. The first is the current market trend. In other words, has the market lamb price gone up, down or remained steady in the last week. This could be important if we have lambs ready to sell. If the price is increasing, you may want to hold the lambs to see how high the price gets. If the price is falling, you may want to sell before it falls even more. We can get these current trends by observing market reports in the newspaper, radio or television, or by attending local auctions.

Another way is to compare current lamb prices with prices from the same time last year. Several sheep industry publications can provide us with that information.

And finally, in this lesson, we'll look at the cycle of market lamb prices over the course of a year. Let's look at supply and demand and how the two interact to affect price.

Sheep and lambs are produced all over the U.S., although over 80 percent are produced in the 17 western states (excluding Alaska and Hawaii).

Leader Notes

Ask members to list where they got their market lamb price information. How often is it available? What is it based on?

List on flip chart, three ways to look at market price trends.

Leader Notes**ACTIVITY**

Graph the yearly price cycle on the flip chart. Let members make copies for their record books.

Lamb production is seasonal due to the biological, seasonal reproductive habits of sheep. Spring lambing is common in mountain and midwestern plains states. In these areas, a large portion of the lambs are ready for market in September and October. In some states, such as Texas, California and even Kansas, fall lambing is more common, with lambs being marketed from March to July. The largest quantities of lamb imports enter the U.S. in late spring and early summer. The highest slaughter numbers occur in the fall (Sept. and Oct.) and spring (March).

Demand for lamb is both seasonal and geographic. Demand is highest in the spring and early summer, responding to holiday traditions and consumer taste preference for fresh, early spring lamb. Most lamb is consumed in the Atlantic and Pacific coast regions.

In general, the price changes inversely to the supply. When supply is up, prices go down and vice versa. Prices adjust to a level that will clear the market of all lamb produced. Lamb prices follow a fairly consistent seasonal pattern, reflecting short-run changes in supply and demand. Prices are generally lowest from August to November as that is when supply is greatest and demand is not very high. Prices start to rise in December and throughout the winter months as the holidays bring increased demand and the supply of fresh lambs is low. In March and early April, the supply is fairly high, but demand is also high, so prices continue to rise. Prices tend to peak in May as the supply of fresh spring lamb is low and consumers prefer fresh spring lamb. Prices start to drop at the end of May and continue to fall to the low point in the fall. The price drop is caused by increased supply. Lamb imports start to arrive in early summer, and some winter-born lambs are ready for market. By studying these market trends, we, as producers, can plan our production strategy to have lambs ready when prices and demand are high. Lamb prices are also affected by supply and price of other red meats.

Use Activity Sheet #15, Lamb Trend Quiz, as a review.

The price of lamb at the supermarket (retail price) is quite a bit higher than the price producers receive for their lambs. Also, the trend of retail prices does not necessarily follow changes in wholesale price. There are several reasons that this price spread is so large. The first is shipping. Lambs are produced in the midwest and must be shipped to the coasts. Because of the small carcass size, the cost per pound of production (processing and packaging) is high. In addition, there are only a few major lamb processing plants; therefore, competition is lower. Less packer competition leads to lower prices for the producer and higher prices to the retailer.

DIALOGUE FOR CRITICAL THINKING:**Share:**

1. What was the easiest part to understand about lamb trends?
2. What causes the large demand for lamb in the spring?

ACTIVITY

Leader Notes

Process:

3. How can previous year's prices help you to make a decision when to market your sheep?
4. What happens to the price of lambs when the supply of lambs goes up? When the supply goes down? Why?

Generalize:

5. Where else do you think supply and demand principles hold true?
6. How does geography affect the price of goods?

Apply:

7. How can you use market trends when purchasing products for your family?

GOING FURTHER:

1. Visit a retail store and ask the owner about wholesale and retail prices.
2. Attend a livestock auction and compare the prices to a previous auction.

REFERENCES:

Author:

Jeremy Geske, Former Extension Assistant, Kansas State University
James P. Adams, Extension Specialist, 4-H and Youth Programs, Kansas State University

Reviewed by:

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Sheep Design Team

LAMB MARKET TRENDS

SHEEP, LEVEL III

Activity Sheet #15, Lamb Trend Quiz

1. What is the current price of market lambs (120 lbs) in your area?

2. What two times of the year are market lamb numbers the highest, and why?

3. What time of the year is demand the highest?

4. What time of the year are market lamb prices the highest, and why?

5. Since lamb prices are almost always the highest from March to May, why don't all producers adjust their operations to have lambs ready for market at that time?

6. Why do prices often start to fall in June?

7. List 3 reasons why there is such a difference between the price producers receive for their lambs and the price consumers pay for lamb at the supermarket.

LAMB MARKET TRENDS

SHEEP, LEVEL III

Leader's Key, Lamb Trend Quiz

1. What is the current price of market lambs (120 lbs) in your area?

varies

2. What two times of the year are market lamb numbers the highest, and why?

Fall (September and October) High Supply

Spring (March) High Demand

3. What time of the year is demand the highest?

Spring and Early Summer

4. What time of the year are market lamb prices the highest, and why?

May. Supply is low and consumers want fresh spring lamb.

5. Since lamb prices are almost always the highest from March to May, why don't all producers adjust their operations to have lambs ready for market at that time?

Seasonal reproduction of sheep

6. Why do prices often start to fall in June?

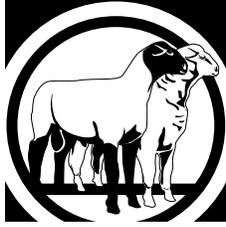
Increased supply with imports and lambs ready for market. Also summer is a low consumption time.

7. List 3 reasons why there is such a difference between the price producers receive for their lambs and the price consumers pay for lamb at the supermarket.

Shipping

Processing and packaging

Low Packer Competition



Pelt Value, Quality and Wool Logos

Sheep, Level III

What Members Will Learn . . .

ABOUT THE PROJECT:

- Two categories of lambskins
- Wool Logos

ABOUT THEMSELVES:

- The importance of wool in their lives
- The significance of logos

Materials Needed:

- Samples of wool products with logos
- Member Handout #26, Wool Logos
- Activity Sheet #16, Wool Products at Home
- Flip chart and markers

ACTIVITY TIME NEEDED: 30 MINUTES

ACTIVITY

Leader Notes

Pelts are a very valuable product and are usually the major by-product of the lamb packing industry. American pelts or lambskins, are valued in the U.S. and worldwide because of their fine quality. They are the largest pelts as American lambs tend to be larger framed than sheep from other countries. The value of pelts fluctuates with consumer demand. Producers feel these changes in pelt values through changes in market lamb prices.

Lambskins can be classified into two categories according to end-use: shearling (wooled skins) and pulled (wool-free) skins. Wooled skins can be made into very fine coats, footwear and other accessories. Scarred or blemished pelts can be used as seat covers where the leather is concealed. Pulled skins are typically manufactured into garments, coats, purses and other accessories. Severely damaged or scarred skins are of low value for leather.

A way for producers to receive higher prices for their lambs is to take steps to improve the pelt quality of their lambs. Attention should be given to both the wool and the leather (skin). Impurities, contaminants and scars should be kept to a minimum. Due to the nature of the lamb marketing system, it takes a long term investment in quality for producers to develop a reputation for their pelts and receive higher prices. Pelt buyers impose

Leader Notes

ACTIVITY

Ask members for ways to improve pelt quality. List on flip chart.

discounts for poor pelts on the packer. Those discounts, in one way or another, are passed on to producers and lamb feeders.

Management for improved pelt quality can be summarized in seven steps:

1. When branding is necessary, use scorable paint and avoid heavy application. When possible, use other forms of identification, such as ear tags.
2. Reduce shearing and vaccination scars. Vaccinate high on the neck.
3. Avoid grazing sheep in areas where they have access to burrs or needlegrass that may become matted in the wool and damage the skin.
4. Avoid holding the sheep in muddy areas.
5. Do not allow feed or hay to drop over the backs of sheep.
6. Use non-staining drenches and pour-on medications.
7. Control keds and ticks.

Sheep keds, commonly called sheep ticks, are parasites that feed on sheep by repeatedly piercing the skin causing a series of dark nodules in the skin. This is a defect known as "cockle" and severely reduces the value of the pelt. If keds become a problem, the entire flock should be treated as soon as possible.

Pass out Member Handout #26, "Wool Logos."

Wool products are generally labeled with one of three types of wool logos:

A. American Wool Logo

1. Product is at least 20% American Wool if blended with natural fibers
2. Product is at least 30% American Wool if blended with manmade fibers

B. Woolmark

1. Product contains 100% wool
2. Internationally recognized symbol

C. Woolblend Mark

1. Products contain at least 60% wool
2. Product meets standards for performance and workmanship

Have members refer to wool logos when locating wool products in their home. Use Activity Sheet #16, "Wool Products at Home," to list what you find. Do Dialogue for Critical Thinking questions after the At Home Activity.

ACTIVITY

Leader Notes

3. Internationally recognized symbol

DIALOGUE FOR CRITICAL THINKING:

Share:

1. How many wool products did you find?
2. Which logo was the most common?

Process:

3. What are the categories of lambskins?
4. Why is it important for wool products to be labeled with a logo?

Generalize:

5. What is the significance of wool products in your life?
6. How and why do wool products (particularly clothing) have to be cared for differently?

Apply:

7. How will this discussion of wool products be useful to you in the future?

GOING FURTHER:

1. Visit a wool specialty store
2. Observe someone spinning wool or weaving wool products

REFERENCES:

SID Sheep Production Handbook

Author:

Jeremy Geske, Former Extension Assistant, Kansas State University
James P. Adams, Extension Specialist, 4-H and Youth Programs, Kansas State University

Reviewed by:

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Sheep Design Team

PELT VALUE, QUALITY AND WOOL LOGOS

SHEEP, LEVEL III

Member Handout #26, Wool Logos

The Woolmark



The American Wool Logo



The Woolblend Mark



**PELT VALUE, QUALITY AND WOOL LOGOS
SHEEP, LEVEL III**

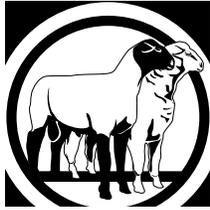
Activity Sheet #16, Wool Products at Home

Directions: All of us have wool in our homes. Make a list of all wool products in your house. Include everything that is more than half wool in the space below. You only need to write each item down once, even if you have more than one of them! After you have finished making your list, ask your mother or father to look at your list. They may know of something you missed.

Name of Item	Is it 100% Wool?	Is it American Wool?
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

Most of the wool things in our house are **(clothing, blankets, rugs or something else)**.

PLEASE CIRCLE ONE OF THE ABOVE



Kansas 4-H Sheep Leader Notebook

Level IV

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Advancing by Setting Long-Term Goals

Sheep, Level IV

What Members Will Learn. . .

ABOUT THE PROJECT:

- Setting goals

ABOUT THEMSELVES:

- The importance of setting goals

Materials Needed:

- Sheep Member Guide and Annual Report (MG- 37)
- Activity Sheet 1, Preparing Long-Term Goals

ACTIVITY TIME NEEDED: 60 MINUTES

ACTIVITY

Leader Notes:

Because of your involvement and achievements in past sheep projects, you will now be helping other project members by sharing the information and knowledge that you've gained about sheep.

As a junior leader, you also will be reviewing your own goals.

Your progress throughout Level IV is an important part of this project. Sometimes, setting long-term goals is difficult and, therefore, we don't do it. But in Level IV, we have made several places for you to look at your progress.

Setting long-term goals does not need to be intense or elaborate. Rather, it should be simple and to the point. If you take time to review your long-term goals, you will have a better chance of reaching those goals.

Goals can be long-term or short-term. When using the Sheep Member Guide and Annual Report for Level IV, let's make both goals long-term—something you plan to do in two to five years.

Many of the things you have been learning in your sheep projects are skills that are transferable to long term goals, such as obtaining more education, getting a job, winning a scholarship, or even pursuing a career.

Now that you've completed the activity sheet, let's fill out the Sheep Member Guide and Annual Report using these two long-term goals.

Pass out Activity Sheet 1, "Preparing Long-Term Goals," and fill in the blanks.

Hand out Sheep Member Guide and Annual Report. Complete MAP Steps one to seven.

Leader Notes

ACTIVITY

DIALOGUE FOR CRITICAL THINKING:

Share:

1. What were your two goals?
2. What did you like most about this activity?

Process:

3. Why is it important to review your long-term goals?
4. What skills do you have that you can use in other projects, activities or situations?

Generalize:

5. What did you learn about yourself from this activity?

Apply:

6. How will you apply what you've learned to other situations?

GOING FURTHER:

- Develop a job resume.
- Discuss developing a personal portfolio of your skills with a school counselor.

REFERENCES:

Author:

Gwen Bailey, Consultant

James P. Adams, Extension Specialist, 4-H and Youth Programs, Kansas State University

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Sheep Design Team

ADVANCING BY SETTING LONG-TERM GOALS
SHEEP, LEVEL IV

Activity Sheet 1, Preparing Long-Term Goals

Long-term goals define your future. Select two of the following long-term goals that you might work on in Level IV.

CHECK TWO (of your choice)

acquire more education

get a job

win a scholarship

select a career path

other _____

other _____

Now take one of these long-term goals and answer the following questions.

One of my long-term goals is to:

I hope to eventually use this long-term goal. I plan to reach this goal by:

To reach this long-term goal, I will use my abilities of:

To reach this long-term goal, I will need to improve on:

When I reach my goal in the future, I will know it's been met by:



History of Sheep in the United States

Sheep, Level IV

What Members Will Learn . . .

ABOUT THE PROJECT:

- Sheep populations by country and state
- Lamb market trends
- Sheep industry organizations

ABOUT THEMSELVES:

- Their role in the sheep industry
- The importance of producer participation in an organization

Materials Needed:

- Activity Sheet #2, Projecting Future of Sheep Industry
- World map or globe

ACTIVITY TIME NEEDED: 30 MINUTES

ACTIVITY

The sheep is thought to be one of the first animals domesticated by man, about 12,000 years ago. The first domestic sheep were brought to North America in 1493 on the second voyage of Columbus. These sheep were brought into Southwestern United States by the conquistadors. Later, the colonies brought in sheep of mostly English origin. None of these sheep had very high quality fleeces. When Napoleon defeated Spain in 1809, the prized Merino sheep became available to the rest of the world. Approximately 20,000 of these fine woolled sheep were imported into the United States forming the base of the American wool industry. Through genetic selection, today's sheep has evolved into one that is more efficient, larger, produces more lambs, yields heavier fleeces and is more muscular than its ancestors.

The rest of this lesson will discuss trends and bits of information to help the member understand how the US sheep industry works. First, let's see how the US compares to the rest of the world in terms of total sheep numbers. There are over one billion sheep in the world, over seven million of those are in the US (1.5%). China and Australia are the leading sheep producing countries with over 120 million hd. Australia also ranks first in wool production and wool exports. New Zealand, India and countries of the former Soviet Union are in the second tier of countries regarding sheep production numbers. New Zealand ranks second in wool production. Australia and New Zealand account for about 90% of the world's wool exports. Argentina, Uruguay and South Africa are the next

Leader Notes

Trace on a world map or globe where sheep originated and how they were brought to the United States.

List the top six countries in sheep numbers and wool production.

Leader Notes

ACTIVITY

List the top six states in sheep numbers and wool production.

three largest countries in wool production. In addition to wool, the US also imports large numbers of market lambs from Australia and New Zealand.

We know which countries have the most sheep, but which states have the most sheep? Of the seven million US sheep, about 1.35 million are in Texas. California and Wyoming have about 800,000 and 660,000 respectively. Colorado, South Dakota and Montana each have around 400,000 hd. These states are all noted for having range sheep operations. Iowa ranks tenth in sheep numbers at just over 250,000 hd, and is the highest ranking farm flock state. Kansas ranks 15th with about 100,000 sheep. Those same six states (although 2-6 are in a different order) are the top wool producing states. Texas produces 9.2 million pounds of wool annually, Wyoming is second with 5.5 million pounds, down to South Dakota with three million pounds. Kansas produces about .67 million pounds of wool annually. Due to the predominance of fine-wooled, Rambouillet-type sheep, the higher production range states lead in wool value. Colorado has the most feed lot lambs, although Texas, California, Wyoming and South Dakota have large lamb feed lots as well.

In a previous lesson on economics, we talked about supply and demand and how they affected lamb prices. Due to the seasonal nature of sheep reproduction in the US, supply, demand and price follow the same basic trends year after year. The largest sheep processing numbers occur in March because demand and price are high, and September because supply is highest. Lamb prices are highest from March to May because demand is high and supply is low. Prices are lowest in September because supply is high and demand is low. Supply is highest in the fall because the seasonal nature of sheep reproduction dictates that lambs be born in the spring. In some areas, producers are trying to take advantage of the price trends by lambing out of season. States with strong fall lambing programs include: California, Texas, Arizona, Kansas and Oklahoma.

The average US sheep producer owns fewer than one hundred ewes. The sheep industry in the US is relatively small compared to other livestock species, and this creates some problems. A small industry means few research dollars for the development and approval of new medicines, few dollars for legislative lobbying and few slaughter plants which equates to less competition and lower prices for the producer. High transportation costs keep retail prices high even when producers receive less. Lambs are produced in the Western US, fed and processed in Colorado, California, Texas and Iowa, and shipped to the coasts for consumption. Another problem facing the sheep industry is that the average per capita consumption of lamb (<2 lbs) is far less than that of beef, pork or chicken.

National and state organizations help producers deal with problems facing the sheep industry. American Sheep Industry (ASI) is an organization that benefits the sheep industry in three areas: promotion, education and lobbying. The financial obligations of ASI are covered by dues received

ACTIVITY

Leader Notes

from state affiliate organizations. ASI is made up of a lamb and wool council which is mostly concerned with promotion, a legislative council for lobbying, and a producer services council which provides educational materials such as the Sheep Industry Development (SID) Sheep Production Handbooks. Other organizations that serve the sheep industry include the National Lamb Feeders Association and two major state organizations in Kansas, the Kansas Sheep Association and the Kansas Sheep Council. In addition, the various breeds have national associations for registered animals.

DIALOGUE FOR CRITICAL THINKING:

Share:

1. Where did most American sheep come from?
2. Where did your particular breed of sheep originate?

Process:

3. What are the leading sheep producing countries? States? Why?
4. What determines the lamb market trends in the U.S.?

Generalize:

5. Why does the sheep industry seem to be on the decline in the U.S.?
6. What is the significance of sheep organizations?

Apply:

7. What do you think will need to happen to increase the viability of the sheep industry in the future?

GOING FURTHER:

1. Study some aspect of the sheep industry and present it to several groups.
2. Develop some type of sheep promotional.

REFERENCES:

SID Sheep Production Handbook

Author:

Jeremy Geske, Former Extension Assistant, Kansas State University
James P. Adams, Extension Specialist, 4-H and Youth Programs, Kansas State University

Reviewed by:

Clifford Spaeth, Extension Specialist, Animal Sciences and Industry,
Kansas State University
Sheep Design Team

Pass out Activity Sheet #2, "Projecting Future of Sheep Industry," for members to use to research and discuss the questions.



Advanced Sheep Judging and Reasons

Sheep, Level IV

What Members Will Learn . . .

ABOUT THE PROJECT:

- Sheep carcass traits in oral reasons
- Sheep production traits in oral reasons

ABOUT THEMSELVES:

- How to improve communication skills to defend decisions

Materials Needed:

- Livestock oral reasons notebook or pad
- Livestock judging guide for 4-H members, S-92

ACTIVITY TIME NEEDED: 60 MINUTES

ACTIVITY

In an earlier lesson, we discussed preparing oral reasons for a class of lambs. When you are first learning to give reasons, you need to develop a structure that allows you to present your reasons in an organized, easily understandable manner. The important thing for young judges is to spot differences between animals.

With practice, this becomes relatively easy. Once a livestock judge has mastered this, he/she begins to look for ways to further impress the reason's taker and receive higher scores. In addition to accuracy, honesty and completeness when describing the class, the judge that can relate the qualities of a lamb to its production advantages will receive the highest scores.

Let's start with market lambs. The purpose of the market lamb is to be processed for food. Therefore we judge lambs on what we believe their carcasses would be like. We give advantages for muscle and discredit excess fat. In your reasons, relate the live animal to its carcass. For example, a thick topped, long bodied lamb should go to the rail yielding a larger portion of rack and loin. An extremely lean lamb may hang up a trimmer carcass with a higher percentage of lean edible product. A small, light muscled, light conditioned lamb might need to spend more time on feed to reach a packer-acceptable weight and finish.

Depending on the breed and type of operation, there are several ways to relate breeding sheep to production. Most breeding classes will be ewe

Leader Notes

Review Level III lesson on oral reasons.

