

Lesson B2–4

Exploring the Sheep and Goat Industry

Unit B. Animal Science and the Industry

Problem Area 2. Identifying and Understanding the Segments of the Animal Science Industry

Lesson 4. Exploring the Sheep and Goat Industry

New Mexico Content Standard:

Pathway Strand: Animal Systems

Standard: I: Apply knowledge of anatomy and physiology to produce and/or manage animals in a domesticated or natural environment.

Benchmark: I-A. Use classification systems to explain basic functions of animal anatomy and physiology.

Performance Standard: 1. Describe functional difference in animal structures and body systems. 2. Classify animals according to anatomy and physiology.

Student Learning Objectives. Instruction in this lesson should result in students achieving the following objectives:

1. Discuss terminology associated with sheep and goat production.
2. Describe sheep and goats as organisms and compare them externally.
3. Identify common breeds of sheep and goats.
4. Explain methods of producing sheep and goats.
5. List favorable and unfavorable production factors.

List of Resources. The following resources may be useful in teaching this lesson:

Ensminger, M. E., *The Stockman's Handbook*. Danville, Illinois: Interstate Publishers, Inc. 1992

Lee, Jasper S. *Introduction to Livestock and Companion Animals 2nd Edition*. Danville, Illinois: Interstate Publishers, Inc. 2000 (Textbook and Activity Manual Chapter 9)

Ensminger, M. E., *Animal Science*. Danville, Illinois: Interstate Publishers, Inc. 1991

Recommended Resources. One of the following resources should be selected to accompany the lesson:

Cooper, Elmer L., Burton, DeVere L., *Agriscience Fundamentals and Applications*. Albany, New York: Delmar. 2002 (Textbook Unit 30)

Other Resources. The following resources will be useful to students and teachers:

Internet keywords: goat, sheep, lambing, wool, flock

List of Equipment, Tools, Supplies, and Facilities

Writing surface

Overhead projector

Transparencies from attached masters

Copies of student lab sheet

Terms. The following terms are presented in this lesson (shown in bold italics):

Buck

Cashmere

Chammy

Confinement

Doe

Ewe

Kid

Kidding

Lamb

Lambing

Mohair

Mutton

Ram

Wether
Wool
Yearling

Interest Approach. Use an interest approach that will prepare the students for the lesson. Teachers often develop approaches for their unique class and student situations. A possible approach is included here.

Ask the students to come up with as many products as possible that are made with sheep and goats. Write the examples on the board. Encourage students to come up with meat, milk, chammy, clothing, and other items.

Summary of Content and Teaching Strategies

Objective I: Discuss terminology associated with sheep and goat production.

Anticipated Problem: What are some specific terms used to describe sheep and goat production?

- I. The following are terms used to identify sheep and goats:
 - A. A **doe** is a female goat at any age.
 - B. A **buck** is a male goat at any age.
 - C. A **kid** is a goat of either sex under one year of age.
 - D. A **yearling** is a goat of either sex over one year, but under two years of age.
 - E. A **wether** is a male goat or sheep that was castrated when it was young.
 - F. A **ram** is a male sheep that is used for breeding purposes.
 - G. A **ewe** is the term to describe a female sheep.
 - H. **Kidding** is the process of a goat giving birth.
 - I. **Lambing** is the process of a sheep giving birth.
 - J. A **lamb** is a sheep under one year old and also the term for meat from a young sheep.
 - K. **Mutton** is meat from a sheep that is over one year old.
 - L. **Chammy** is leather made from sheep and goats.
 - M. **Wool** is a sheep's coat that is used as a fiber for products such as clothing.

Objective 2: Describe sheep and goats as organisms and compare them externally.

Anticipated Problem: What are some comparisons between sheep and goats?

- II. There are many similarities and many differences between sheep and goats. They are both mammals that have ruminant digestive systems and have divided hoofs. Both are important to the economy, but in the U.S., sheep are currently much more important.
 - A. Sheep are raised for food and clothing. There are over 7.8 million sheep in the U.S. that provide an average of 1.7 pounds of meat and 0.8 pounds of wool per person. Sheep are often used in areas where no other animal could be raised because of the climate and minimal feed availability. Sheep are also very efficient at converting feed to meat compared to other domesticated animals. They prefer to graze on broadleaf plants and grasses. Compared to other animal raising options, such as hogs and beef, sheep are found in much smaller numbers. In other countries, sheep consumption is greater than it is in the U.S. The top producers of sheep are New Zealand and Australia because of a greater demand and favorable conditions. Sheep range from 100 to over 225 pounds at maturity and live from 7 to 13 years. There are several types and breeds used for meat, wool, or both.
 - B. Goats are raised for food and clothing. Their use dates back to between 7000 and 3000 B.C. and mohair use is even mentioned in the Bible. **Mohair** is hair taken from angora goats and is used to make a wooly fabric. Compared to other animals goats are of low importance economically in the U.S. Since they prefer to eat twigs and leaves, goats provide little competition for feed needed for cattle and sheep and therefore can be pastured together with sheep. Goats are small animals that are easy to handle. They are from 20 pounds to 150 pounds and from 1.5 feet to over 4 feet tall at maturity. Their life expectancy is from 8 to 10 years. The U.S. provides almost 60 percent of the world's mohair needs and Texas produces 95 percent of the 17 million pounds of total mohair production.
 - C. There are many external parts of sheep and goats to know in order to discuss or raise them.