Go over several traits and discuss how they affect the carcass quality of lambs.

Leader Notes

Review desirable traits for breeding ewes from previous level lessons.

Go over several structural traits and discuss how they affect production.

Set up a judging workout for members to practice what they've learned in this lesson.

ACTIVITY

lambs or yearling ewes, so we'll discuss them first. Think back to the desirable traits we look for in ewes. One important quality is frame size (height and length). Bigger framed ewes tend to produce larger lambs. Structural correctness is also very important. A ewe that is fine boned and incorrect (weak topped, crooked legs etc.) may not be rugged enough to stand up to the rigors of lambing or surviving on the range. On the other hand, a heavy boned, structurally sound ewe would have an advantage in terms of longevity and total lifetime productivity. Ewes with an unsound mouth or feet may have difficulty in a range type operation. Internal volume or capacity is also important. A ewe that is wider over her top, has more spring of rib and is deeper sided has more room inside to take in feed to support herself and her lambs. There is also more room for the developing fetus during gestation. Narrow made, shallow ewes are often less efficient and less productive than bold, broody ewes. Sheep that are narrow or pinched through the chest have less room for their heart and lungs, which may reduce life expectancy. Ewes that are narrow through the hip or pelvis region may have difficulty lambing. Long bodied, muscular ewes tend to produce longer sided, heavier muscled market lambs. In some cases, you may notice abnormalities in the external reproductive organs which may impair the reproducing ability (and value) of the breeding ewe. In many judging contests, judges will be instructed to consider the mouths and feet of the sheep to be sound. If you notice any of the sheep have problems in these areas it should be mentioned in your reasons even though it won't affect your placing.

Fleece traits are highly heritable. When judging wool breeds, you need to discuss differences in fleece quality. Using and keeping replacements out of a poor fleeced ram can reduce yearly income generated by wool sales.

When judging rams, we are looking for many of the same qualities as we did with ewes. Structurally sound rams have a longevity advantage and can cover more ground in the breeding pasture. Big framed, big bodied, heavy muscled rams should sire those fast gaining, thick muscled market lambs desired by the lamb feeder and packer. High volume rams should sire broody, productive females. Scrotal circumference is highly related to semen output. Rams with small scrotums may have difficulty settling a large number of ewes. Rams with large heads and big, bulky shoulders could cause lambing difficulty, especially for young ewes.

In some judging contests you may receive additional information about the classes, such as performance information (weights, ages, gains, etc.) or a scenario in which the lambs will be used. Carefully read this information and use it as a tool for placing the class. Do not forget to use your skills for visual evaluation as well. Many judges make the mistake of going totally by the information on paper and ignoring what is in the ring. Others do the opposite. Be sure to evaluate the sheep both on paper and on the hoof, and utilize both in your reasons.

ACTIVITY

Leader Notes

DIALOGUE FOR CRITICAL THINKING:

Share:

1. How did you incorporate carcass and production terms in oral reasons?
2. Which terms were most difficult? Easiest? Why?

Process:

3. Why is it important to relate carcass and production to live animals?
4. What are some breeding sheep traits that should be avoided due to production problems?

Generalize:

5. How does this expansion of terms for oral reasons enhance your presentation?
6. How will this process help you analyze and defend other decisions?

Apply:

7. How will oral reason speaking skills help you in the future?

GOING FURTHER:

1. Participate in Sheep Judging Contests
2. Participate in State Livestock Judging Contest

REFERENCES:

Livestock Judging Guide for 4-H Members, S-92, January 1996, Cooperative Extension Service, Kansas State University

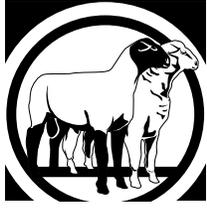
Author:

Jeremy Geske, Former Extension Assistant, Kansas State University
James P. Adams, Extension Specialist, 4-H and Youth Programs, Kansas State University

Reviewed by:

Clifford Spaeth, Extension Specialist, Animal Sciences and Industry,
Kansas State University
Sheep Design Team

ADVANCED SHEEP JUDGING AND REASONS



Breed Associations

Sheep, Level IV

What Members Will Learn . . .

ABOUT THE PROJECT:

- How to fill out an application for registration
- Importance of pedigrees
- Importance of accurate information

ABOUT THEMSELVES:

- Importance of forms of identification
- Impact of computers on identification methods

Materials Needed:

- Sample registration papers from breed associations (Addresses are attached)
- Pencils
- Chalkboard or flip chart
- Member Handout #1, Breed Associations
- Activity Sheet #3, Breed Information Worksheet

ACTIVITY TIME NEEDED: 30 MINUTES

ACTIVITY

Leader Notes

If your lamb is a purebred (both its parents are from the same breed) it may be eligible for registration with the national breed association. This has some advantages as breed associations can provide you with pedigree information on all registered sheep. This can be helpful if you've identified certain blood lines you'd like to add or keep out of your flock. Also, many shows and sales require you to have registration papers for your sheep.

There are some requirements that must be met before you can register your lamb. First, both sire and dam must be registered. Breed associations require other information such as birth date, lamb ID, sex of lamb, and rearing type (single, twin, triplet). Many associations have places to mark if the lamb was born through artificial insemination or embryo transfer. They may also provide a space for permanent ID (tattoo).

Some breed associations will also keep track of performance records (such as weight gains) for you. Be sure that the information you send to the breed association is correct. It does no good to lie about your animals when the goal is genetic improvement of the flock. After you fill out the

Ask members to list registration requirements on chalkboard. List additional requirements they forgot.

Pass out sample registration application forms.

Leader Notes

Look at your lamb's registration papers.
How many generations were listed?
Compare different breeds if possible.

Have members select a breed from Member Handout #1, "Breed Associations." Write to a Breed Association for information and report at the next meeting about their breed. Use Breed Information Activity Sheet to collect basic information.

ACTIVITY

application form and send in the required payment, your breed association will send you a registration certificate with your lamb's pedigree information and registration number on it.

DIALOGUE FOR CRITICAL THINKING:

Share:

1. What information do you need to register a sheep?

Process:

2. What are the advantages of registering sheep? Disadvantages?

Generalize:

3. What other times must you register something?
4. What other forms of identification do you use? Why?

Apply:

5. How will your use of identification methods be different in the future? Why?
6. What is the significance of computer applications in registering purebred sheep?

GOING FURTHER:

1. Visit a breed association headquarters.
2. Invite a breed association fieldman to speak to the group.

REFERENCES:

Kansas 4-H Beef Curriculum
SID Sheep Production Handbook

Author:

Jeremey Geske, Former Extension Assistant, Kansas State University
James P. Adams, Extension Specialist, 4-H and Youth Programs, Kansas State University

Reviewed by:

Clifford Spaeth, Extension Specialist, Animal Sciences and Industry,
Kansas State University
Sheep Design Team

BREED ASSOCIATIONS

SHEEP, LEVEL IV

Member Handout #1, Breed Associations

American Cormo	American Cormo Association RT 59 Broadus, MT 59317
Black Welsh Mountain	Black Welsh Mountain Sheep Registry 13469 S. Trueblood Place Terre Haute, IN 47802
Border Leicester	American Border Leicester Association Rt. 1, Box 429 A Amenia, NY 12501 North American Border Leicester 1699 H H Hwy Willow Springs, MO 65793-92204
California Reds	California Reds Sheep Registry/Altomare Wool 1850 E. Reilly Road Merced, CA 95340-8958
California Variegated Mutant	California Variegated Mutant Registry 31439 W, Commercial Box 630 Carnation, WA 98014
Cheviot	American North Cheviot Sheep Association 8708 S. Cty Road 500 W Reelsville, IN 46171 American Cheviot Sheep Society Rt. 1, Box 100 Clarks Hill, IN 47930-0981
Clun Forest	North American Clun Forest Association RT 1, Box 4173 Houston, MN 55943-9801
Columbia	Columbia Sheep Breeders PO Box 272 Upper Sandusky, OH 43351
Coopworth	Coopworth Sheep Society of North America 25101 Chris Lane NE Kingston, WA 98346

BREED ASSOCIATIONS

Corriedale	American Corriedale Association PO Box 391 Clay City, IL 62824
Cotswold	Cotswold Breeders Association 21092 478th Avenue Bushnell, SD 57276-6504 Black Cotswold Society PO Box 542 Goffstown, NH 03045 American Cotswold Record Association 18 Elm Street, Box 59 Plympton, MA 02367-0059
Debouillet	Debouillet Sheep Breeders Association PO Box 67 Picacho, NM 88343
Delaine-Merino	American & Delaine Merino Record Association 1026 County Road 1175 Ashland, OH 44805-9523
Dorper	North American Dorper Sheep Association 4105 W. Jefferson Blvd. Los Angeles, CA 90016 American Dorper Sheep Breeders Society 18202 120th Street Westgate, IA 50681
Dorset	Continental Dorset Club 8345 Eldora Road, PO Box 506 Hudson, IA 50643-0506
Finnsheep	National Finnsheep Breeders Association PO Box 260 Dousman, WI 53118
Gulf Coast Native	Gulf Coast Sheep Breeders Association Rt 2 Snyder, OK 73566
Hampshire	American Hampshire Sheep Association 1557 173rd Avenue Milo, IA 50166-9667
Icelandic	Icelandic Sheep Society of North America HC40 Broadus Stage Miles City, MT 59301

KANSAS 4-H

Jacob	Jacob Sheep Breeders Association 6350 ECR 56 Fort Collins, CO 80524
Karakul	American Karakul Sheep Registry 3026 Thomas Road Rice, WA 99167
Katahdin	Katahdin Hair Sheep International PO Box 115 Fairview, KS 66425
Lincoln	National Lincoln Sheep Breeders Association 1557 173rd Avenue Milo, IA 50166
Montadale	Montadale Sheep Breeders Association PO Box 603 Plainfield, IN 46168
Navajo-Churro	Navajo Churro Sheep Association Box 94 Ojo Caliente, NM 87549-0094
Oxford	American Oxford Sheep Association 1960 E 2100 N Stonington, IL 62567-5338
Perendale	Perendale Breeders Association 18811 New Hampshire Avenue Ashton, MD 20861
Polypay	American Polypay Sheep Association 609 S Central Ste. 9 Sidney, MT 59270
Rambouillet	American Rambouillet Breeders Association 2709 Sherwood Way San Angelo, TX 76901
Romney	American Romney Breeders Association PO Box 247 Corvallis, OR 97339
Shetland	North American Shetland Sheep Breeders 265 Truway Road Luxemburg, WI 54217-9559

Shropshire American Shropshire Registered Association
PO Box 635
Harvard, IL 60033-0635

Southdown American Southdown Breeders Association
1125 Danielson Pike
North Scituate, RI 02857

St. Croix St. Croix Sheep Breeders Association
Utah State U, UMC 4815
Logan, UT 84322-4815

Northwest St. Croix Association
16140 NW Gillihan Road
Portland, OR 97231

Suffolk National Suffolk Sheep Association
3316 Ponderosa Street
Columbia, MO 65201-7605

American Suffolk Sheep Association
17 W. Main, PO Box 256
Newton, UT 84327

Targhee United States Targhee Sheep Association
PO Box 462
Jordon, MT 59337-0462

Texel North American Texel Sheep Association
Rt. 1, Box 927, 740 Lower Myrick Road
Laurel, MS 39440

American Texel Sheep Association
2290 W. South Loop, PO Box 1648
Stephenville, TX 76401

Tunis National Tunis Sheep Registry
RR 1, Box 192
Gouverneur, NY 13642

BREED ASSOCIATIONS

SHEEP, LEVEL IV

Activity Sheet #3, Breed Information Worksheet

Directions: Using the breed that was assigned to you, write a letter to the breed association to record the following information.

1. Attach the letter that you wrote to the breed association to the back of this worksheet.
2. What breed did you research? _____
3. Where did the breed originate? _____
4. Was it developed for a specific purpose? Explain. _____

5. What country was it developed in? _____
6. How many are in the United States today? _____
7. What does your breed look like? (Briefly describe or attach a picture.) _____

8. How does your breed perform in the following traits:

Level of performance (high, medium, or low)

Number of lambs	_____
Mature size	_____
Quality of wool	_____
Growth rate	_____
Meat production	_____

9. What do people use this breed for in the United States? _____



Plant Identification

Sheep, Level IV

What Members Will Learn . . .

ABOUT THE PROJECT:

- Plants that may be toxic to sheep
- To identify poisonous plants

ABOUT THEMSELVES:

- The importance of prevention

Materials Needed:

- Copies of page Health 57/58 of SID Handbook (or other range plant book)
- Specimens of toxic plants for members to ID (Approximately 10)
- Flip chart and markers
- Activity Sheet #4, Poison Plant Identification

ACTIVITY TIME NEEDED: 60 MINUTES

ACTIVITY

Plant poisoning of sheep can be a significant economic problem for many producers. Eight to ten percent of annual sheep losses are due to poisonous plants. This estimate may be conservative as it is difficult to quantify the effects plant poisoning has on weight gains, abortion, and reproductive failure. Most plant poisoning occurs as the result of other environmental factors. Conditions of drought or frost may increase levels of toxic substances produced by some plants. If a rangeland is overgrazed, sheep may be forced to eat plants they would otherwise pass up.

It is advantageous for sheep producers to recognize range plants that are potentially toxic, and understand the management practices that will reduce the occurrence of plant poisoning. All too frequently, unintentional mismanagement causes severe losses.

The symptoms of plant poisoning are quite varied and often mimic those of common infectious diseases. Frequently, the first and only sign of poisoning is sudden death in sheep. However, not all plant poisonings have this outcome.

Let's discuss the more common plants that are potentially poisonous to sheep. Several plants, under certain growing conditions (drought, frost) can cause cyanide poisoning which leads to death by asphyxiation. Plants

Leader Notes

Use county noxious weed director as a resource. Provide specimens or pictures of toxic plants common to your area. Ask members to identify as to whether they have the plant in their pasture.

List plants on your flip chart that can cause problems under certain growing conditions.

Leader Notes**ACTIVITY**

List potentially dangerous plants due to nitrates. Discuss conditions that may cause the problem.

that can cause cyanide poisoning include arrow grass, blue flax, choke cherry, elder berry, service berry and poison suckleya. Choke cherry plants can be found in most parts of Kansas. Sudan and sorghum hybrids can also cause cyanide poisoning (prussic acid poisoning).

List plants by the type of toxin they produce.

Virtually all plants are capable of accumulating toxic levels of nitrate (NO₃) when growing in moist, richly organic soils, or when heavily fertilized. The nitrate is converted to nitrite (NO₂) by microorganisms in the rumen. Nitrite interferes with oxygen transport by the blood resulting in death by asphyxiation. Most fertilized crops as well as the following weeds are capable of accumulating toxic levels of nitrate: Russian thistle, kochia, pigweed, lamb's quarter, sunflower, nightshades and johnson grass. All of these can be found in Kansas.

Other plants can also cause sudden death in sheep. Death camas are similar to wild onions and have succulent leaves which attract sheep. Toxic alkaloids cause respiratory difficulty which leads to death. Water hemlock and spotted hemlock also contain alkaloids which act rapidly on the nervous system and are generally fatal if eaten. Water hemlock tends to grow in marshy areas. Milkweeds are found throughout North America in a variety of habitats. They contain cardenolides which have a toxic effect on the heart. Halogeton is a round, bushy plant with succulent leaves found in arid, mountain regions. It is a useful forage if sheep are adapted to eating it. However, it can cause severe death loss if sheep consume large quantities for the first time. The principle toxic components of halogeton are oxalates. Oxalates combine with calcium. When in sufficient quantity, calcium oxalates cause kidney failure. Other plants which contain oxalates include: greasewood, curly leaf dock, oxalis (shamrock), rhubarb, pigweed and beet tops. Greasewood can be found in Southwestern Kansas.

List plants causing photosensitization.

Some plants, when consumed by livestock, cause a severe skin reaction known as photosensitization. Symptoms are similar to a severe sunburn. It also causes liver disease as the liver can not excrete phylloerythrin, a metabolite of chlorophyll. Plants causing photosensitization include: rape, buckwheat, St. johnswort, spring parsley and bishop's weed. St. johnswort is found in Eastern Kansas. If the sheep are prevented from eating these plants, they will recover fully from the effects. Another treatment is to keep the sheep out of the sunlight, which causes the reaction. Other plants, if consumed in large quantities, cause liver disease which leads to secondary photosensitization. They include: horsebrush, agave, sacahuiste, lantana and kochia.

List plants producing toxins that affect the nervous system.

Toxins in several plants attack the nervous system of sheep. Many species of lupine (blue bonnet) are poisonous to livestock. The toxin seems to concentrate in the seeds. Symptoms include muscle tremors, nervous excitement, frothing at the mouth and even death in severe cases. Several species of locoweed also cause livestock losses. Sheep may develop bizarre, erratic behavior and may die after prolonged grazing. Sheep

ACTIVITY**Leader Notes**

become addicted to eating locoweed. Snakeroot, goldenrod, fitweed and paper flowers may also affect the sheep's nervous system. Goldenrod as well as some species of lupine and locoweed can be found in Kansas.

Some species of locoweed, skunk cabbage and broomweed may cause abortions or fetal deformities in pregnant ewes. Broomweed can also be found in Kansas. Birdsfoot trefoil contains high levels of estrogen, which may prevent ewes from cycling. The presence of birdsfoot trefoil in your breeding pasture could result in very low conception rates. Birdsfoot trefoil can be found in parts of Kansas. Other plants, such as rape and any of the legumes, could also contain high levels of estrogen.

List plants that cause reproductive problems.

Plants such as orange sneezeweed, bitterweed and rubberweed affect the digestive system. Symptoms include vomiting and a frothy, green saliva. Bitterweed can be found in parts of Kansas. Many plants belonging to the nightshade family are potentially dangerous to livestock. More common members include black nightshade, deadly nightshade, horse nettle, jimson weed and black henbane.

List plants that affect the digestive system.

Since treatment of sheep with plant poisoning is rarely practical or successful, prevention is of primary importance. Local extension agents and plant literature may be helpful in identifying poisonous plants. Many livestock losses can be prevented by adhering to the following practices and principles:

List poisonous plant prevention methods.

- Learn to ID poisonous plants on your range.
- Inspect all range land for poisonous plants prior to grazing and be sure sufficient desirable forage is available.
- Do not allow hungry or thirsty animals to graze areas infested by poisonous plants, especially in early spring or late summer.
- Supplement animals throughout the year with salt and phosphorus.
- Graze areas with poisonous plants when plants are least toxic.
- Do not allow sheep to go more than two days without water.
- Use herbicides selectively, in small areas to control toxic plants.
- Plowing, digging or mowing prior to seed maturity can help control poisonous plants.

Review by using Activity Sheet #4, "Poison Plant Identification." Have members identify and list effect on sheep of 8 to 10 of the most common poisonous plants in your area.

DIALOGUE FOR CRITICAL THINKING:**Share:**

1. What plant was most difficult to identify? Why?
2. Which plant is most common in your area? Least common?

Process:

3. What are the factors that cause plant poisonings?
4. What are some ways to prevent plant poisonings?

Generalize:

5. Why is prevention often the best treatment?

Leader Notes

ACTIVITY

6. What are other areas in your life where prevention is important? Why?

Apply:

7. How and when can you use prevention training in the future?

GOING FURTHER:

1. Ask county noxious weed director to visit your group.
2. Participate in pasture and range judging schools and contests.

REFERENCES:

SID Sheep Production Handbook
North American Range Plants, Stubbendieck et al., 1989.

Author:

Jeremy Geske, Former Extension Assistant, Kansas State University
James P. Adams, Extension Specialist, 4-H and Youth Programs,
Kansas State University

Reviewed by:

Clifford Spaeth, Extension Specialist, Animal Sciences and Industry,
Kansas State University
Sheep Design Team

PLANT IDENTIFICATION
SHEEP, LEVEL IV
Activity Sheet #4, Poison Plant Identification

Identify the following potentially poisonous plants and tell how it affects sheep.

Plant Name	Effect on sheep
1. _____	_____
2. _____	_____
3. _____	_____
4. _____	_____
5. _____	_____
6. _____	_____
7. _____	_____
8. _____	_____
9. _____	_____
10. _____	_____



Range Forage For the Ewe Flock

Sheep, Level IV

What Members Will Learn . . .

ABOUT THE PROJECT:

- Types of range plants
- Rangeland factors affecting sheep production
- Types of pastures

ABOUT THEMSELVES:

- How to use cost per use to make purchasing decisions

Materials Needed:

- Activity Sheet #5, Range Plants and Stocking Rates”
- Leader Key, Activity Sheet #5, Range Plants and Stocking Rates
- Plant samples of desirable Kansas range plants
- Flip chart and markers

ACTIVITY TIME NEEDED: 60 MINUTES

ACTIVITY

Many ranchers view livestock as the product raised on rangeland. When in fact, the product is forage (plants) and the livestock merely harvest this crop and convert it to a product useable by humans. It requires a considerable amount of knowledge and experience to produce a good forage crop and harvest it (by livestock) without damaging the range land. The successful production of sheep from a range resource requires a knowledge of both sheep and the plant species found on your range.

The Earth’s total land surface area is composed of about 45% rangeland. About twenty million acres (30%) of Kansas land are classified as rangeland. Rangeland has natural vegetation consisting of grasses, forbes and woody plants. The kind of vegetation present (quality and quantity) will have an impact on your flock. Rangelands are not generally adapted to cultivation and are covered with native grasses and plants best suited for grazing livestock.

There are about 5,000 different plant species growing in Kansas. Grasses have hollow, jointed stems and narrow, flat leaves that grow in two rows along the stem. Leaf veins are parallel. Forbes are broad leafed plants generally referred to as weeds. Forbes have a solid stem and many have colorful flowers. Leaf veins are generally of the net type, but parallel are possible. Woody plants are those with woody stems. They are commonly

Leader Notes

Use local Natural Resource Conservation Service (NRCS) supervisor as a resource for this lesson. Take a field trip to a pasture to find and identify common range plants. If field trip not possible, have members collect samples and bring to meeting.

List or show the differences between grasses, forbes and woody plants. Ask members for characteristics of each before telling.

Leader Notes

ACTIVITY

called browse or brush. Producers should become familiar with the different plant species because each has a unique nutritional value and may require special management procedures.

Unlike cattle, which prefer grasses, sheep tend to select broad leaf plants, but will also graze grasses and browse. Sheep are selective grazers and will eat their favorite plants first. It is your job as a sheep producer and range manager to see that plant growth and grazing are kept in balance.

Specific problems existing on Kansas rangeland which hinder sheep production include: (1) invasion of noxious plants, (2) lack of flexibility in stocking rates to maintain proper forage use, (3) loss of desirable forage species, (4) water loss and (5) soil loss. To improve rangeland we must control undesirable species, such as poisonous plants. The most important factor is stocking rate (number of sheep per acre per unit of time). If we over stock a pasture, there may be permanent damage to the land and its plants. If we under stock, we are not getting efficient utilization of the available forage. The correct stocking rate depends on the plant species involved as well as year to year changes in environment (rainfall etc.).

List common rangeland problems for sheep production.

A sheep producer's goal should include meeting the ewe's nutritional needs at the lowest possible cost. During much of the year, and most stages of production ewes can meet all their nutritional requirements by grazing range or pasture.

List three types of pastures and their characteristics.

Let's look at three types of pastures and the common Kansas range plants found on them. The first pasture type is permanent, where basically the same plants are found year after year. During the warm season (to Dec.) brome grass and tall fescue are common.

Some pastures are temporary. Plant species include alfalfa, sorghum/sudan hybrids or hybrid pearl millet, wheat, oats, barley, turnips and crop residues, such as straws or corn stalks. Take caution when grazing sorghum/sudan grass as you may run into a problem with prussic acid poisoning.

Other pastures have a mixture of permanent grasses and temporary legumes such as alfalfa, birdsfoot trefoil, red clover or crown vetch. The advantages of mixing grasses with legumes include: (1) seasonal distribution of forage, (2) increased gains from equal forage production, (3) the legumes add nitrogen to the soil and (4) a better mixture of vitamins and minerals for the ewe's diet.

List general rules about grazing sheep.

There are some general rules to keep in mind about grazing sheep. Intake is inversely related to plant maturity. As plants mature, they become less digestible. The stems are less digestible than the leaves. Protein is highest during the plant's early growth stage. The protein level in grasses drops faster than it does in forbes. As far as sheep are concerned, the nutritional value of a plant's fall regrowth is nearly as good as early spring plant growth.

ACTIVITY

Most producers have a system for grazing their pastures. Rotational grazing (moving from one pasture to another) allows you to increase stocking rates; however, it also increases fencing and labor costs. Continuous grazing (sheep on one pasture the entire grazing season) has less costs but may increase parasite problems, reduce stocking rates and lead to poor grazing distribution. Deferred grazing is where one pasture is allowed to rest so plants can regrow for later grazing.

DIALOGUE FOR CRITICAL THINKING:

Share:

1. How many common range plants do you know?

PROCESS:

2. How valuable are grazing days or animal unit months when figuring stocking rate?
3. What is the significance of the length of grazing seasons?

Generalize:

4. What other resources do you plan for expected use? Why?
5. What is the value of cost per use of an item?

Apply:

6. How will you use this information to make future decisions?

GOING FURTHER:

- Participate in range and pasture judging contest.

REFERENCES:

Kansas 4-H Beef Leader Notebook (LN-1), 2nd ed.
SID Sheep Production Handbook

Author:

Jeremey Geske, Former Extension Assistant, Kansas State University
James P. Adams, Extension Specialist, 4-H and Youth Programs,
Kansas State University

Reviewed by:

Clifford Spaeth, Extension Specialist, Animal Sciences and Industry,
Kansas State University

Leader Notes

As a review, use Activity Sheet #5, "Range Plants and Stocking Rates." Stake or have samples of plants for members to identify. Explain AUM's and work an example before letting members work in pairs to complete the activity sheet. Discuss their answers.

Do Activity Sheet before dialogue questions.

SHEEP DESIGN TEAM
RANGE FORAGE FOR THE EWE FLOCK
SHEEP, LEVEL IV

Activity Sheet #5, Range Plants and Stocking Rates

(If available) identify these common Kansas range plants

- | | |
|----------|-----------|
| 1. _____ | 6. _____ |
| 2. _____ | 7. _____ |
| 3. _____ | 8. _____ |
| 4. _____ | 9. _____ |
| 5. _____ | 10. _____ |

When determining stocking rates, cattlemen often use AUMs (animal unit months). One animal unit is equal to a cow/calf pair or five ewes with lambs. Sheep producers prefer to calculate stocking rates based on grazing days per acre. It would be helpful if you could convert one to the other. To get grazing days per acre, simply multiply AUMs by 30 (30 days in a month), then multiply by five (5 ewes per AUM).

Let's say you had a 30 acre pasture consisting mainly of buffalo grass. For sheep, buffalo grass might provide 300 grazing days per acre.

- how many total grazing days does this pasture provide? _____
- how many animal unit months per acre for the pasture? _____
- if you had 90 ewes, how long could they graze the pasture? _____
- if your grazing season was 5 months long,
how many ewes could you keep on the pasture? _____

Hints for calculation

If your pasture provides 500 grazing days per acre, you could graze 500 ewes per acre for one day, 50 ewes per acre for ten days, 5 ewes per acre for 100 days, etc.

Here are the average grazing days per acre provided by common Kansas range plants with adequate moisture.

bluestem = 500 to 800 gd/acre buffalo grass = 200 to 400 gd/acre

brome grass = 800 to 1000 gd/acre alfalfa = 1500 to 3000 gd/acre

sorghum/sudan = 900 to 1300 gd/acre pearl millet = 800 to 1200 gd/acre

crop residues = 100 to 300 gd/acre turnips = zero to 3000 gd/acre*

* very moisture sensitive

Pick another plant species and re-do the above problem

**RANGE FORAGE FOR THE EWE FLOCK
SHEEP, LEVEL IV**

Leader Key—Activity Sheet #5, Range Plants and Stocking Rates

(If available) identify these common Kansas range plants

- | | |
|----------|-----------|
| 1. _____ | 6. _____ |
| 2. _____ | 7. _____ |
| 3. _____ | 8. _____ |
| 4. _____ | 9. _____ |
| 5. _____ | 10. _____ |

When determining stocking rates, cattlemen often use AUMs (animal unit months). One animal unit is equal to a cow/calf pair or five ewes with lambs. Sheep producers prefer to calculate stocking rates based on grazing days per acre. It would be helpful if you could convert one to the other. To get grazing days per acre, simply multiply AUMs by 30 (30 days in a month), then multiply by five (5 ewes per AUM).

Let's say you had a 30 acre pasture consisting mainly of buffalo grass. For sheep, buffalo grass might provide 300 grazing days per acre.

- how many total grazing days does this pasture provide? 9,000 (30 × 300)
- how many animal unit months per acre for the pasture? 2 (300 / 5 / 30)
- if you had 90 ewes, how long could they graze the pasture? 100 days (9,000 / 90)
- if your grazing season was 5 months long,
how many ewes could you keep on the pasture? 60 (9,000 / 150)

Hints for calculation

If your pasture provides 500 grazing days per acre, you could graze 500 ewes per acre for one day, 50 ewes per acre for ten days, 5 ewes per acre for 100 days, etc.

Here are the average grazing days per acre provided by common Kansas range plants with adequate moisture.

bluestem = 500 to 800 gd/acre

buffalo grass = 200 to 400 gd/acre

brome grass = 800 to 1000 gd/acre

alfalfa = 1500 to 3000 gd/acre

sorghum/sudan = 900 to 1300 gd/acre

pearl millet = 800 to 1200 gd/acre

crop residues = 100 to 300 gd/acre

turnips = zero to 3000 gd/acre *

* very moisture sensitive

Pick another plant species and re-do the above problem

RANGE FORAGE FOR THE EWE FLOCK



Advanced Financial Records

Sheep, Level IV

What Members Will Learn . . .

ABOUT THE PROJECT:

- The importance of keeping records of income and expenses
- The difference between fixed and variable costs
- The definition of profitability

ABOUT THEMSELVES:

- Importance of records
- Value of budgets
- Importance of being organized

Materials Needed:

- KSU Farm Management Guide, MF-421, Revised October 1997
Farm Ewe Flocks, Once-a Year Lambing
- Flip chart and markers

ACTIVITY TIME NEEDED: 60 MINUTES

ACTIVITY

Leader Notes

The bottom line for almost all sheep operations is profit or loss. The successful sheep operator has a good handle on the income and expenses of his/her operation. In this lesson, we'll organize and categorize income and expenses; learn how to calculate several factors involved in profitability and discuss the manner in which various things affect the bottom line of the sheep operation.

Give each member the first page of MF-421 as a reference for this lesson.

First, let's look at income. The majority of income for sheep producers generally comes from the sale of market lambs and/or wool. Some income is also generated from the sale of cull ewes and rams. Some operators sell breeding stock or feeder lambs. A limited amount of income may also come from fair premiums or various other sources. When completing your yearly flock budget, be sure to include all sheep related income.

List income sources as members give them to you.

The amount of income in any of these areas depends greatly on the current market prices as well as the overall quality of your sheep or wool. However, some other factors may be indirectly involved. Lamb crop percentage can be very important. More lambs born per ewe generally means more lambs for sale which should increase your total income per ewe. Death loss of rams, ewes and lambs reduces the number available for sale and may increase expenses if the breeder must purchase breeding

List factors affecting income.

Leader Notes

ACTIVITY

stock to maintain his flock size. Health problems will increase veterinary expenses. If a producer is operating at a loss or even a small profit, he/she should consider changes in management and health practices that might increase lambing rate or decrease death loss.

For most operations, income is generated in only a few areas, so it is relatively easy to keep track of. Expenses, on the other hand, are incurred in a wide variety of ways. Expenses are divided into two groups, fixed costs and variable costs.

Ask members to list fixed cost items.
Discuss and explain each.

Fixed costs are those that remain fairly constant from year to year, such as breeding stock depreciation, real estate taxes and interest and depreciation on machinery. While some operations produce their own replacement breeding stock, others must purchase some or all breeding rams and ewes. Although the value of breeding stock varies greatly, each producer has a general price range they tend to stick too. These expenses can be included in fixed costs. Breeding stock depreciation is calculated as follows: Average replacement cost minus average salvage value divided by five (breeding sheep are considered to have an average productive life span of 5 years). Real estate taxes only on the acres utilized by the sheep flock should be included on the flock budget. Interest and depreciation on machinery is more difficult to calculate, especially when machinery is used for other farm enterprises as well. Many sheep operations purchase breeding rams and put this expense under fixed costs. The ram should have a useful life of three to four years.

Work a breeding stock depreciation example.

Several items are included under variable costs. Pasture costs vary depending on the going rate for pasture rent and the length of the grazing season. Even if you own your own pasture, you should figure an opportunity cost. If your sheep weren't grazing the land, you could be renting it to some one else. It is a cost even if you aren't paying for it. Feed costs are generally the single largest expense in most sheep operations. It varies with grain and hay prices from year to year. All grain, hay, milk replacer, salt and minerals should be included. Because of the wide variety of feed stuffs available, a producer can reduce cost by balancing his/her own rations using less expensive ingredients. It is essential for the producer to have knowledge in sheep nutrition to make sure all rations are meeting the needs of the sheep for optimum performance.

Solicit and list variable costs from members. Discuss and explain each.

Other variable costs include veterinary/medical expenses, shearing, tagging or ID, bedding (straw) and utilities such as electricity. The cost of electricity (heat lamps) as well as the building and maintenance of barns or sheds depends greatly on the climate. There are transportation costs to market or to and from shows and sales. There are several supplies such as heat lamps or syringes which need to be included in miscellaneous expenses. They generally range from one to three dollars per ewe. Income taxes as well as interest on borrowed capital need to be included in the budget. There is a labor and supply cost for building and repair of equipment, facilities and fences. If any labor is hired, that should be included.

ACTIVITY**Leader Notes**

Also, many producers figure an opportunity cost for their own labor. This is not necessary, but it may give you a clearer picture of whether or not your sheep operation is more profitable than working at some other job. If you do figure an opportunity cost for your own labor, use a dollar amount at least equal to minimum wage. Depending on the type of operation, you may also have expenses for such things as organization dues, registration fees, entry fees or advertising costs. When completing the flock budget, be sure to include all sheep related expenses. It is easy to forget some costs, so it is best to record all income and expenses as they happen rather than wait until the end of the year to try to figure them out. If your sheep operation is not as profitable as you think it should be, analyze the variable costs portion of your expense sheet. It may provide clues to where expenses can be cut without reducing income.

Once all income and expenses have been recorded and totaled, we can calculate profitability. This can be done using total values or on a per ewe basis (total divided by number of breeding ewes in the flock). Total income minus variable costs equals gross profit (or loss). Gross profit minus fixed costs equals bottom line position (net profit or loss).

The successful sheep producer always keeps a good set of financial records. Many producers utilize a budget which contains estimates for income and expenses for the upcoming year. If your sheep enterprise operates at a loss, you are out that money. However, if you estimate a budget in advance, it may help you make changes in management or sell the sheep to avoid the loss. If you decide to estimate a budget, remember that it has to be as realistic as possible. If the budget is not very accurate, it won't help you. Realize that many variables affect the profitability of the sheep operation. Feedstuff costs, changes in lambing rate, price of market lambs, management style and any number of other factors can change the profitability outlook.

The experienced member should be able to keep an accurate and complete set of financial records for their sheep project. At the end of the year, bring your income/expense sheet with your bottom line position to a meeting to discuss with the project leader. Also discuss it with your parents. Try to come up with ways to improve your profitability outlook for next year.

Give each member a copy of Farm Management Guide MF-421 to estimate a budget for their operation.

DIALOGUE FOR CRITICAL THINKING:**Share:**

1. Have you had to keep records for other projects? What is most difficult about keeping complete and accurate records?
2. Have you or your projects benefited from your record keeping? In what way?

Process:

3. Why is it important to distinguish between fixed and variable costs?

Leader Notes

ACTIVITY

4. When should you make a budget? Why? How will it help you in making decisions?

Generalize:

5. In what other areas of your life is it important to keep records? Why?
6. Most of record keeping is organization. How will keeping records help you become organized?

Apply:

7. Prepare a simple budget for your sheep project. Include everything that you know you will need plus anything that may occur in the future.
8. Prepare a simple budget for one month for your personal items. Include everything that you will purchase or sell (i.e. food, clothing, entertainment, etc.).

GOING FURTHER:

1. Review a computer program that is already set up to handle records.
2. Design a spreadsheet that will make calculations that will be needed when entering records.

REFERENCES:

Author:

Jeremey Geske, Former Extension Assistant, Kansas State University
James P. Adams, Extension Specialist, 4-H and Youth Programs,
Kansas State University

Reviewed by:

Clifford Spaeth, Extension Specialist, Animal Sciences and Industry,
Kansas State University
Sheep Design Team

Farm Ewe Flocks — Once-a-Year Lambing

Department of Agricultural Economics



Kansas State University Agricultural Experiment Station and Cooperative Extension Service

Gerald W. Warmann

Extension Agricultural Economist, SC

Ewe flocks are adapted to all areas of Kansas and range in size from 25 to 1,000 ewes. Small flocks of 25 to 50 ewes can act as “scavengers” on a small farm, utilizing unused labor and supplementing farm and non-farm income. Larger flocks of 250 or more ewes are generally a more efficient enterprise because they can justify investment in labor-saving equipment. Kansas flocks typically lamb during one of two time periods: “fall” (October to December) or “winter” (January to March).

Flock income is derived primarily from wool sales and live lamb sales. Wool income will be greater for breeds of fine wool-type and heavier fleece weights, such as Rambouillet, and less for medium wool-type breeds such as Suffolk. Live lamb sales will be determined by the number of lambs weaned per ewe, the average weight per lamb sold, and the price received.

The flock size, sheep breed, and lambing period that is appropriate will depend on the feed, facility, labor, and management resources available. An excellent source of information concerning ewe flock production in Kansas can be found in C-623, *Commercial Ewe Flock Production*. Additional information on ewe flock investment needs is available in MF-940, *Livestock Building and Equipment Requirements*.

Production Level

Costs per unit and net returns in livestock production are highly dependent on production levels. The following estimated budget includes three different production levels. Production levels vary for a number of reasons including livestock quality or genetics, weather, input levels, and management. The three production levels included in this estimated budget reflect production variability due to weather and management as opposed to the quality of

livestock since livestock values are held constant. Budgeting at multiple production levels can help producers examine the financial risk of a livestock enterprise that is directly related to production risk.