Use TM: B2–4B to identify major external parts of sheep and goats.

Objective 3: Identify common breeds of sheep and goats.

Anticipated Problem: What are common breeds of sheep and goats?

- III. There are over 200 breeds of sheep and 300 breeds of domestic goats. Selection of a specific breed to raise depends on your personal needs and goals. All animals should come from a reputable producer and be free of diseases. The following are examples of the most commonly used breeds of sheep and goats.
 - A. The most popular breed of sheep is the Suffolk. This medium-wool breed originated in England and was imported to the U.S. starting in 1888. The body of the Suffolk is large

and the head, legs, and ears are black. The breed is polled and shears a fleece of 8 to 10 pounds. The crop of lambs is usually 150 percent or better because of twins. Production of market lambs is very common among Suffolk owners.

- B. The Dorset is a sheep breed that originated in England and was imported to the U.S. in 1887.

This medium-wool breed can be polled or horned and are completely white. The Dorset is medium sized and produces a 7 to 8 pound fleece. Ewes breed out of season so fall lambs are produced and they have muscular carcasses and are good milk producers.

- C. The Hampshire originated in England and was imported to the U.S. before 1840. They are large polled sheep with dark brown or black faces, noses, ears, and legs. These early maturing sheep are good milkers and produce fleece between 7 and 8 pounds.
- D. The Oxford sheep breed is a medium-wool breed that originated in England and was imported to the U.S. around 1846. This breed is very large, polled, and the face, ears, and legs are gray to brownish. The fleece is heavy weighing in between 10 and 12 pounds. The lambs grow quickly and the breed is used in crossbreeding programs because of their size.
- E. The Angora goat originated in Turkey and is well adapted to areas not fit for other livestock. Angoras are almost totally white at maturity and produce up to 7 pounds of mohair each year. Angora goats are horned with long droopy ears. At maturity bucks weigh between 125 and 175 pounds and does weigh between 80 and 90 pounds.
- F. Dairy goats can produce 5 pounds of milk per day and supply 1.8 percent of the milk supply in the world. Goat's milk has more minerals than cows' milk and is easier to digest by small children and elderly people. The most common breeds raised in the U.S. in order of their popularity are the French Alpine, LaMancha, Nubian, Saanen, and Toggenburg.
- G. Meat goats are also known as Spanish goats and are used for both milk and meat. Since they can live with very little care and survive on brush and weeds, they are sometimes called brush goats. In the U.S., the largest meat goat population is in Texas.
- H. Cashmere goats have been developed by selective breeding. **Cashmere** is the soft undercoat of fine down produced by goats. There is usually a large demand for cashmere since it is in short supply. Solid-colored goats are preferred in cashmere production, but multi-colored goats are still used too.
- I. Pygmy goats were originally exported from Africa. They are only 16 to 23 inches tall at the withers and have horns. They can be any color or combination of colors. The main uses of pygmy goats are research, pets, 4-H and FFA projects, and zoos.

Use TM: B2–4C to show pictures of various types of goats.

Objective 4: Explain methods of producing sheep and goats.

Anticipated Problem: How do you produce sheep and goats?

- IV. There are five types of sheep production systems.
- A. The farm flock method of sheep production describes the farm flocks that can have one sheep or thousands of them. The farms are located in the midwestern, eastern, and southern U.S. The purposes of farm flocks are to produce market lambs and wool.
 - B. A purebred flock is one that sells rams and ewes of an ideal type. The management requirements are high, and knowledge of genetics is helpful. Many people starting a 4-H or FFA project will go to a purebred flock for their first purchases.
 - C. The range band method of sheep production describes large bands of sheep between 1,000 and 1,500 being managed over a large area by a herder. In high vegetation areas, sheep are used for meat. In low vegetation areas, sheep are used for wool because the feed is not suitable to produce a market-quality lamb.
 - D. Some producers use confinement methods. **Confinement** means raising animals completely indoors. This method is popular because of the need for less land, fewer parasite problems, increased ability to monitor animals, and the success of raising other animals in confinement. Some disadvantages include increased building costs, higher feed costs, and increased need for intense management.
 - E. Lamb feeding production involves weaning lambs and selling them to feedlots where the lambs are fed out to slaughter weight.