Table 1. Factors Used in Budget

	Production Levels		
	I	II	III
PRODUCTION:			
Lamb crop	120%	140%	160%
Culling rate	20%	20%	20%
Retention rate	21%	21%	21%
Number of ewes per ram	33.3	33.3	33.3
Number of years ram in flock	5	5	5
Death loss, feeding	1.0%	1.0%	1.0%
FLOCK SALES			
		Price	
Lambs, cwt		1.20	\$66.00
Culls, cwt		1.40	\$23.00
Wool, lbs		8.50	\$.50
PER EWE INVESTMENT:			
		Life	Value
Buildings		20	\$115
Equipment		10	\$ 55
Subtotal			\$170
	Purchase	Salvage	Budget
Ewe	\$75	XXXX	\$ 75.00
Ram	\$200	\$45	\$ 6.00
Replacements	\$75	XXXX	\$ 15.75
Subtotal			\$ 96.75
Total investment			\$266.75
INTEREST RATES:			
Variable costs			10.00%
Fixed costs			10.00%
TAXES AND INSURANCE RATES:			
Taxes-buildings-facilities			1.50%
Insurance-buildings-equipment			0.25%
Insurance-flock			1.00%

Table 2. Flock Rations (140% Lamb Crop—21% Retention Rate)¹

Per Ewe Unit	Native Pasture	Sorghum Silage	Alfalfa Hay	Grain Sorghum	Protein Suppl.	Mineral Mix	Vitamin A-D-E	Feed Medic.
	Days lbs/ewe. lbs/ewe.			
Ewe feed	171	562	274	139	5.7	9.6	0.0	0.0
Ram feed	5	27	15	7	0.0	1.0	0.0	0.0
Retained/repl. feed	36	141	90	84	3.6	2.7	0.0	0.0
Lamb feed	0	0	78	399	32.7	5.3	0.3	0.3
Totals	212	730	457	629	42.0	18.6	0.3	0.3

¹Rations provided by Clifford Spaeth, Extension Specialist, Sheep, Kansas State University

COST-RETURN PROJECTION — EWE AND LAMB

	Production Level			Your Farm
	I	II	III	
VARIABLE COSTS PER EWE				
1. Pasture (1.34 aum × \$12/aum)	\$ 17.15	\$ 17.15	\$ 17.15	_____
2. Sorghum silage (730 lbs × \$20.35)	7.43	7.43	7.43	_____
3. Alfalfa hay (457 lbs × \$91/ton)	20.79	20.79	20.79	_____
4. Grain sorghum (_____ cwt × \$4.52/cwt)	20.58	28.43	31.27	_____
5. Protein (_____ lbs × \$215.30/ton)	4.07	4.52	4.97	_____
6. Vitamins-minerals (18.6 lbs × \$.20/lb)	3.72	3.72	3.72	_____
7. Feed processing	2.50	2.80	3.10	_____
8. Labor (4 hrs × \$10.80/hr)	43.20	43.20	43.20	_____
9. Veterinary, drugs, and supplies	2.50	2.50	2.50	_____
10. Breeding costs	_____	_____	_____	_____
11. Marketing costs	3.00	3.00	3.00	_____
12. Shearing	2.50	3.00	3.50	_____
13. Utilities, fuel, oil	4.00	4.20	4.40	_____
14. Building and equipment repairs	4.00	4.00	4.00	_____
15. Miscellaneous50	.50	.50	_____
16. Interest on 1/2 variable costs @ 10%	7.05	7.26	7.48	_____
A. TOTAL VARIABLE COSTS	\$ 147.99	\$ 152.50	\$ 157.01	_____
FIXED COSTS PER EWE				
17. Depreciation on buildings and equipment ²	\$ 11.25	\$ 11.25	\$ 11.25	_____
18. Depreciation on rams ²93	.93	.93	_____
19. Interest on buildings and equipment ³	7.66	7.66	7.66	_____
20. Insurance-taxes on building and equipment ⁴	2.98	2.98	2.98	_____
21. Interest on breeding flock ⁵	9.70	9.70	9.70	_____
22. Insurance on breeding flock	1.08	1.08	1.08	_____
B. TOTAL FIXED COSTS	\$ 33.60	\$ 33.60	\$ 33.60	_____
C. TOTAL COSTS PER EWE (A + B)	\$ 181.59	\$ 186.10	\$ 190.61	_____
RETURNS PER EWE				
23. Market lambs (120lbs × \$84.00 cwt × cwt produced) ⁶	\$ 98.79	\$ 118.75	\$ 138.71	_____
24. Cull ewes (0.2 × 140 lbs × \$28 cwt)	7.84	7.84	7.84	_____
25. Wool (8.5 labs × \$0.50/lb)	4.25	4.25	4.25	_____
26. Ewe replacement (retention rate × ewe value)	_____	_____	_____	_____
D. GROSS RETURNS PER EWE	\$ 110.88	\$ 130.84	\$ 150.80	_____
E. RETURN OVER VARIABLE COST (D – A)	\$ -37.11	\$ -21.66	\$ -6.71	_____
F. RETURN OVER TOTAL COSTS (D – C)	\$ -70.71	\$ -55.26	\$ -39.81	_____
G. AVERAGE SELLING PRICE NEEDED PER HUNDREDWEIGHT				
27. To cover variable costs (lines A – 24 – 25 + 26) ÷ 29	\$ 114.96	\$ 98.18	\$ 86.78	_____
28. To cover total costs (lines C – 24 – 25 + 26) ÷ 29	\$ 143.64	\$ 121.69	\$ 106.90	_____
H. TOTAL FEED COSTS (lines 1 through 6)	\$ 78.74	\$ 82.04	\$ 85.33	_____
29. Hundredweight produced (marketed) ⁷	1.18	1.43	1.67	_____
30. Feed cost per hundredweight lamb marketed (H ÷ 29)	\$ 66.72	\$ 57.37	\$ 51.10	_____
I. ASSET TURNOVER (D ÷ INVESTMENT)⁸	41.6 %	49.1 %	56.5 %	_____
J. NET RETURN ON INVESTMENT [(F + 16 + 19 + 21) ÷ INVESTMENT] ⁸	-17.4 %	-11.5 %	-5.6 %	_____

¹ Assumes one-half the variable costs at the interest rate shown in Table 1.

² Depreciating on building and equipment computed as value divided by life, while depreciation on rams equals the difference between value and salvage value divided by life.

³ Total column assumes one-half the original cost in buildings and equipment at the interest rate shown in Table 1.

⁴ Taxes and insurance on buildings and equipment computed as value times interest rate shown in Table 1.

⁵ Represents flock value times rate shown in Table 1.

⁶ Market lamb value = [(hundredweight sold × market price per hundredweight × (lamb crop % - retention %) × (1 - death loss %)].

⁷ Hundredweight produced = [(lamb crop % - retention %) × (1 - death loss %) × hundredweight]

⁸ Investment equals total value of breeding stock, buildings, and equipment shown in Table 1.



Design and Function of the Lambing Shed

Sheep, Level IV

What Members Will Learn . . .

ABOUT THE PROJECT:

- Advantages and disadvantages of a lambing shed
- Lambing shed features

ABOUT THEMSELVES:

- Importance of function versus cost

Materials Needed:

- Member Handout #2, Lambing Sheds for 50 or 100 Ewes
- Flip chart and markers

ACTIVITY TIME NEEDED: 45 MINUTES

ACTIVITY

Shed lambing is popular in most farm flock areas of the midwest, East and Northwest. The benefits of shed lambing are directly related to the severity of the weather and the time of year that lambing occurs. With shed lambing, the producer will save more lambs due to easier access to lambs for treating health problems and other management practices. Thus, the producer will generally wean a higher percent lamb crop. In addition, predator losses may be reduced. Also, since the shed provides protection from the weather, lambing time is not dictated by seasonal differences in temperature.

Shed lambing also has its disadvantages. There is a larger capital investment involved in building and/or maintaining a facility. Water access may be costly and the producer needs to maintain a larger feed inventory. In addition, more and better trained labor is required. When you concentrate sheep into a smaller area, diseases can be spread more easily.

In areas where winter temperatures aren't that severe, sheds may be open on one side as long as they provide protection from the wind and shelter from falling rain and snow. In harsher climates, sheds are generally closed and may even be insulated or heated.

Many attributes of a lambing shed vary greatly depending on the climate and management factors such as flock size. In many cases, it may not be economically feasible to build new facilities from scratch. It is often necessary to add on to, or adapt existing facilities to fit your needs.

Leader Notes

Have each member bring a sketch of their lambing facility to evaluate as you discuss features.

List lambing shed disadvantages on flip chart.

Discuss adaptations that members have made to their facilities.

Leader Notes

List these lambing shed needs on flip chart and compare them to each member's facility to see what improvements members should make. Have members do this in pairs.

Pass out Member's Handout # 2, "Lambing Sheds for 50 or 100 Ewes."

ACTIVITY

However, there are several qualities which all lambing sheds should have in common. The shed should be centrally located with access to several lots. Good drainage is important to avoid sloppy, muddy, unsanitary conditions. The shed should have access to water and electricity. The shed should be flexible in terms of opportunity for expansion if flock size increases. The shelter should provide protection from rain, snow, wind and cold (it may need to be heated in severe climates). It should be dry and draft free. It should provide small lambing jugs for ewes and newborn lambs to bond. It should also provide for a natural flow of sheep from one stage to another.

Let's expand on some of these qualities. The building should provide 15–25 square ft/hd as well as access to 30–50 square ft/hd of lot space for pregnant ewes. Ewes are generally kept in at night with access to the lot during the day. Ewes are fed and watered outside during the day with some hay and water inside overnight. Portable panels divide the barn into smaller pens (15–25 hd) so it is easier to pair newborn lambs with their mothers. The ewes are penned according to expected lambing date. The ewe's body heat will generally keep the barn temperature above freezing. As the ewes lamb, they should be put into lambing jugs for one to three days. Lambing jugs are 4' X 4' or 5' X 5' pens for individual ewes and their lambs. Unshorn ewes and ewes with larger litters may require larger jugs. It is generally recommended to have at least one lambing jug for every 10% of the flock (ex. 10 jugs for a flock of 100 ewes). Lamb/ewe "pairs" can be bunched into small pens with 5–10 other ewes with lambs about the same age. After another week or so, they can be bunched into larger pens. Do not put ewes into jugs before they lamb. The small space increases the likelihood that the ewe will lay on one lamb while giving birth to another. The shed should allow for a directional flow of ewes. On one side are large holding pens (sectioned off by portable panels) for ewes close to lambing. As they lamb, ewes are moved to lambing jugs at the center of the shed (as the center is likely the most protected from the weather). As lambs get older, they and their mothers are moved to the far side of the shed in bunching pens. The lambs may have access to creep feeders. The shed may have an area for orphan lambs. There may also be an office or supply room to keep medical, handling and identification equipment. There may be a feed storage room. Hay is generally stored in a loft above the main floor.

About a month prior to lambing, the shed should be cleaned, disinfected and well-bedded. A good bedding, such as straw, provides a dry, sanitary environment for the lambs. All portable panels and jugs should be set up, and necessary repairs made prior to lambing. Also, check all supplies (feed, medicine and equipment) to make sure all the necessary items are on hand.

From an economics standpoint, the facilities should be adaptable for other uses, because lambing only occurs during a few months of the year. The Sheep Housing and Equipment handbook gives some examples of designs for sheds.

ACTIVITY

Leader Notes

DIALOGUE FOR CRITICAL THINKING:

Share:

1. What do you use for a lambing shed?
2. If shed was not built for sheep, how did you adapt it?

Process:

3. What are the main aspects of a lambing shed?
4. Why should the lambing shed be adaptable for other uses?

Generalize:

5. What other facilities do you have that have simple designs, but are still very functional?
6. What other times is function more important than actual cost?

Apply:

7. What can you do in the future to evaluate usefulness against cost?

GOING FURTHER:

1. Visit and observe lambing sheds of several different sizes.

REFERENCES:

SID Sheep Production Handbook
Sheep Housing and Equipment Handbook

Author:

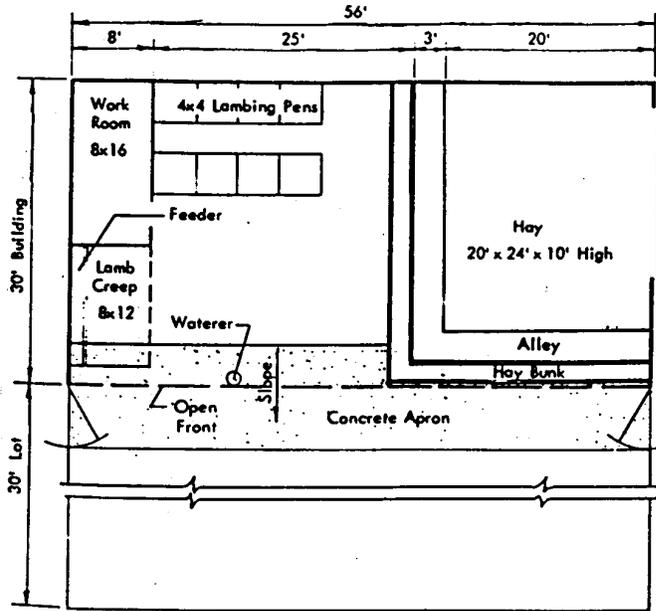
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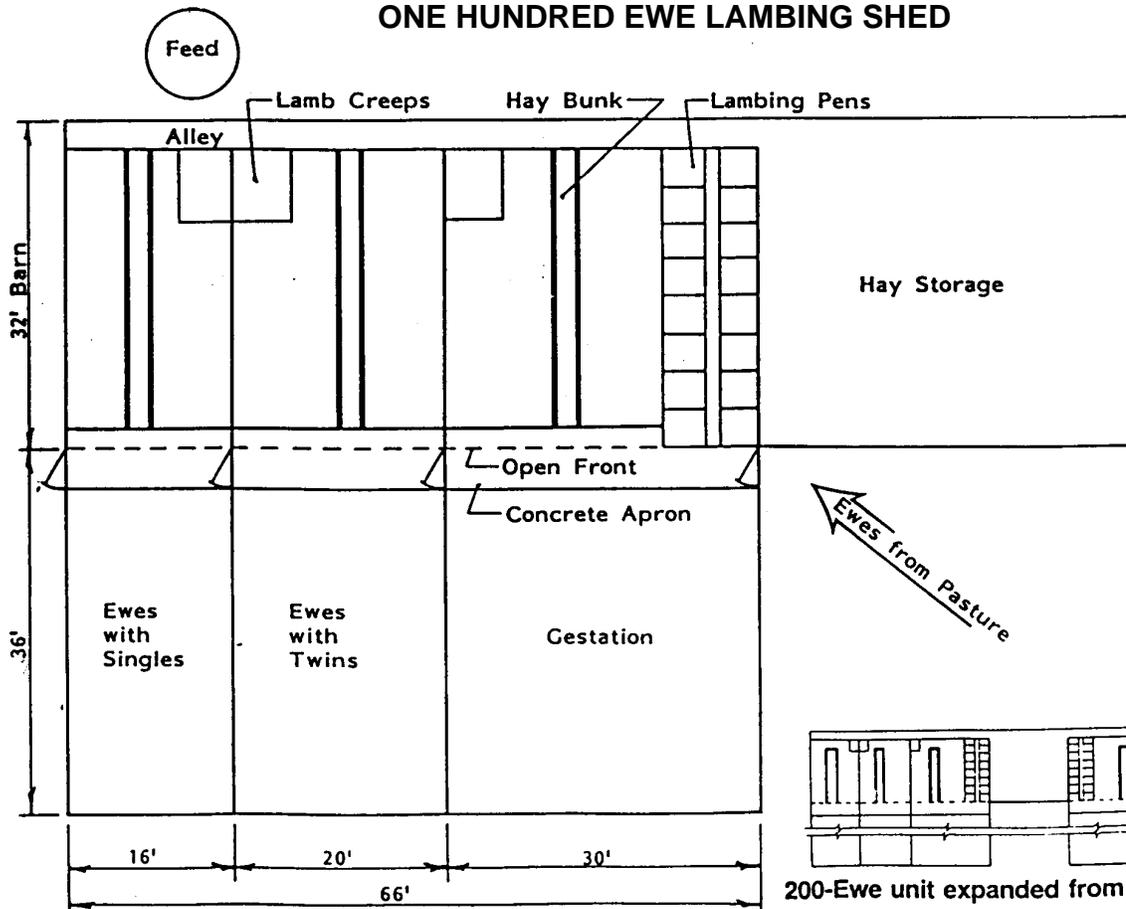
**DESIGN AND FUNCTION OF THE LAMBING SHED
SHEEP, LEVEL IV**

Member Handout #2, Lambing Sheds for 50 or 100 Ewes



FIFTY EWE LAMBING SHED

ONE HUNDRED EWE LAMBING SHED



200-Ewe unit expanded from 100-Ewe unit



Seasonality of Reproduction

Sheep, Level IV

What Members Will Learn . . .

ABOUT THE PROJECT:

- Factors influencing the sheep breeding season

ABOUT THEMSELVES:

- Their appreciation for the balance of nature
- Effect of technology on their lives

Materials Needed:

- Flip chart and markers

ACTIVITY TIME NEEDED: 30 MINUTES

ACTIVITY

The value of the lambs we produce is greatly influenced by supply and demand. Prices are highest when demand is high and supply is low. With that in mind, it would be advantageous to plan your lambing season so your market lambs are ready for market at the time of peak prices. However, sheep producers do not always have that luxury because many sheep will only breed, and thus lamb, at certain times of the year. There is much interest in learning about the seasonal nature of sheep reproduction, as many producers would like to lamb out of season (fall lambing) or implement an accelerated lambing program (more than one lamb crop per ewe per year). Accelerated lambing will be discussed in another lesson.

Some farm animals, such as cattle and swine, exhibit a regularly occurring reproductive cycle year round. They are known as polyestrous. Other livestock, such as sheep and horses, are called seasonally polyestrous as they only “cycle” at certain times of the year. It is hypothesized that seasonal breeding evolved as a measure that insured offspring would be born at the time of year most favorable to survival. This could be a response to severe climates and/or food supply.

The breeding season is the time of sexual activity. The period of sexual inactivity is called anestrus. Most common domestic sheep breeds have breeding seasons of approximately five to seven months. The period of anestrus generally occurs in the spring and summer months.

There are several factors which influence the length of the breeding season. One is age. Ewe lambs tend to have shorter breeding seasons than

Leader Notes

In small groups ask members to list and discuss all the factors affecting seasonal breeding that they are aware of. As small groups report their factors, list and discuss with the total group. Make a list of terms and definitions.

Conduct a mini quiz bowl to help members remember the terms and factors affecting sheep reproduction.

Leader Notes**ACTIVITY**

mature ewes. Somewhat related to this is the season of birth of the ewe lamb. Ewe lambs born late in the season, or ewe lambs that do not mature rapidly enough to reach puberty at the start of the breeding season may not cycle during part or all of the first breeding season. Subsequent breeding seasons would not be affected unless there is genetic influence.

Genetics also play a role in the length of the breeding season. Some breeds, such as Merino, Rambouillet and Polypay, tend to have longer breeding seasons, making it easier to get fall lambs. Pure Dorsets exhibit very little seasonality in their breeding season, and may lamb at almost any time of the year. There is also variation within a breed. By selecting replacements that were born out of season, or are from lines that have a higher tendency for out of season breeding, the producer can increase the length of the flock's breeding season.

There is strong evidence to suggest that photoperiod (day length) interacting with hormones has the most influence over the breeding season. Sheep are known as short day breeders as the breeding season typically starts in the early fall as day length (hours of light per 24 hours) is decreasing. The breeding season continues throughout the winter as day length is shortest; and ends in the spring as day length is increasing. The geographic location and its relationship to day length may also be a factor. These fluctuations in daylight affect the reproductive hormones. In order for ovulation to occur, the body must undergo a surge of luteinizing hormone (LH) from the pituitary gland in the brain which causes estrogen release by the ovaries. When the days become longer, even the small amount of estrogen produced by the ovaries is enough to inhibit LH and keep the ewe in anestrus. At some point, the long days are no longer able to allow estrogen to inhibit LH and the breeding season begins. Also, the hours of sunlight per day is not the same when the breeding season starts as when it ends.

Experiments were done to manipulate day length by providing artificial light at times and keeping sheep in a dark barn at other times in hopes of fooling the sheep into breeding out of season. The attempts were not all that successful. It was determined that sheep have some internal method of measuring the passage of time. Melatonin (a product of the pineal gland) is secreted in a daily rhythm. It is believed that sheep can keep track of these daily secretions; thereby keeping track of time so they can cycle at the proper time of year. The thyroid gland also has a role in stopping the breeding season. Ewes that have had their thyroid removed will cycle continuously.

Another factor that may stimulate the onset of the breeding season is known as the ram effect. When rams are introduced to a group of anestrus ewes that have been isolated from male contact, it may stimulate an LH surge causing the end of anestrus. If ewes are exposed to mature rams continually (no isolation period) the rams will not have this effect. This

ACTIVITY**Leader Notes**

phenomenon has been utilized for many years. About 17 days before the start of the breeding season, teaser rams (infertile, but sexually active) are introduced into a group of anestrus ewes. The active ram stimulates the ewes to come out of anestrus; therefore, when the fertile rams are turned out, more pregnancies will occur early in the breeding season. Recently, the same procedure (isolating ewes for a period) has been used in an attempt to induce out of season breeding.

The season effect on reproduction tends to limit ewes more than rams. Although fertility rates may vary from time to time, most rams are capable of successful breeding at any time of the year. However, in some breeds that tend to be the most seasonal (down breeds) some rams may not be interested in out of season sexual activity.

Another factor is nutrition. Ewes suffering from poor nutrition tend to have shorter breeding seasons.

Studies using a combination of oral feeding of a progesterone type hormone followed by an intramuscular injection of an estrogen hormone induced out of season breeding in ewes. Now, the studies are trying to determine the proper length of the feeding period, as well as the time between the feeding and the injection that will yield the best results.

The more we as producers understand about the season control of sheep reproduction, the more opportunity we will have to increase the length of the sheep breeding season.

DIALOGUE FOR CRITICAL THINKING:**Share:**

1. What aspect of seasonal breeding is most difficult to understand? Why?
2. What have you done to lengthen the breeding season of your sheep?

Process:

3. What problems did you have when trying to lengthen your sheep breeding season?
4. What are the major factors that influence the ewe's breeding season?
5. Which factor has the most potential for helping to lengthen breeding season? Why?

Generalize:

6. What other animals are seasonal breeders?
7. How does seasonal breeding affect the balance of nature in wildlife species?

Leader Notes

ACTIVITY

Apply:

8. What techniques do you plan to use in the future to influence seasonal breeding? Why?

GOING FURTHER:

1. Visit a sheep research facility.
2. Have a game biologist discuss seasonal breeding in wildlife.

REFERENCES:

Reproduction in Domestic Animals, Cupps, Perry. 1991.
SID Sheep Production Handbook
Dr. E. Minton, Kansas State University
Wes Limesand, Shepherd, North Dakota State University

Author:

Jeremy Geske, Former Extension Assistant, Kansas State University
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Accelerated Lambing

Sheep, Level IV

What Members Will Learn . . .

ABOUT THE PROJECT:

- Advantages and disadvantages of accelerated lambing
- Types of accelerated lambing systems

ABOUT THEMSELVES:

- Importance of planning, coordinating, and timing

Materials Needed:

- Member Handout #3, Star System
- Flip chart and markers

ACTIVITY TIME NEEDED: 60 MINUTES

ACTIVITY

Most ewes lamb once per year. The average gestation length of a ewe is less than five months. Most lambs are weaned at three months of age or younger. This leaves about four months when the ewe is not producing anything (except a little wool). Some producers have tried to maximize production and efficiency by eliminating the non-productive period. This is accomplished through some form of accelerated lambing. There are several variations of accelerated lambing; however, the goal of each is to produce more than one lamb crop per ewe per year.

The advantages of accelerated lambing include:

1. more efficient use of facilities (lambing shed/ pens used more than once/yr)
2. more lambs per ewe per year
3. rapid turnover of genetics
4. eliminates the time when a ewe is consuming feed and not producing anything

At first, accelerated lambing may seem like a great idea; however, there are several factors that need to be considered. The biggest hindrance to accelerated lambing is the seasonal nature of sheep reproduction. The producer must select a breed or certain individuals which will lamb out-

Leader Notes

Ask members to share accelerated lambing experiences. Have group analyze problems for possible solutions.

Ask members to list and discuss advantages before sharing these. List all advantages on flip chart for members to record in their records.

List and discuss disadvantages on flip chart for members' records.

Leader Notes**ACTIVITY**

of-season on a regular basis. Dorsets and Rambouillets are popular choices due to their extended lambing seasons. Accelerated lambing requires more intensive labor and management practices throughout the year. Other resources, such as feed, need to be considered. Also, the increased production tends to lower the life expectancy of the ewes. Since you are producing more lambs per ewe per year, a higher replacement rate should allow you to maintain flock size and not hurt your genetic progress from selection.

There are several types of accelerated lambing systems. With a gestation length of five months, it would theoretically be possible to get two lamb crops per ewe per year. Research is being done in this area; however, it is unlikely that it will be realized in practice. It is hoped that these studies will provide insight that will allow producers to approach twice per year lambing.

Have members design a possible accelerated lambing system for at least three crops in two years. (Consider different breeds)

Several systems incorporate three lamb crops every two years (1.5 lamb crops per ewe per year). Here you have a lambing interval of eight months. If a ewe misses on lambing in two years, she is still having one crop per year. If a more continuous lambing season is desired, divide the flock into four groups and stagger the lambing periods at two month intervals. If a ewe fails to conceive, she has another opportunity two months later with the next group. A ewe that misses only one mating period in three cycles (two years) would average 1.39 lambings per year, and 1.29 lambings per year if she misses two mating periods.

Give members a copy of the “star” system. Lead members through the cycle for three different sets of ewes.

Cornell University developed a system called the Cornell star which attempts to produce five lamb crops per ewe every three years. The calendar year is divided into five segments (73) days. Two fifths of the year is 146 days, which is equal to the average gestation length of the ewe. The ewe flock is divided into three groups, one of which will be lambing at each of the five times per year. The five lambing dates can be rotated to best suit your situation, but must always be 73 days apart. Lambs are weaned at 45 to 60 days of age and the ewes bred back a week later. If you use a circle to represent the year and draw lines connecting the lambing dates, the resulting figure is a star, hence the name. A ewe that did not miss a mating period in three years would lamb at each point of the star and produce 1.67 lamb crops per year. Ewes that miss a mating are moved to the next group. Missing one 73 day cycle still allows the ewe to average 1.5 lambings per year. Even missing three cycles, the ewe produces 1.33 lamb crops per year.

The key to understanding the system is to mark on your calendar the breeding dates as rams in or rams out. That is, on the schedule, the rams go in on January 1 and are taken out on January 30; and go in on March 15 and are taken out on April 14, etc., etc. Once these dates are established and followed, the lambing dates are the same and everything else falls into place.

ACTIVITY

Leader Notes

The dates may be adjusted a few days for various reasons. For example, you can hold the rams a few days in August so January lambing starts the 4th or 5th. Many producers on the STAR system may rotate the entire STAR by as much as a month to fit their overall schedule.

Once you understand the sheep grouping on the STAR, you can understand that each of the 3 groups should be managed differently. The breeding-pregnant ewes have fairly low requirements, the lambing-lactating ewes have fairly high requirements as do the growing lambs.

DIALOGUE FOR CRITICAL THINKING:

Share:

1. What system of accelerated lambing do you prefer? Why?
2. If you have tried an accelerated lambing program, what happened? Why?

Process:

3. What is the biggest problem in accelerated lambing?
4. What are the most significant advantages of accelerated lambing?
5. What are the demands on the producer to use accelerated lambing?

Generalize:

6. What other areas of your life require careful planning, coordination, and timing?

Apply:

7. How might you use these organizational skills in the future?

GOING FURTHER:

1. Visit an accelerated lambing operation.

REFERENCES:

SID Sheep Production Handbook

Author:

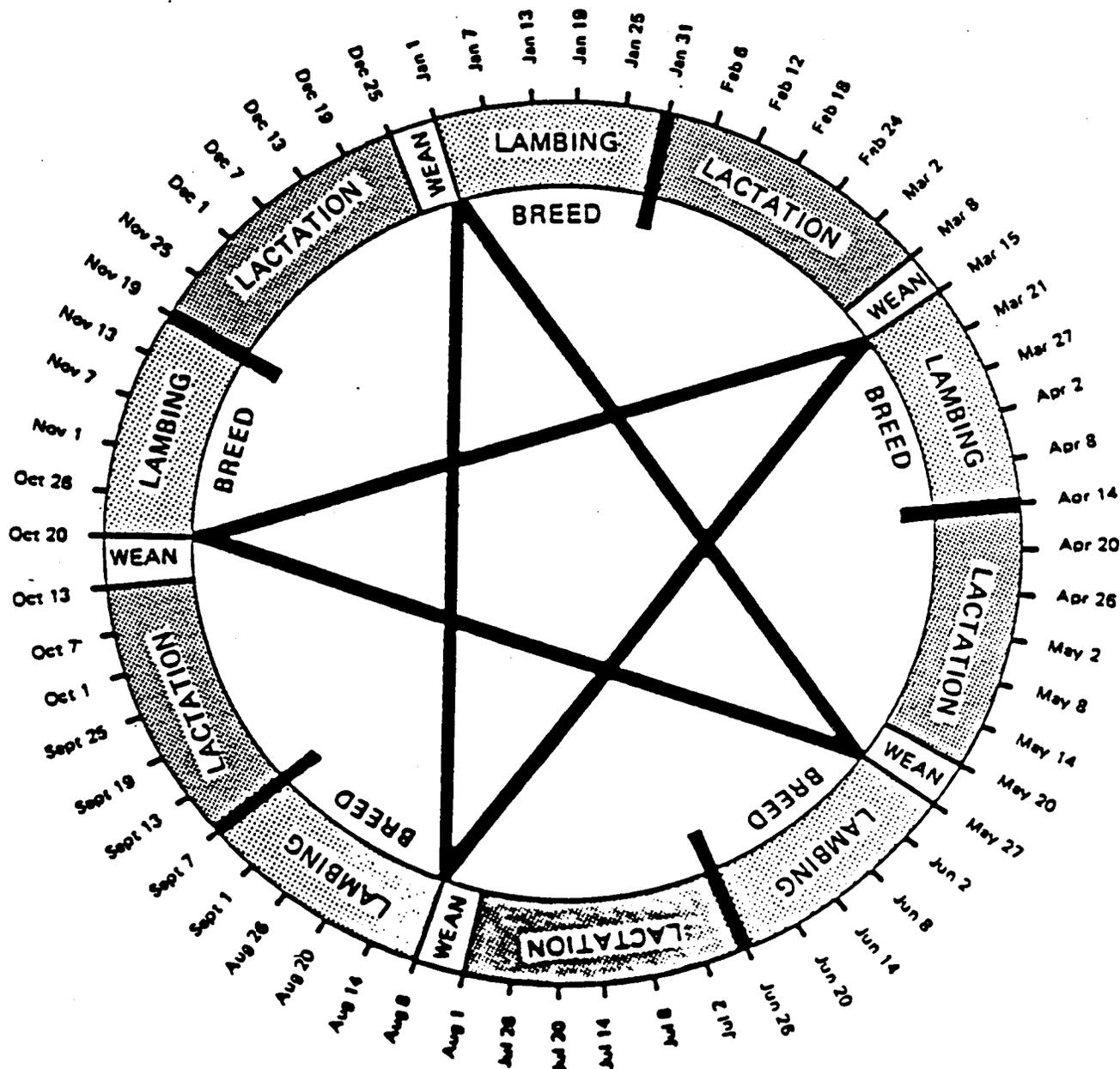
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ACCELERATED LAMBING
SHEEP, LEVEL IV
Member Handout #3, Star System

STAR ACCELERATED LAMBING SYSTEM



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Artificial Insemination and Embryo Transfer

Sheep, Level IV

What Members Will Learn . . .

ABOUT THE PROJECT:

- Advantages and limitations to Artificial Insemination
- The proper semen collection procedures
- The equipment needed for A.I.
- The procedures involved when utilizing embryo transfer

ABOUT THEMSELVES:

- The importance of technology in their lives

Materials Needed:

ACTIVITY TIME NEEDED: 30 MINUTES (60 MINUTES OR MORE IF A FIELD TRIP INCLUDED)

ACTIVITY

Artificial insemination (AI) is a management tool that has been popular in the livestock industry for years. There are several reasons for this. First, AI allows the producer to utilize sires he might otherwise not be able to purchase. AI spreads more widely the genetics of top sires. In addition, the use of AI eliminates the cost and risk of maintaining a sire for a small flock. Finally, AI may reduce the risk of transmitting some reproductive diseases.

On a world wide basis, it is estimated that about 60 million ewes are AIed annually. This is a relatively small portion of the more than nine billion ewes in the world. Sheep AI in the U.S. is less popular than in other species. Reasons for this include: (1) low per head value, (2) low sire maintenance costs and (3) varying success rates.

Although there are many potential advantages to AI, there are also limitations. If preventive measures are not taken, some diseases may be transferred by AI. Depending on the technique, pregnancy rates can be very low. Ram semen has poorer freezing qualities than other species, which may contribute to less fertility. Some methods are very expensive and require extensive training. AI may become more popular if a method is perfected that yields conception rates similar to natural mating, is relatively inexpensive and is easy to perform.

Leader Notes

For best results, schedule this lesson with a demonstration showing semen collection and actually artificially inseminating a ewe.

Leader Notes

ACTIVITY

Show these pieces of equipment if possible.

The first step is to collect semen from the ram. Prior to collection the ram should be kept as stress free as possible. Collections should be made into a sterile, dry and warm glass or plastic container. Semen can be collected using an artificial vagina (AV) or an electroejaculator.

The AV method is preferred as it is less stressful to the ram and yields higher quality semen samples. A five to ten inch tube is lined with a rubber liner filled with warm water. This provides both a pressure and temperature stimulus to the ram's penis. A small amount of non-spermicidal lubricant is applied to the surface of the lining. The opposite side ends in a plastic or glass semen collection tube. The ram is trained to mount a teaser ewe or a dummy. The penis is directed into the AV by the technician. Rams can be collected three to five times per day.

Some rams do not respond to the AV. They can be collected using an electroejaculator. A bipolar electric probe is inserted into the ram's rectum and positioned towards the floor of the pelvis. The ram is electrically stimulated for three to five seconds at intervals of ten to twenty seconds. After a short period of stimulus, most rams will ejaculate. Lubricant should be applied to the probe. The technician must be ready to catch the semen in the collection tube.

After collection, semen is diluted, energy sources and chemical buffers are added and it is generally frozen. When ready for insemination, semen should be thawed in a water bath at 100 degrees F.

Since it is more practical to AI large numbers of ewes at one time, ewes should be synchronized. Synchronizing ewes or using teaser rams to detect heat is crucial to AI as ewes must be inseminated as close to the time of ovulation as possible for best results. Ewes should be AIed twelve to eighteen hours after the onset of estrus (when heat is detected). Different types of synchronization may yield different time frames for AI.

There are several methods of AI. In natural mating, the ram deposits semen into the vagina. Vaginal AI generally yields poor results and is not recommended for frozen semen. It is often referred to as the "shot in the dark" method. However, it is easy and relatively inexpensive and may be used if you have fresh semen. The laproscopic method is a surgical technique that places semen into the uterus. Although this yields impressive results, it is very expensive in terms of the necessary equipment and training. Also, the surgery places extra stress on the ewe. It is unlikely that this method will become commonplace in the commercial industry.

AI is to becoming more popular because a transcervical method has been perfected that yields satisfactory pregnancy rate. This method is very popular in cattle; however, the reduced physical size of the sheep and the reproductive tract resulted in a slower adaptation for sheep. The ewe is restrained, either upside down in a cradle or "over the rail" with the rear end elevated. A well lubricated speculum with a light source is inserted

ACTIVITY**Leader Notes**

into the vagina. A forceps is used to open the cervix. A pipette containing the semen is maneuvered through the various cervical folds until it reaches the uterus. A plunger expels the semen into the uterus. Some technicians prefer to expel part of the semen, rotate the pipette a half turn and deposit the rest. This increases the chances that some semen will reach each uterine horn. Getting the pipette through the cervix requires a lot of practice and is next to impossible if the ewe is not in the proper stage of estrus. Time is very important. If there are too many delays from the time the semen is thawed, pregnancy rates will suffer.

We have discussed the potential for superior sires to produce large numbers of offspring, but what about superior ewes? Most ewes do not raise more than one or two lambs per year. In addition, many do not live much more than five years. There is a way to get many offspring out of the ewes. It is called embryo transfer.

Developing embryos are transferred from one ewe (donor) to many other ewes (recipients). The number of eggs a ewe ovulates can be increased using a procedure called super ovulation. A ewe is given two shots of pregnant mare serum gonadotropin (which causes the development of more than one egg) and one injection of chorionic gonadotropin (which causes several eggs to be released). The eggs are fertilized by AI or natural mating. Fertilized ova are flushed from the tract after conception and before implantation. The embryos are transported via a liquid medium to be deposited into the uterus of the recipient. Embryos may be frozen and stored until the host is ready for implantation. The estrous cycle of the recipient ewes must be synchronized with the donor if transfer is to occur without a storage interval. Once again, cost is the major limiting factor. This procedure may only be feasible if the value of the top individuals is very high. Embryo transfer is used when a breed is first imported into the U.S. in order to increase the number of sheep available for breeding.

DIALOGUE FOR CRITICAL THINKING:**Share:**

1. What was the most difficult aspect of artificial insemination?
2. What are some advantages of artificial insemination? Disadvantages?

Process:

3. Why is AI in sheep not very common compared to other species?
4. What is a way to utilize a superior ewe's genetics to produce more superior offspring?

Generalize:

5. What other forms of technology are available in the livestock industry?
6. How has technology affected your life as compared to your parents?

Leader Notes

ACTIVITY

Apply:

7. What new technology do you plan to use in the future? Why?

GOING FURTHER:

REFERENCES:

SID Sheep Production Handbook

Cupps, P.T., *Reproduction in Domestic Animals*, 1991

Acker, D., *Animal Science and Industry*, 1983

Author:

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Sheep Design Team



Pregnancy Determination

Sheep, Level IV

What Members Will Learn . . .

ABOUT THE PROJECT:

- Methods to determine pregnancy
- Benefits of pregnancy checks

ABOUT THEMSELVES:

- Importance of planning
- Their planning comfort level

Materials Needed:

- Activity Sheet #6, Predicting Lambing Dates by Observing “Bagging”
- Marking harness
- Flipchart and markers
- Ultrasound equipment (optional)

ACTIVITY TIME NEEDED: 60 MINUTES

ACTIVITY

Knowing if and when your ewes become pregnant can be important for several reasons. (1) Knowing when your ewes become pregnant helps you to know when to prepare your lambing shed. (2) If you are selling bred ewes, a positive diagnosis gives you the ability to guarantee that the ewes are pregnant. Additional benefits include: (3) selection of replacement ewe lambs on their ability to show estrus or conceive as lambs, (4) reduction of costs resulting from the sale or differential management of open ewes, (5) early diagnosis of reproductive failure and (6) more efficient management of feed and buildings according to stage of production.

Many sheepmen do not discover nonpregnant ewes until near the end of the lambing season. The cost to over-winter open ewes depends on the cost of feed and the length of the winter feeding period.

Techniques exist to accurately diagnose pregnancy, as well as to determine which ewes are carrying multiple lambs. However, in most cases it is not economical at this time for producers to pregnancy test all their ewes. It may be a profitable tool for managing ewe lambs and ewes bred to lamb out-of-season.

The gestation length of the ewe is approximately 145 days, or just under five months. By knowing when you turned out the rams to breed, you can count forward on the calendar to determine when lambing could start.

Leader Notes

List on a flip chart and discuss the six reasons why pregnancy determination is important.

Leader Notes

Show a marking harness. On a flip chart, record methods to detect pregnancy plus the pros and cons of each.

Encourage members to copy this information to include in their record books.

Check with your veterinarian for possible ultrasound demonstration.

Pass out Activity Sheet #6, "Predicting Lambing Dates by Observing "Bagging." Purebred breeders may know breeding dates and, thus, projected lambing date which will provide examples.

ACTIVITY

This will not be completely accurate as gestation length may vary between ewes; some ewes could lamb premature and ewes may not conceive during the first couple weeks of the breeding season. The breed of ewe and number of fetuses will also affect gestation length.

A simple and relatively inexpensive method of early pregnancy evaluation is the use of breeding marks. The stud ram is equipped with some method of marking ewes that he mounts. A marking harness which holds a colored chalk on the ram's chest can be used. When the ram attempts to breed a ewe, the chalk leaves a mark on the ewe's rump. By recording the date a ewe is "marked", you can calculate the expected lambing date. It may be necessary to catch the ram and clean mud or other debris from the chalk so it leaves a legible mark. If a ewe doesn't mark, you can assume that she is open. The color of the marking chalk should be changed every 17 days (the average length of the ewe's reproductive cycle). A mixture of used motor oil and powdered paint can be substituted for the harness and chalk. The mixture needs to be smeared on the ram's chest every couple days.

If a ewe marks a second time, it indicates that the first mating was not successful. If the chalk color is not changed, it could be difficult to tell which ewes are re-marking. If a ewe continues to mark over and over, it may indicate that the ewe is not reproductively sound. If the majority of the ewes re-mark, it could indicate an infertility problem with the ram.

Remember, a mark does not guarantee a ewe will lamb. A mating does not necessarily mean a conception; if conception occurs, abortion may also occur.

An aggressive ram may mount ewes that aren't in heat. Thus, putting the harness on the rams one day after turning them in with the ewes may prevent the marking of ewes not in heat.

The most accurate (and somewhat expensive) method for determining not only pregnancy, but also the number of fetuses a ewe is carrying is ultrasound. Ewes are tested in a natural, standing position. A small amount of light weight oil is applied to the transducer to insure good transmission of ultrasonic waves. The transducer is placed on the non-wooled area of the ewe's right flank, just anterior to the udder. The transducer should be directed 30 degrees forward and 45 degrees upward. Each manufacturer uses a specific device to register a positive pregnancy. It may be sound, or a visual display on a screen. The devices using sound work best from 70 to 120 days after conception. When ultrasound is displayed on a screen, pregnancy and number of fetuses can be accurately determined 40 days after conception. The biggest drawback of this method is the cost.

The most widely used method of pregnancy diagnosis in late gestation is bagging (udder palpation). A ewe's udder will begin to fill and enlarge about one month before lambing. The udder will be quite full and tight the last 3 to 5 days before lambing. Ewes identified as pregnant by this method will, in most cases, lamb. However, depending on the age of the ewe and the length of the breeding season, some ewes identified as open

ACTIVITY

Leader Notes

may actually be bred. Some producers use this method to sort their ewes into groups, so that ewes closest to lambing can be managed differently. The disadvantage of this method is that ewes may be fed 2 to 4 months before being found open.

Other methods include taking blood samples to monitor progesterone levels. This method is less accurate than desired. Repeated sampling increases accuracy, but appears impractical from a labor and cost standpoint.

There are several reasons or situations when pregnancy diagnosis or determination of due dates might be important. There are also several methods for evaluating pregnancy. Choose the one that best combines accuracy with cost effectiveness and gives you the results suited to your operation.

DIALOGUE FOR CRITICAL THINKING:

Share:

1. What pregnancy check do you use? Why?
2. If you did the “bagging” exercise, what was your accuracy percentage?

Process:

3. What problems do you have with your pregnancy check method? Why?
4. Why is it important to determine pregnancy?

Generalize:

5. Why is it important to plan for major events or activities?
6. How detailed or specific does planning need to be for your comfort level? Why?

Apply:

7. What criteria do you use to determine planning needs?
8. How will you determine the degree of planning needed for future events or activities?

GOING FURTHER:

- Observe an ultrasound pregnancy check.
- Develop a planning checklist for a future event

REFERENCES:

SID Sheep Production Handbook

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PREGNANCY DETERMINATION
SHEEP, LEVEL IV

Activity Sheet #6, Predicting Lambing Dates by Observing “Bagging”

Directions: Observe “bagging” on at least 10 ewes prior to lambing. Predict when you think they will lamb. Record your lambing date prediction so that you can compare it to the actual lambing date. Remember: Practice makes perfect!

ID	Projected Lambing Date	Actual Lambing Date
1.	_____	_____
2.	_____	_____
3.	_____	_____
4.	_____	_____
5.	_____	_____
6.	_____	_____
7.	_____	_____
8.	_____	_____
9.	_____	_____
10.	_____	_____
11.	_____	_____
12.	_____	_____
13.	_____	_____
14.	_____	_____



Lambing Time Management

Sheep, Level IV

What Members Will Learn . . .

ABOUT THE PROJECT:

- Advantages and disadvantages of range lambing
- Advantages and disadvantages of shed lambing
- The steps taken for ewe preparation
- The steps taken for baby lamb management

ABOUT THEMSELVES:

- Why planning is important
- Responsibility sometimes dictates profitability

Materials Needed:

- Activity Sheet #7, “Lambing Quiz”
- Leader Key—Lambing Quiz
- Flip chart and markers

ACTIVITY TIME NEEDED: 45 MINUTES

ACTIVITY

Leader Notes

Baby lamb survival is the key to profitability for most sheep operations. Lambing time is the most critical time for a sheep operation in terms of labor intensiveness and economics. The first decision is whether to lamb in a shed or out on pasture. Several things need to be considered when making that choice, including:

- climate conditions (weather, topography etc.)
- available feed and water supply
- availability and skill level of labor
- disease and predator situation
- value of animals and type of record keeping system used
- flock size vs. size and condition of available facilities

Let's look at the advantages and disadvantages of range lambing. Building and maintaining a facility is expensive; therefore, there is less capital investment with range lambing. Feed and labor requirements are also lower. On the other hand, range lambing generally leads to a lower percent lamb crop weaned, as treatment of health problems and control of predators is more difficult. Also, lambing season is strongly dictated by climate and range conditions. Although total investment is less, so are total returns. In many cases (climate permitting) if the facilities and labor are not available, range lambing is a viable option. For example, some

Lambing Quiz could be used as a pre- and post-test or as a review.

Solicit responses from group and list on flip chart before giving answers.

Leader Notes

ACTIVITY

Solicit responses and list on flip chart.

flocks are too large (ex. 10,000 hd) for feasible facilities. Fine wool breeds are generally better suited to range conditions. Pasture lambing is popular when the relative value of the individual lamb is less important than the total cost of inputs.

Now let's compare that with the advantages and disadvantages of shed lambing. When shed lambing, health problems are easier to control, and management practices easier to implement; therefore, lamb weaning percent is usually much higher. Also, the shed, and the protection it provides from the weather, allows you to lamb at any time of the year (however, this is still limited by the seasonality of the ewe's reproductive cycle). But, there is a larger capital investment, feed and water requirements must be considered and more and better trained labor is necessary. Shed lambing is more popular for farm flocks (especially registered sheep) and when lambing in colder climates.

List steps on a flip chart. A field trip to an actual producer to help set up a lambing facility would be an excellent learning experience.

The actual lambing shed, and what it provides will be discussed in another lesson. We'll just briefly go over the steps for preparing a facility for the lambing season. About a month before lambing starts, the barn should be cleaned and the floor covered with fresh, dry bedding (such as straw). Many operators spread limestone on the floor prior to bedding down, to help disinfect the shed. The bedding helps keep the lambs warm and dry and the improved sanitation may reduce the likelihood of illness. About ten days before lambing starts, set up the lambing jugs and holding pens. Now is also the time to check your equipment and medical supplies. Make sure your tools for docking, castration, vaccination and identification have been located and are in working order. Heat lamps, iodine and medicines should be on hand. If orphan lambs are a possibility, milk replacer should be on hand. As lambing starts, set up bunching pens and creep feeders.

List items on flip chart. Observe a crutching demonstration.

The next phase of lambing time management is ewe preparation. About a month before lambing, ewes should be de-wormed and vaccinated according to your health program. Shearing or crutching (removal of wool around the udder and vulva) should occur as it provides a cleaner, dryer environment for the lambs and will make nursing easier. In addition, shorn ewes take up less barn space, give off more body heat and are more likely to seek shelter when lambing than unshorn ewes. About ten days prior to lambing, ewes should be sorted according to expected lambing date. Begin checking ewes for signs of parturition at least two or three times per day. As ewes lamb, you will need to watch for dystocia problems, make sure ewes have milk (you may need to open teat canals so the lambs can nurse), and make sure the ewes claim (mother up to) their lambs.

List items on flip chart.

Baby lamb management begins immediately after lambs are born and have bonded with their mothers. The ewe and her lamb(s) should be placed in a lambing jug (4'x4' - 5'x5' pen). The lambing jug strengthens the ewe/lamb bond and allows you to closely observe the lamb to make

ACTIVITY**Leader Notes**

sure it has nursed and is healthy. Apply iodine to the navels of newborn lambs and provide a heat lamp if necessary. Within three days to a week, all lambs should be docked and vaccinated according to your health program. Some or all male lambs should be castrated. Lambs should receive some sort of identification (ear tag, tattoo or paint brand). Once identification has occurred, start your production records. When lambs have sufficiently bonded, they can be bunched into small groups with other lambs about the same age. Do not bunch sickly lambs or lambs that have not sufficiently bonded. About a week after birth, lambs should be provided with access to creep feeders. About 30 days after lambing, lambs should be vaccinated (booster shots) according to your health program. After 45 to 90 days, lambs should be weaned from the ewes. The age at weaning depends on the type of production system and the time of year lambing occurs. If lambs are to be creep fed, they are generally weaned earlier. If lambs are late spring born and will go to grass with the ewes, they may be weaned as late as 120 days.

Most lamb death loss is the result of neglect. The producer is simply not prepared when lambing starts. Starvation is the major cause of baby lamb death. Some ewes don't have enough milk for one or more of their lambs. Some ewes may not claim their lambs. It is extremely important to pay close attention to the lambs at this critical time. Pneumonia is the major disease cause of baby lamb death. Other baby lamb health concerns include white muscle disease, overeating, scours, tetanus and coccidiosis. Consult your veterinarian when setting up a health management program for your lambs. Veterinary and farm supply stores may sell a mixture of minerals and electrolytes that give newborn lambs an early boost of energy that may help them recover from the trauma of birth.

In addition to dystocia (lambing difficulty) ewes should be monitored for problems with pregnancy toxemia and mastitis.

Pass out Activity Sheet #7, "Lambing Quiz," as a review or to create more discussion. Let members work in pairs.

DIALOGUE FOR CRITICAL THINKING:**Share:**

1. Where do you or your neighbors lamb their ewes? Why?
2. What is your most difficult lambing time problem or task? Why?

Process:

3. Why is it important to shear or crutch your ewes before lambing?
4. What baby lamb management practices are most important? Why?
5. What is the significance of planning for lambing time?

Generalize:

6. What other areas of your life require lots of planning?
7. Who is responsible for most planning? Why?

Leader Notes

ACTIVITY

Apply:

8. How do planning and responsibility usually affect profitability?
Share examples and discuss.

GOING FURTHER:

1. Visit a veterinarian for flock health management tips associated with lambing.
2. Visit producers at lambing time to observe their management practices.

REFERENCES:

SID Sheep Production Handbook
Dr. Cliff Spaeth, Kansas State University
Recommendations for a Sheep Management Program, North Central
Region Ext. Pub. 240

Author:

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LAMBING TIME MANAGEMENT

SHEEP, LEVEL IV

Activity Sheet #7, Lambing Quiz

1. List 5 reasons a producer may decide to lamb out on pasture rather than in a shed.

2. What type(s) of sheep operations are more likely to practice shed lambing?

3. What are 4 advantages to shearing ewes prior to lambing?

4. Rank the proper sequence for these baby lamb management practices.

- | | |
|-------------------------------------|-------------------------------------|
| ___ docking | ___ vaccination |
| ___ iodine on navel | ___ place in lambing jugs |
| ___ Identification/ ear tag | ___ recording birth dates (records) |
| ___ castration of some or all males | |

5. Most baby lamb death loss is due to _____. The producer is simply unprepared for lambing to start. Many lambs _____ to death. _____ is the major disease cause of baby lamb death.

LAMBING TIME MANAGEMENT

SHEEP, LEVEL IV

Leader Key—Lambing Quiz

1. List 5 reasons a producer may decide to lamb out on pasture rather than in a shed.

Less capital investment

Shortage of labor

Facilities not available

Feed requirements are less strict

Value of lamb is less important than the total cost of inputs

2. What type(s) of sheep operations are more likely to practice shed lambing?

Farm flocks, Registered herds, regions with cold climates

3. What are 4 advantages to shearing ewes prior to lambing?

Provides a cleaner and drier environment for the lambs

Makes nursing easier

Take up less barn space

Give off more body heat

4. Rank the proper sequence for these baby lamb management practices.

5 docking

6 vaccination

2 iodine on navel

1 place in lambing jugs

3 Identification/ ear tag

4 recording birth dates (records)

7 castration of some or all males

5. Most baby lamb death loss is due to neglect. The producer is simply unprepared for lambing to start. Many lambs starve to death. Pneumonia is the major disease cause of baby lamb death.



Assisting Difficult Births

Sheep, Level IV

What Members Will Learn . . .

ABOUT THE PROJECT:

- Normal lambing process
- The signs of a difficult birth
- How to assist a ewe in a difficult birth
- Management practices that reduce lambing problems

ABOUT THEMSELVES:

- Importance of understanding the birth process
- The value of being prepared for emergencies

Materials Needed:

- Activity Sheet #8, Birth Worksheet
- Leader Key—Birth Worksheet
- Member Handout #4, Birth Positions
- Flip chart and markers

ACTIVITY TIME NEEDED: 45 MINUTES

ACTIVITY

Dystocia (lambing difficulty) is a relatively infrequent problem for most sheep producers. However, it is important to know how to handle assisted births when they are necessary. Dystocia occurs more frequently in 12–14 month old ewes or small ewes bred to large framed rams. Dystocia can be due to the head and shoulder size of the lamb, large birth weight, abnormal presentation of the fetus, small pelvic area of the ewe or failure of the cervix to dilate.

If unassisted, dystocia could lead to injury or death of the lamb and even the ewe. On the other hand, if help is given at the wrong time, or in the wrong way, it could be just as harmful as not helping at all. Determining when and how to give assistance can be a difficult decision.

The member should be able to recognize the normal lambing process before he or she can recognize abnormal lambing. As ewes approach the time of lambing, they normally “bag up” (the udder begins to enlarge as it fills with milk). The vulva becomes enlarged and flabby, and there may be a clear fluid secretion from the vulva. Ewes tend to isolate themselves and may act uneasy. Uterine contractions begin about twelve hours before the birth of the lamb(s). The cervix should dilate and the water sac is

Leader Notes

Have each member relate a dystocia problem they have had in their flock. Let members discuss and suggest how the problem could have been prevented.

List causes for dystocia on flip chart.

Outline normal lambing procedure on flip chart.

Leader Notes**ACTIVITY**

Pass out Member Handout#4, "Birth Positions."

expelled. Shortly, the lamb's front feet and head should appear. Do not rush the process as the tissues of the vulva need time to dilate as well. The lamb's life is not in danger as it can survive for several hours if the delivery process does not advance beyond this point. You may consider assisting if birth hasn't completed by two to three hours after the appearance of the water sac. Once the head and shoulders pass through the pelvic opening, the rest of the lamb should come without difficulty. Mucus and fluid are expelled from the lamb's nose and mouth to allow for normal breathing. The after birth should pass from the ewe shortly after the lambs are born.

The normal presentation for a lamb at birth is front feet first with the head between the front legs. There are a variety of abnormal presentations which occur infrequently. One is front feet first with the head twisted back or tucked down. Another is head first with one or both front legs back. Some lambs are born backward with rear feet first. This is usually no more difficult than the normal presentation. Breech presentations are perhaps the most difficult. That is when the lamb is coming out backwards but the rear legs are tucked under the body.

A careful examination of the ewe is probably the most critical step in assisting delivery. You must determine why the ewe is having difficulty. Remember to be as sanitary as possible. Use plenty of disinfectant and lubrication.

First, check to see if the cervix has dilated. If not, you may be interfering too soon. A lamb will not fit through a cervix that has not dilated. If you force it, you will cause excessive damage to the ewe's reproductive tract.

Next, check for signs of life in the lamb. Absence of vital signs, sloughing of hair or foul odor usually indicates a dead lamb. The objective then becomes getting the lamb out and saving the ewe.

Finally, determine the position of the lamb. Pulling a lamb should only occur when the lamb is in the "normal" position or "backwards" position. If the lamb is in an abnormal position, it is necessary to push it back in and rearrange it so it will come out normally. You should see front feet and be able to feel the nose coming next. If two feet are protruding, make sure they are both front feet and both from the same lamb. Two lambs will not pass through a pelvic opening at the same time. Lambing difficulty occurs less frequently with multiple births due to the smaller lamb size.

Excessive force should never be used. Forcing a lamb through a small pelvic opening may lead to injury or death of the lamb and paralysis of the ewe. If you are able to determine that the lamb is simply too large to pass through the pelvic opening or that the cervix will not dilate, you should contact your veterinarian because a cesarean section may be the only way to remove the lamb.

ACTIVITY

Leader Notes

Many lambs are pulled by grasping the legs with the bare hand. However, there is a plastic tool made for pulling lambs, as the lamb may be too slippery to grasp by hand. Pull the lamb straight back, then downward as it passes through the birth canal.

Lambs may be pulled through a small pelvic opening by alternately pulling one leg then the other. This allows the shoulders to pass separately.

Once the lamb is on the ground, clear its nostrils and mouth of membranes and fluids so that it can breathe. A long, difficult birth is stressful to the lamb. You may need to lift it by the rear legs and shake it to get the lamb going.

Some dystocia can be prevented by avoiding sires with coarse, bulky shoulders and large heads. Don't use big, coarse sires on ewe lambs or small framed ewes. Some rams may sire lambs with excessively large birth weights. Cull them or only use them on mature ewes. If a ewe has dystocia year after year, it may be a good idea to cull her.

DIALOGUE FOR CRITICAL THINKING:

Share:

1. What are the indications for a normal birth? What are the indications for a difficult birth? Discuss.
2. What experiences have you had in delivering lambs?

Process:

3. What steps can you take to prepare yourself for birthing difficulties?
4. What are some ways to prevent lambing difficulties before ewes are bred?

Generalize:

5. What resources are available to you if you encounter a difficult lambing problem?

Apply:

6. How might what you have learned in this lesson be applied to other 4-H projects?

GOING FURTHER:

1. Visit a veterinary clinic to discuss dystocia problems.
2. Visit a sheep farm where ewes are lambing and witness a birth, normal or problematic.

REFERENCES:

Kansas 4-H Beef Leader Notebook (LN-1), 2nd ed.

Pass out Activity Sheet #8, "Birth Worksheet" for review of knowledge learned

Leader Notes

ACTIVITY

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Sheep Design Team

ASSISTING DIFFICULT BIRTHS

SHEEP, LEVEL IV

Activity Sheet #8, Birth Worksheet

1. _____ is another term for lambing difficulty.
2. List three factors that may be responsible for lambing difficulty.

3. Lambs should only be pulled in the _____ or _____ position.
4. If the lamb is too large or the cervix won't dilate, you'll need a veterinarian to do a _____.
5. Lack of movement or foul odor may indicate that the lamb is _____.
6. True or False
Avoiding sires with coarse shoulders and large heads may reduce dystocia problems.
7. If the lamb is not in the "normal position, what should you do?

8. True or False
Helping a ewe at the wrong time or using excessive force can be as harmful as not helping at all.
9. If delivery is not complete by 2 to 3 hours after expulsion of the water sac, _____ may be necessary.

ASSISTING DIFFICULT BIRTHS

SHEEP, LEVEL IV

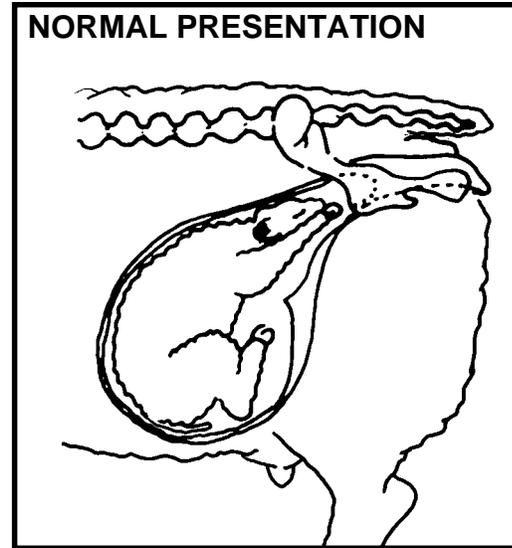
Leader Key—Birth Worksheet

1. dystocia is another term for lambing difficulty.
2. List three factors that may be responsible for lambing difficulty.
large lamb size
abnormal position
failure to dilate
3. Lambs should only be pulled in the normal or backward position.
4. If the lamb is too large or the cervix won't dilate, you'll need a veterinarian to do a cesarean section.
5. Lack of movement or foul odor may indicate that the lamb is dead.
6. True or False
Avoiding sires with coarse shoulders and large heads may reduce dystocia problems.
7. If the lamb is not in the "normal position, what should you do?
Push back in and rearrange correctly so the lamb is in the normal position.
8. True or False
Helping a ewe at the wrong time or using excessive force can be as harmful as not helping at all.
9. If delivery is not complete by 2 to 3 hours after expulsion of the water sac,
assistance may be necessary.

ASSISTING DIFFICULT BIRTHS

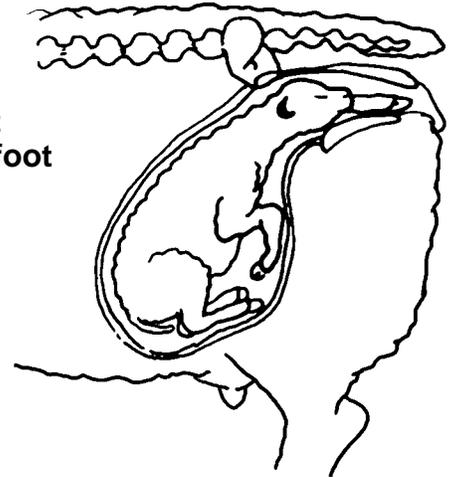
SHEEP, LEVEL IV

Member Handout # 4, Birth Positions

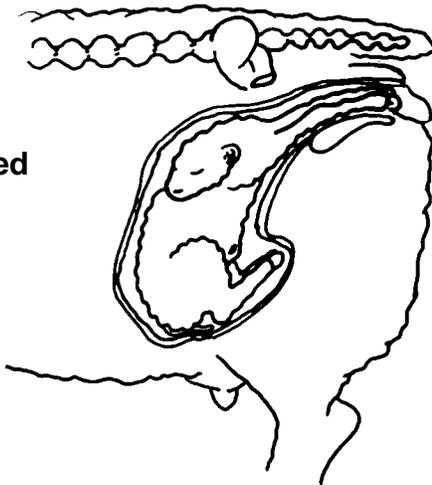


ABNORMAL PRESENTATIONS

**Head first
with one foot
back**



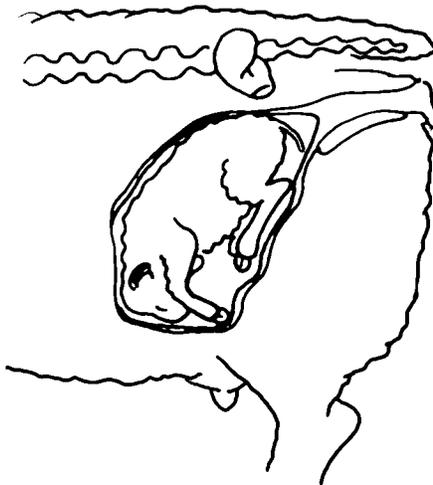
**Front feet
first with
head twisted
back**



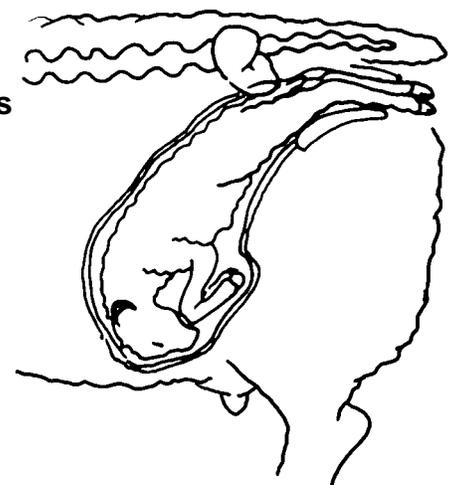
**Head first
with
both feet
back**



Breech



Backwards





Preventing Predator Losses

Sheep, Level IV

What Members Will Learn . . .

ABOUT THE PROJECT:

- Methods of predator prevention

ABOUT THEMSELVES:

- Preferred method of finding information

Materials Needed:

- Activity Sheet #9, Predator Control Agency Contact (Session One)
- Activity Sheet #10, Predator Control Topic Resource List (Session Two)

ACTIVITY TIME NEEDED: 60 MINUTES PER SESSION
(ALLOW AT LEAST 15 MINUTES PER MEMBER)

ACTIVITY

As discussed in an earlier lesson, coyotes are the major sheep predator; causing losses in some states as high as 8% of the lamb crop and 2.5% of the ewes. Members should become familiar with management practices that may help reduce sheep losses suffered from predation.

Many sheep producers don't do anything about predators until after they have suffered losses. Then the Animal Damage Control officer is called to shoot or trap the "offending" coyote. While that particular coyote or family of coyotes may be removed, another coyote will likely move into the unoccupied territory. Also, you've already lost some sheep. It may be more practical and economical to implement management practices which will prevent predator losses before they happen.

Coyotes tend to kill animals that are easily caught. That includes sheep weakened by poor nutrition, disease or old age, as well as young lambs. Coyotes give birth in April and May and need additional energy to feed the young pups. Thus, coyotes may turn to livestock as an available source of food.

By understanding these two factors about the coyote, producers can reduce the risk of predator losses by avoiding these circumstances. A good health and nutrition program will reduce the number of weakened sheep in the flock, thereby reducing the number of likely targets for coyote attacks. In addition, lambing should occur in a confined situation

Leader Notes

A week before discussing this lesson, have members select a predator control agency. Give each member Activity Sheet #9, "Predator Control Agency Contact," as a guide for gathering information. Agency reports by members become the main source for this lesson. Use this lesson only as a supplement to member reports.

Leader Notes

ACTIVITY

and younger lambs should be kept in lots near the farmstead. Once again, you are limiting the exposure of likely targets to the predator. When possible, fall lambing is a good practice. This gives the lambs several months to grow before the peak time for coyote attacks.

If sheep must be kept in areas populated by coyotes, corralling them at night may reduce the chance of predator attack. Having a lighted corral may further reduce the risk.

Removal and proper disposal of dead livestock is extremely important. Carrion tends to attract coyotes and other scavengers, and may condition them to feed on livestock.

Several tactics can be used to try to frighten coyotes away from sheep pastures. Strobe lights, or lights that revolve and flicker may help keep coyotes away. Noise making devices, such as bells, radios and propane exploders, have been used to deter coyotes. When using either of these tactics, it is important to alter to position and frequency every so often. Coyotes are smart enough to recognize a pattern, and can overcome their fears.

Recently, work has been done to develop coyote repellents. The idea is to place a chemical or aversive agent on a sheep carcass or even on the neck of a live lamb(s). When the coyote feeds on the carcass or attacks the “baited” lamb, it will become extremely ill. This in effect teaches the coyotes that sheep are not good to eat, and that they should seek other prey. Testing of the devices has so far yielded inconclusive results.

Another way to reduce coyote attacks is to design a fence that is economical to build, keeps the sheep in and keeps the predators out. Many coyotes can easily cross over, under or through conventional livestock fences. Generally, combining a conventional fence with an electric fence may deter coyotes from entering a pasture. One method is to alter “hot” and “ground” wires at six inch intervals. The wires may be spread farther at the top of the fence. The idea is to make it impossible for the coyote to crawl under, through or jump over the fence without hitting at least one “hot” wire and receiving a shock. Care should be taken to minimize danger to livestock and humans while still maintaining an effective coyote barrier.

Another way to reduce the occurrence of predator losses is to use a guardian. In the past, herders stayed out on the range with the sheep. The presence of humans kept the predators away. However, now days it is less expensive to use a guardian animal. In areas where human populations are more dense, donkeys and llamas can effectively protect the sheep from coyotes. Guardian dogs have been successfully used for centuries. Common breeds include Great Pyrenees, Komondor, Anatolian Shepherd and Akbash dog. From the time they are born, the dogs are raised with the sheep. Usually, their only human contact is with the owner and his family.

ACTIVITY

Leader Notes

The dog will grow to be fiercely protective of the sheep, and the sheep will not be afraid of the dog. The dog will respond only to the owner who must periodically feed it. The dog will establish a large territory. It will chase away any animals (except sheep) from its territory, and keep intruders from entering. The dog may also treat humans (other than the owner) as intruders as well, so there may be danger if the dog is too aggressive. Generally, dogs are used in areas where human populations are sparse. It is important that the dog be taught to stay in the designated area and not wander onto neighboring properties.

After agency reports, give members another week to use Activity Sheet #10, "Predator Control Topic Resource List," to prepare a report on a specific predator related topic. Use dialogue for critical thinking questions after second session.

DIALOGUE FOR CRITICAL THINKING:

Share:

1. What predator control topic did you choose to research? Why?
2. What was unique about the topic?
3. Which predator prevention method do you use? Why?

Process:

4. When do coyotes usually prey on sheep? Why?
5. If using frightening techniques, what must you remember to do?

Generalize:

6. What did you learn about your research skills as you studied your topic?
7. What is your preferred way of finding information on a topic? Why?

Apply:

8. How might you find information in the future? Why?

GOING FURTHER:

1. Ask a guard dog breeder or producer who uses a guard animal to speak to your group.
2. Ask an experienced trapper or hunter to demonstrate traps, snares, or calls.

REFERENCES:

SID Sheep Production Handbook

Author:

Jeremy Geske, Former Extension Assistant, Kansas State University
James P. Adams, Extension Specialist, 4-H and Youth Programs, Kansas State University

Reviewed by:

Clifford Spaeth, Extension Specialist, Animal Sciences and Industry,
Kansas State University
Sheep Design Team

PREVENTING PREDATOR LOSSES

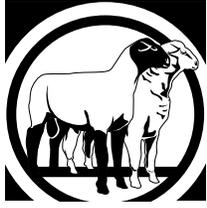
SHEEP, LEVEL IV

Activity Sheet #9, Predator Control Agency Contact

Directions: Record the following information on a predator control agency.

Name of Predator Control Agency that I contacted: _____

1. Obtain name, address and phone number of assigned predator control agency. Write that information in space below.
2. Write a letter to assigned predator control agency asking for information on predators, predator control, laws, etc. related to your state. Attach letter to back of sheet.
3. Organize all information in three-ring notebook. Decide the best way to organize the information you received. Make a table of contents to make the information easy to find.
4. Present the three-ring notebook to the club so that other members can use it as a resource.



Advanced Genetic Concepts

Sheep, Level IV

What Members Will Learn . . .

ABOUT THE PROJECT:

- Definitions of several genetic concepts
- Relationships of genetic concepts

ABOUT THEMSELVES:

- The importance of these genetic concepts in their lives

Materials Needed:

- Activity Sheet #11, Advanced Genetic Quiz
- Leader Key—Advanced Genetic Quiz
- Flip chart and markers

ACTIVITY TIME NEEDED: 60 MINUTES

ACTIVITY

In an earlier lesson, we discussed some basic genetic concepts and looked at what happens when a trait is controlled by a single gene pair with two alleles. Unfortunately, many traits (especially the economically important ones) are controlled in a much more complex manner.

The first example is multiple (>2) alleles. Horn growth in sheep is thought to be controlled by at least three alleles. The “P” allele results in the polled condition. The “p” allele is sex influenced where males are horned and females are polled. A trait is said to be **sex influenced** when the same genotype is expressed differently in males than in females. A third allele “p’” causes horns in both sexes. Also, polled is not completely dominant to horned. Heterozygous sheep tend to be scurred.

There are six possible gene combinations. Let’s look at the genotypes and discuss the phenotypes:

PP = rams and ewes are all polled

Pp = rams are scurred and ewes are polled

Pp’ = rams and ewes are all scurred

pp = rams are horned and ewes are polled

pp’ = rams and ewes are all horned

p’p’ = rams and ewes are all horned

Leader Notes

Definitions in this lesson should be illustrated in some way. Provide matching lists of terms and definitions or use in a quiz bowl setting, etc.

List alleles and combinations on flip chart or other visual.

Set up a punnet square if you want to know percent of each offspring.

Leader Notes

ACTIVITY

As you can imagine, when you have more alleles and combinations of alleles, selection becomes much more difficult.

Some traits are **sex limited** (expressed only in one sex). For example, milking ability is an important trait for sheep. Even though a ram does not give milk, he has genes for milk production which he passes on to his daughters.

Illustrate sex chromosomes on flip chart.

Sheep have 27 pairs of chromosomes, 26 pairs of autosomes and one pair of sex chromosomes. Most genes are found on the autosomes; however, some traits are **sex-linked** (controlled by genes on the sex chromosomes). Ewes have two “X” chromosomes and will always pass one or the other on to all their offspring. Rams have one “X” and one “Y” chromosome. They pass the “X” chromosome on to all their daughters and the “Y” chromosome on to all their sons. Any traits controlled by genes on the “Y” chromosome are only found in males and are always passed from father to son.

List epistasis definition and example on flip chart.

Another complexity is called **epistasis**. This refers to the condition where the expression of one gene is influenced by genes at another locus. Fleece color is affected by epistasis.

Define and list examples of qualitative traits.

For the most part, the different modes of inheritance we have discussed up to this point were controlled by a few alleles at one or a few loci. We can classify the expression of these traits into discrete categories with few errors. A lamb is either polled, scurred or horned. Environment has little effect on these traits. A spider syndrome lamb has the defect regardless of nutrition. A ram with the genetics to be horned will be horned regardless of the climate in which it was raised. These traits are known as **qualitative traits**.

Define and list quantitative traits.

While these traits provide good illustrations of inheritance, they are generally not as economically important to sheep producers as other traits. Examples of economically important traits include fleece weight, average daily gain, feed efficiency and reproductive rate. Most of the traits are controlled by many alleles at many loci with each single gene having a relatively small effect. Since these traits are not discrete (a lamb can gain .5 lbs/day, 1.5 lbs/day or any value in between), they are said to be continuous. These traits are also greatly affected by environment. They are known as **quantitative traits**. Even though the inheritance is the same as in qualitative traits, the large number of loci results in an expanded range of expression.

Additive gene effects are consistently transmitted from parent to offspring because they are cumulative, independent of other genes and are not affected by the environment. Additive gene effects are, thus, the best indicator of the value of a breeding animal and are known as breeding value. Breeding values, performance testing and EPDs (expected progeny differences) will be discussed in another lesson.

ACTIVITY

Heritability is that portion of variation due to additive gene action. The more highly heritable a trait (range 0.0 to 1.0), the more likely the offspring will be the average of its parents. When heritability is low, there is a lot of variation due to other things such as environment. Progress made through selection is more rapid when heritability is high. Most reproductive traits (except scrotal circumference at .35) are low in heritability (.05 to .25). Growth traits (weight and daily gain) are moderate to highly heritable (.15 to .40). Carcass traits such as muscle or fat thickness are also moderate to highly heritable (.30 to .50). Most fleece traits are highly heritable (up to .55).

Some genes affect more than one trait. Therefore, we have a means of quantifying these relationships. It is known as **genetic correlation**. Values of genetic correlation range from -1.0 to 1.0. Traits that are independent of each other (have no genes in common) have correlations near zero. If a correlation is high and positive, selection for an increase in one trait will result in a marginal increase in the other trait. For example, the genetic correlation between 60-day weight and 120-day weight is .70. This implies that a lamb with a high breeding value for 60-day weight would also have a high breeding value for 120-day weight. Some traits are negatively correlated. In this case, selection for an increase in one trait can lead to a decrease in the other trait.

This has been a brief overview of some genetic concepts important to sheep breeders.

DIALOGUE FOR CRITICAL THINKING:

Share:

1. How do you prefer to study genetics? Why?
2. Which concept was most difficult to understand? Why?

Process:

3. What types of traits are generally economically important?
4. Why is it usually difficult to make improvement in economically important traits?

Generalize:

5. How does genetic research benefit people?

Apply:

6. How will these concepts help you understand human genetics?

GOING FURTHER:

1. Visit a genetic research farm or laboratory.

REFERENCES:

SID Sheep Production Handbook

Leader Notes

List low, moderate and high heritability estimates. Ask members to list examples of each.

Outline genetic correlations and their relationships.

Review with Activity Sheet #11, "Advanced Genetic Quiz." Work in pairs and then as total group.

Do activity sheet or reviews before dialogue questions.

Leader Notes

ACTIVITY

Genetics: a guide to basic concepts and problem solving, Nickerson, 1990.

Introduction to quantitative genetics, D.S. Falconer, 1989.

Author:

Jeremey Geske, Former Extension Assistant, Kansas State University

James P. Adams, Extension Specialist, 4-H and Youth Programs, Kansas State University

Reviewed by:

Clifford Spaeth, Extension Specialist, Animal Sciences and Industry, Kansas State University

Sheep Design Team

ADVANCED GENETIC CONCEPTS

SHEEP, LEVEL IV

Activity Sheet #11, Advanced Genetic Quiz

1. The owner of sheep flock A purchases a ram from flock B that has an average daily gain of 1.3 lbs per day. He also purchases a ram from flock C with an average daily gain of 1.1 lbs per day. He randomly mates each of these rams to 1/2 of his ewes. To his surprise, the lambs sired by ram C have a higher average daily gain than the lambs sired by ram B. What possible explanations can you give for this unexpected result?

2. Traits where one genotype is expressed differently between the sexes are known as _____ traits. Some traits, such as scrotal circumference, are only expressed by one sex. They are called _____ traits. Traits inherited by genes on the sex chromosomes are called _____ traits.

3. Describe the differences between qualitative and quantitative traits.

4. Define heritability:

5. Frame size (height) and fleece grade have a negative genetic correlation. If you select for larger sheep (size as your only selection criteria), you will tend to: (circle one)

- a) improve the fleece quality of your flock somewhat
- b) have no effect on the fleece quality of your flock
- c) reduce the fleece quality of your flock somewhat

ADVANCED GENETIC CONCEPTS

SHEEP, LEVEL IV

Leader Key—Advanced Genetic Quiz

1. The owner of sheep flock A purchases a ram from flock B that has an average daily gain of 1.3 lbs per day. He also purchases a ram from flock C with an average daily gain of 1.1 lbs per day. He randomly mates each of these rams to 1/2 of his ewes. To his surprise, the lambs sired by ram C have a higher average daily gain than the lambs sired by ram B. What possible explanations can you give for this unexpected result?

- **Average daily gain is a quantitative trait (affected by many loci)**
- **Average daily gain is greatly influenced by environment**
- **Average daily gain is continuous and thus can be expressed in a wide range**

2. Traits where one genotype is expressed differently between the sexes are known as sex influenced traits. Some traits, such as scrotal circumference, are only expressed by one sex. They are called sex limited traits. Traits inherited by genes on the sex chromosomes are called sex-linked traits.

3. Describe the differences between qualitative and quantitative traits.

Qualitative • **traits controlled by a few alleles at few or one loci**

- **highly heritable**

Quantitative • **controlled by many alleles at many loci**

- **small effect by any single gene**

- **greatly affected by environment**

- **may have expanded range of expression**

4. Define heritability:

- **that portion of variation due to additive gene action**

5. Frame size (height) and fleece grade have a negative genetic correlation. If you select for larger sheep (size as your only selection criteria), you will tend to: (circle one)

a) improve the fleece quality of your flock somewhat

b) have no effect on the fleece quality of your flock

c) reduce the fleece quality of your flock somewhat



Genetic Defects

Sheep, Level IV

What Members Will Learn . . .

ABOUT THE PROJECT:

- How to test for genetic defect carriers
- Common genetic defects in sheep

ABOUT THEMSELVES:

- Basic traits they have inherited

Materials Needed:

- Activity Sheet #12, “Defect Quiz”
- Leader Key—Defect Quiz
- Flip chart and markers

ACTIVITY TIME NEEDED: 60 MINUTES

ACTIVITY

A defect may be defined as any characteristic which reduces the possibility of survival or impairs the producing ability of the individual. We think of lethal defects as those that cause death, and sub-lethal as those that greatly impair the chance of survival. Some producers also consider any trait that greatly reduces the economic value of a sheep to be a defect. Serious hereditary defects are normally of low incidence in most flocks as the affected individuals will likely not live long enough to reproduce. Many defects are inherited as recessives. Because of this, the gene responsible for the defect remains hidden within the “normal” flock and the defect persists at a very low incidence for an indefinite period of time.

Since most defects are inherited as recessives, by culling affected individuals, you are placing selection pressure against the defect. However, theoretically, you will never eliminate it as carriers will persist. A carrier is an individual that is heterozygous for the gene that causes the defect. Carriers appear normal, but will pass on the gene responsible for the defect to half its offspring.

Some defects, such as pigmented fleece cause only a limited economic loss and are not lethal; therefore, producers can tolerate it at low incidence. If the defect causes loss of life or seriously reduces the value of the affected lamb, producers should try to eliminate it from their flock. If a defect is inherited as a simple recessive, then the affected individual is homozygous for the defective gene. We learned in a previous lesson that a lamb gets one set of chromosomes from each of its parents. Therefore, we

Leader Notes

Due to the nature of this lesson, it is recommended that the lesson on basic genetic concepts be taught first.

Begin by having members share experiences they have had with genetic defects. Observe defects via pictures or live animals if possible.

List types of defects and define.

List and illustrate a carrier.

Leader Notes

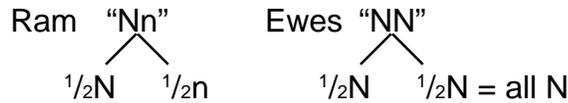
ACTIVITY

Be sure to point out that Spider Syndrome Dwarfism and Cryptorchidism are simple recessive examples.

Illustrate all examples on flip chart.

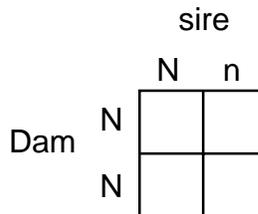
can conclude that both parents of an affected lamb are carriers. If pedigree information is available, culling the affected lamb and both its parents will greatly reduce the occurrence of the gene. In some cases, entire bloodlines (known to carry a defect gene) may be eliminated from the flock.

Let's look at how a genetic defect may enter an otherwise defect-free flock. If none of the ewes in the flock are carriers, they would all have the genotype "NN" (we'll use capital N to represent the normal gene and lower case n to represent the defective gene). The producer purchases a ram that looks normal, but is actually a carrier. In the case of simple recessives (complete dominance), the heterozygous individual (carrier), with the genotype "Nn", is physically indistinguishable from the homozygous dominant ("NN") sheep. The ram passes half of his genetics to each lamb.

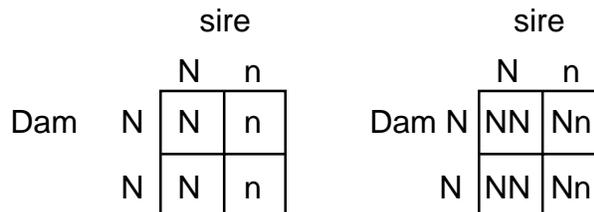


The diagram illustrates that $\frac{1}{2}$ the offspring will have the genotype "NN" and the other half will be "Nn". All will appear normal, as none are homozygous recessive. A homozygous recessive lamb "nn" is not possible as none of the ewes are carriers, and they must pass on only the "N" gene.

We can set up a punnet square to further illustrate the possible genotypes of the offspring. Put the sire genotype on top of the square and the female genotype on the left side of the square.



Fill down the rams genes, then fill across the genes of the ewes.



There are 4 possible ways for the genes to combine, half result in "NN" and half in "Nn". None are "nn", so all offspring appear normal.

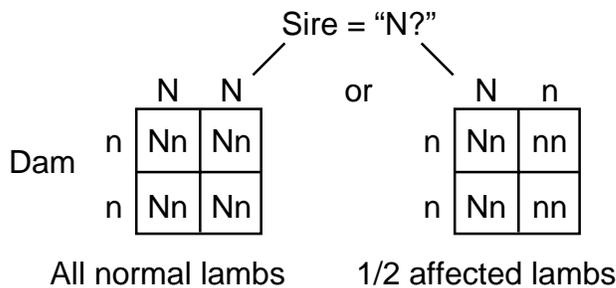
In cases like this, the producer may not realize the defect has entered his flock for 2 or 3 years after he/she purchased the initial carrier. Only if the daughters of the carrier are mated to another carrier or their sire might the defect show up.

ACTIVITY

Leader Notes

If a ram and a ewe produce a normal offspring, you can't be sure that one or both of them is not a carrier. However, if any ram or ewe produces a defective (recessive inherited) offspring, you can be positive that it is a carrier.

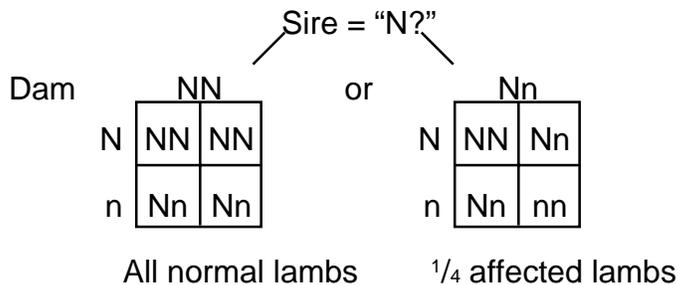
Many producers find it desirable to conduct a progeny test to see if a prospective sire carries a recessive defect. The simplest way to do this is to mate the ram whose genotype is unknown "N?" to actual affected ewes "nn". Since the ewes can only pass on the defective "n" gene, if the ram is a carrier "Nn" some of the offspring should exhibit the defect. Since the ram appears normal we know that he must have at least one "N" gene. The other could be either "N" or "n". We can set up the punnet square to look at the possibilities.



Show illustrations on flip chart.

If the ram is not a carrier, all the lambs will appear normal. If the ram is a carrier, some of the lambs will exhibit the defect. If the ram produces at least 5 or 6 normal lambs and no defective lambs, we can be 95% confident that he is not a carrier.

In the case of many defects, actual homozygous recessive individuals are not available for breeding. We can use ewes that are known carriers (appear normal, but have produced at least one defective offspring in the past). Since we know that carriers have the genotype "Nn", we can set up the punnet square to once again look at the possibilities.



Show illustrations on flip chart.

Once again, it only takes one affected lamb to indicate the sire is a carrier. However, it takes more normal offspring (11) to be 95% confident that the ram is not a carrier.

Progeny tests can also be conducted by mating the sire in question to ewes that have a known carrier somewhere in their pedigree, or to the rams own daughters. However, it takes even more normal offspring to be confident that the ram isn't a carrier.

Leader Notes**ACTIVITY**

Now that we know a little about defects and how to get rid of them, let's look at some examples of defects.

List symptoms of spider syndrome.

Spider syndrome: A recently identified, and serious defect is known as spider syndrome. It is often lethal, although some can be kept alive through intensive care. It is also inherited by recessive gene action. The condition involves abnormalities of the musculo-skeletal system, which become evident shortly after birth. Symptoms include extreme height, fineness of bone, lack of muscling and bent leg deformities which give rise to the spider-like appearance. Spider lambs may also have a malformed sternum, crooked spine and an arched or crooked nose. All carriers should be culled, or at the very least only mated to non-carriers with all the offspring being slaughtered. Spider syndrome is generally associated with Suffolks; however, it has been found in other breeds as well. This defect is very costly and seems to be increasing in frequency.

Diagram the two most common jaw defects.

Jaw defects: Jaw defects (failure of the incisors to meet the dental pad properly) are found in all breeds of sheep. Monkey mouth (lower jaw extends past the upper jaw) and parrot mouth (upper jaw extends past the lower jaw) are two common types. The degree of severity varies, but it seems to cause the most problems to grazing sheep. The mode of inheritance is not entirely known. Although it is definitely undesirable, culling may only be necessary in extreme cases.

List major causes other than genetics.

Rectal prolapse: Although rectal prolapse is largely due to environmental factors, genetics also play a role. Most affected individuals do not survive or are slaughtered. If certain bloodlines (or sires) produce a higher incidence of affected offspring, the producer should consider culling them. Heavy feeding, dusty conditions (which lead to coughing) and extremely short docking may have more to do with rectal prolapses than genetics.

Entropion (inverted eye lid): Entropion is widespread and affects many breeds. The mode of inheritance is unknown and believed to be very complex. It does appear to be highly heritable. The condition is easy to treat, and generally doesn't cause much economic loss. However, affected individuals should not be retained for breeding. If untreated, the inverted eye lid causes extreme irritation to the eye.

Cryptorchidism: One or both of the testes may fail to descend into the scrotum and be retained in the abdomen. The high temperature of the body cavity usually causes cryptorchids to be infertile. The condition appears to be inherited as a simple recessive. Rams with one or both testes held in the body cavity should not be used or sold as breeding rams.

Dwarfism: Genetic dwarfs have occurred in many species of livestock. It is generally considered a simple recessive, sub-lethal defect. Dwarf lambs are characterized by shortened long bones due to the premature ossification of the epiphyseal plate. With the selection for larger framed sheep, this defect has decreased in recent years.

ACTIVITY

Leader Notes

Horns or scurs: Horns are not considered a defect but may cause economic loss or injury to other sheep or people. However, some breeds are supposed to be completely polled. The expression of the trait is different between the sexes and also different between breeds.

Color: The inheritance of color is complex and commercially may not be considered a defect. In some breeds, the presence or absence of certain colors on the legs, ears or face may be a defect if it renders the individual ineligible for registration or reduces the value of the sheep. Colored wool or the presence of colored fibers (black fibers) within the white wool can reduce the value of the fleece. Sheep with a large portion of colored wool should be culled.

Skin folds (wrinkles): Wrinkles reduce eye appeal and make shearing more difficult, but otherwise don't result in major losses. Skin folds appear to be highly heritable. This is most prevalent in wool-producing breeds.

Belly wool: Many fine wool breeds can have a problem with belly wool (which is less desirable) growing up the sides of the sheep, reducing the overall fleece value. Animals with excessive belly wool should be discriminated against.

DIALOGUE FOR CRITICAL THINKING:

Share:

1. What is the hardest part to understand about genetic defects?
2. Have you ever seen some of these defects? Which ones?

Process:

3. Why is it important to know if a lamb is homozygous or heterozygous?
4. Why might a producer not know that a certain defect is not in his flock for 2 or 3 years?
5. Why is it important to recognize how genetic defects are inherited?

Generalize:

6. What are some common inherited traits in other animals? Do they have a positive or negative impact?
7. What basic traits did you inherit?

Apply:

8. How will this understanding of genetics be useful to you in the future?

GOING FURTHER:

- Invite a purebred breeder to discuss bloodlines that have produced spider syndrome.

Use the Activity Sheet #12, "Defect Quiz," as a review or it could be used as a pre- and post- test.

Leader Notes

ACTIVITY

REFERENCES:

Author:

Jeremy Geske, Former Extension Assistant, Kansas State University
James P. Adams, Extension Specialist, 4-H and Youth Programs, Kansas
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Reviewed by:

Clifford Spaeth, Extension Specialist, Animal Sciences and Industry,
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Sheep Design Team

GENETIC DEFECTS

SHEEP, LEVEL IV

Activity Sheet 12, Defect Quiz

You just purchased a Suffolk ram, and you want to make sure he is not a carrier of spider syndrome. If you mated him to known carrier ewes, and produced 11 normal lambs and no spider lambs, how confident could you be that the ram is not a carrier? ____%

If you got instead, ten normal lambs and one spider lamb, what are the chances that the ram is a carrier? ____%

If you didn't have any known carriers available, what two other ways could you test the ram?

Why is it difficult to completely eliminate defects that are inherited as simple recessives?

Spider syndrome is inherited as a simple recessive. If a spider lamb is born in your flock, which of the following statements are definitely true (T), might be true (M), or must be false (F).

- T M F The lamb's sire is a carrier.
- T M F The lamb's dam is a carrier.
- T M F All four of the lambs grandparents are carriers.
- T M F The lamb is a Suffolk.
- T M F The lamb is heterozygous for the gene causing spider syndrome.
- T M F At least two of the lambs grandparents were carriers.
- T M F Three of the lambs grandparents were not carriers.
- T M F The lamb should not be used for breeding.
- T M F The lamb's twin is not a carrier.

GENETIC DEFECTS**SHEEP, LEVEL IV****Leader Key—Defect Quiz**

You just purchased a Suffolk ram, and you want to make sure he is not a carrier of spider syndrome. If you mated him to known carrier ewes, and produced 11 normal lambs and no spider lambs, how confident could you be that the ram is not a carrier? 95 %

If you got instead, ten normal lambs and one spider lamb, what are the chances that the ram is a carrier? 100 %

If you didn't have any known carriers available, what two other ways could you test the ram?

Mate to ewes with spider producer in pedigree

Mate to daughters

Why is it difficult to completely eliminate defects that are inherited as simple recessives?

Because carriers appear normal but will pass on gene to half of their offspring

Spider syndrome is inherited as a simple recessive. If a spider lamb is born in your flock, which of the following statements are definitely true (T), might be true (M), or must be false (F).

- T M F The lamb's sire is a carrier.
- T M F The lamb's dam is a carrier.
- T M F All four of the lambs grandparents are carriers.
- T M F The lamb is a Suffolk.
- T M F The lamb is heterozygous for the gene causing spider syndrome.
- T M F At least two of the lambs grandparents were carriers.
- T M F Three of the lambs grandparents were not carriers.
- T M F The lamb should not be used for breeding.
- T M F The lamb's twin is not a carrier.



Methods of Genetic Evaluation

Sheep, Level IV

What Members Will Learn . . .

ABOUT THE PROJECT:

- The value of a contemporary group
- How to calculate estimated breeding values (EBV's)
- How to calculate expected progeny differences (EPD's)

ABOUT THEMSELVES:

- Importance of genetics in their lives
- Value of computers in predicting or projecting future possibilities

Materials Needed:

- Activity Sheet #13, Genetic Worksheet
- Leader Key—Activity Sheet #13, Genetic Worksheet
- Flip chart and markers

ACTIVITY TIME NEEDED: 60 MINUTES

ACTIVITY

As we discussed in an earlier lesson, a lamb's phenotype (outward appearance) is partly due to genetics and partly due to environment. Environment is not passed from parent to offspring but genes are. Therefore, when we select rams and ewes for breeding stock, we would prefer those with the best genetics. In order to accomplish this, we need to separate the genetic affects from the environmental affects.

The first steps in any type of genetic evaluation program are establishing an identification system, and keeping records of the important traits. Both have been discussed in prior lessons.

Some environmental factors, such as birth/rearing type (single, twin, triplet) are known and can be accounted for using adjustment factors. However, factors such as health, weather and management may affect performance but can not be easily accounted for. These may be referred to as unknown sources of environmental variation. The best way to account for these effects is to establish contemporary groups. A contemporary group is defined as a uniformly managed group of animals of similar breed composition, age and sex. An example might be Hampshire ram lambs from the same flock, born in January, weaned at the same time and fed the same ration after weaning. Animals within a contemporary group are exposed to the same environmental effects of management, weather and health.

Leader Notes

Create a chart with columns for genetic and environmentally influenced factors that affect flock performance. Solicit responses from the group.

Define contemporary group and discuss its use.

Leader Notes

Explain deviation and ratio. Show examples on flip chart.

ACTIVITY

Comparisons within a contemporary group are made using deviations and ratios. A deviation is simply the difference between an animal's performance and the average performance of the contemporary group. A ratio can be assigned by dividing the individual performance by the group average and multiplying by 100. The average ratio is always 100 and any individual with a ratio of over 100 is above average. For example, consider a Dorset ewe lamb that gains 1.0 lbs/day while her contemporary group averaged .7 lbs/day gain. Her deviation would be +.3 lbs/day (1.0 - .7) and her ratio would be (1.0 divided by .7 multiplied by 100) 143. She gained 43% faster than the average of her contemporaries. When all the lambs are assigned a ratio, it is easy to rank them in order, which might aid in selection.

Estimated breeding values (EBVs) are the result of applying genetic theory and statistics to performance records. Several methods can be used depending on the number of records available. In the simplest case, a breeding value is simply the deviation multiplied by a weighting factor, such as heritability.

In the equation, $EBV = b(P-p)$, estimated breeding value equals the weighting factor multiplied by the difference between individual performance and contemporary group average performance.

Show this example on flip chart.

Let's look at an example. A Rambouillet ram has a grease fleece weight of sixteen pounds while his contemporaries average thirteen pounds. The heritability of grease fleece weight is .40. This ram has a BV for grease fleece weight of $.4(16-13) = +1.2$ pounds. This means he is predicted to have the genetics for 1.2 pounds more grease fleece weight than the average of his contemporaries. If more information is available on ancestors, siblings and offspring, the formula can be extended to include all the information and derive a more accurate prediction. For highly heritable traits, individual performance may be a strong indicator of genetic worth. If the trait is low in heritability, individual performance may not be a good indicator of genetic value.

Breeding values and ratios should only be used to compare lambs from the same contemporary group. A ratio from one group has little meaning in another group as the environmental effects may have been drastically different. Fortunately, much selection of breeding stock (especially replacement ewe lambs) is done within the flock. However, many producers must purchase rams. They select from several flocks (contemporary groups). In this case, we must rely more on individual performance and phenotype.

Since we are often more interested in a sheep's progeny (offspring) than the individual itself, we would like to predict the performance of the prospective ram's (or ewe's) lambs. Each parent transmits half of its genetic material to the offspring. Therefore, we can calculate a flock expected progeny difference (EPD) by dividing the breeding value by

ACTIVITY

two. The average flock EPD is zero and EPDs are generally expressed as deviations from that average. If ram A has an EPD for 90-day weaning weight of +4.3, you would expect his lambs to average 4.3 pounds heavier at weaning than the average of the flock. If ram B has a 90-day weaning weight EPD of +5.0 lbs, you could expect his lambs to average 0.7 lbs heavier at weaning than the lambs from ram A.

At this time, sheep EPDs are useful for within flock comparisons only. In order for comparisons to be accurate between flocks or contemporary groups, there must be related individuals in each group. If artificial insemination becomes more popular, some rams may be used as sires in multiple flocks providing the basis for breed EPDs instead of just flock EPDs. As of 1999, the Suffolk, Polypay, and Targhee breeds are attempting to calculate breed EPDs.

When little information is available, the accuracy of values such as EPDs is low. When more information is available (ancestors, siblings and especially offspring) the values become more accurate.

Also, these values are useful when comparing sheep based on one trait. In reality, we select breeding sheep on their merit in several areas. There are various methods of establishing a selection index or system which assigns weighted values to traits so that multiple trait selection can be practiced. These weighing values are difficult to figure because the relative value of any one trait may change from year to year, or even within a year.

DIALOGUE FOR CRITICAL THINKING:**Share:**

1. Which was most difficult to calculate, EBV's or EPD's? Why?
2. Have you used either of these values before? When? Where?

Process:

3. What is the significance of an EBV?
4. How can you use an EPD?

Generalize:

5. What other tools can you use to estimate performance?
6. How might genetic information benefit you personally?

Apply:

7. How might you use computers to assist with genetic predictions?

GOING FURTHER:

- Ask a producer that uses EBVs and EPDs to share their value for flock improvement.

Leader Notes

Show example on flip chart.

Use the Activity Sheet #13, "Genetic Worksheet," as an application quiz or skillathon for member pairs. Remind members to include all Activity Sheets as part of their records.

Leader Notes

ACTIVITY

REFERENCES:

SID Sheep Production Handbook

Author:

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METHODS OF GENETIC EVALUATION
SHEEP, LEVEL IV

Activity Sheet #13, Genetic Worksheet

Shepherd Monty Dale raised five ram lambs this year. His most important selection criteria is 120-day weight which has a heritability of .30. According to his record book, here are the 120-day weights of his ram lambs:

A = 113, B = 143, C = 125, D = 120, and E = 131

What is the deviation for 120-day weight of ram A? _____

of ram E? _____

Calculate 120-day weight ratios for each of the rams.

A = _____

B = _____

C = _____

D = _____

E = _____

What is the deviation for 120-day weight of ram C? _____

of ram D? _____

The 120-day weight EPD of ram B is _____ and of ram E is _____. In terms of weight of offspring, how would you explain to Monty why he should use ram B instead of ram E as a sire?

METHODS OF GENETIC EVALUATION**SHEEP, LEVEL IV****Leader Key—Activity Sheet #13, Genetic Worksheet**

Shepherd Monty Dale raised five ram lambs this year. His most important selection criteria is 120-day weight which has a heritability of .30. According to his record book, here are the 120-day weights of his ram lambs:

A = 113, B = 143, C = 125, D = 120, and E = 131

What is the deviation for 120-day weight of ram A? -13.4

of ram E? +4.6

Calculate 120-day weight ratios for each of the rams.

A = 89

B = 113

C = 99

D = 95

E = 104

What is the deviation for 120-day weight of ram C? -42 lbs.

of ram D? -1.92 lbs.

The 120-day weight EPD of ram B is 2.49 and of ram E is .69. In terms of weight of offspring, how would you explain to Monty why he should use ram B instead of ram E as a sire?



Specialized Marketing

Sheep, Level IV

What Members Will Learn . . .

ABOUT THE PROJECT:

- Specialty markets for milk and wool

ABOUT THEMSELVES:

- Their interest in pursuing the unusual

Materials Needed:

- Flip chart and markers

ACTIVITY TIME NEEDED: 30 MINUTES

ACTIVITY

Leader Notes

The majority of US commercial sheep producers raise sheep for the production of meat and/or wool. However, these are not the only valuable products we can get from sheep. In some areas of the country, there are small, specialized markets for sheep products that would otherwise have low value. Utilizing these alternative markets can be very profitable to the resourceful sheep producer.

One such product is milk. All sheep give milk; however, there are some breeds, such as the Friesian, whose only purpose is milk production. Some people are allergic to cows' milk and must consume milk from goats or sheep. Sheep milk can also be used for making certain cheeses. In a dairy sheep operation, lambs are bottle fed and put on creep feed; ewes are then milked. As with any dairy operation, sanitation and health are of utmost importance. Generally, a producer will set up a contract with a buyer to produce so many pounds of milk before he/she starts the dairy sheep operation. It would be extremely unwise to go through the time and expense of starting a sheep dairy without first identifying a demand for the product and finding a buyer. Under the right circumstances and with some knowledge of the dairy industry, milking sheep can be a profitable enterprise.

In other lessons, we talked about the value of wool, and the characteristics that determine fleece quality. We generally think of fine, dense fleeces that are free from colored fibers and debris as being the most valuable. There are many breeds of sheep with long, coarse wool, as well as many breeds with colored fibers present in their fleeces. The resourceful producer may be able to receive more for these otherwise commercially low valued (since colored fibers don't take dye well) fleeces by marketing

Have members brainstorm and list specialty markets for sheep products. Have members research their favorite specialty market and report back to the group.

Leader Notes**ACTIVITY**

them to hand spinners. A recent popularity surge in hand spinning has increased the demand for naturally colored fleeces. Natural colored fleeces come in various shades or combinations of black, brown, grey, red, tan and white. If you own some colored sheep, you may avoid the low commercial fleece prices by marketing the colored fleeces to hand spinners. Hand spinners often advertise in breed or industry magazines and publications.

Even though the handcraft industry is growing, it is still relatively small in size and cannot utilize all the colored wool produced in the US. A substantial quantity must be sold commercially at a lower price than white wool. With the exception of color, the factors that determine the value of a fleece for hand spinning are similar to the factors that determine commercial fleece value. Individual hand spinners may prefer different shades. Hand spinners generally prefer coarser fleeces; however, uniformity is more important than actual grade. Once again, before you decide to raise a bunch of natural colored sheep, it would be wise to establish a market first.

DIALOGUE FOR CRITICAL THINKING:**Share:**

1. What sheep specialty markets have you heard about?
2. What sheep specialty market would you like to know more about? Why?

PROCESS:

3. What is the value of a sheep dairy?
4. Why do you think milking sheep would be better than milking goats or cows?

GENERALIZE:

5. What do you have to know about the market and yourself before planning a special market enterprise?

Apply:

6. What criteria should you use to determine the future of a special commodity market?

GOING FURTHER:

- Research a specialty market and report it to your group.
- Invite a specialty market person to share with your group.

REFERENCES:

SID Sheep Production Handbook

Author:

Jeremey Geske, Former Extension Assistant, Kansas State University

ACTIVITY

Leader Notes

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