Use TM: B2–4D to discuss types of sheep production systems.

Objective 5: List favorable and unfavorable production factors.

Anticipated Problem: What are some favorable and unfavorable production factors you may want to consider before starting a sheep or goat business?

- V. Even if you keep your animals clean, healthy, milked, fed, and properly managed, you may want to consider some facts that may affect your business.
- A. Price for wool changes often. Even if you are profitable today, you may not be tomorrow and vice versa. Production and consumption of wool changes constantly.
 - B. Consumption of lamb and mutton are not nearly as common as consumption of beef and pork. Many stores and restaurants don't offer sheep and goat meats.
 - C. Many things have taken the place of wool used for clothing. Cotton and other materials are used frequently and that decreases the demand for wool.
 - D. Sheep are more susceptible to certain parasites and are less resistant to some diseases than other livestock.
 - E. Out of confinement, sheep can be killed by many predators.

- F. Castrating and other health needs can be difficult because the animals have to be accessible.
- G. It may be difficult to find knowledgeable help.
- H. Sheep and goats are easily raised on rough terrain with little feed. Many acres that would normally be wasted become great habitats for sheep and goats.
- I. You can get a dual income by raising animals for both meat and wool.
- J. The return on investment is usually fast in comparison to other livestock options.
- K. Production of sheep and goats is suited for young people because the animals are easy to handle.

Use TM: B2–4E to discuss changes in world production and consumption of wool.

Review/Summary. Use the student learning objectives to summarize the lesson. Have students explain the content associated with each objective. Student responses can be used to determine which objectives need to be reviewed or retaught with a different approach. Questions provided in the recommended textbooks may also be used to help review.

Application. Application can involve student activity with the provided labs.

Evaluation. Evaluation should focus on student achievement of the objectives for each lesson. Various techniques can be used, such as performance on the application activities. A sample written test is attached.

Answers to Sample Test:

Part One: Matching

1 = g, 2 = a, 3 = f, 4 = e, 5 = b, 6 = d, 7 = c, 8 = h

Part Two: Completion

1. wether
2. ram
3. ewe
4. Kidding
5. Lamb
6. chammy

Part Three: Short Answer

Any five of the following answers:

- A. Price for wool changes often. Even if you are profitable today, you may not be tomorrow and vice versa. Production and consumption of wool changes constantly.

- B. Consumption of lamb and mutton are not nearly as common as consumption of beef and pork. Many stores and restaurants don't offer sheep and goat meats.
- C. Many things have taken the place of wool used for clothing. Cotton and other materials are used frequently and that decreases the demand for wool.
- D. Sheep are more susceptible to certain parasites and are less resistant to some diseases than other livestock.
- E. Out of confinement, sheep can be killed by many predators.
- F. Castrating and other health needs can be difficult because the animals have to be accessible.
- G. It may be difficult to find knowledgeable help.
- H. Sheep and goats are easily raised on rough terrain with little feed. Many acres that would normally be wasted become great habitats for sheep and goats.
- I. You can get a dual income by raising animals for both meat and wool.
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- K. Production of sheep and goats is suited for young people because the animals are easy to handle.

Test

Lesson B2–4: Exploring the Equine Industry

Part One: Matching

Instructions. Match the term with the correct response. Write the letter of the term by the definition.

- | | | |
|----------------|-------------|------------|
| a. Buck | b. Doe | g. Wool |
| b. Kid | e. Yearling | h. Lambing |
| c. Confinement | f. Mutton | |

- _____ 1. A sheep's coat that is used as a fiber for products such as clothing.
- _____ 2. A male goat at any age.
- _____ 3. Meat from a sheep that is over one year old.
- _____ 4. A goat of either sex over one year, but under two years of age.
- _____ 5. A goat of either sex under one year of age.
- _____ 6. A female goat at any age.
- _____ 7. Raising animals completely indoors.
- _____ 8. The process of a sheep giving birth.

Part Two: Completion

Instructions. Provide the word or words to complete the following statements.

1. A _____ is a male goat or sheep that was castrated when it was young.
2. A _____ is a male sheep that is used for breeding purposes.
3. A _____ is the term to describe a female sheep.
4. _____ is the process of a goat giving birth.
5. A _____ is a sheep under one year old and also the term for meat from a young sheep.
6. _____ is leather made from sheep and goats.

Part Three: Short Answer

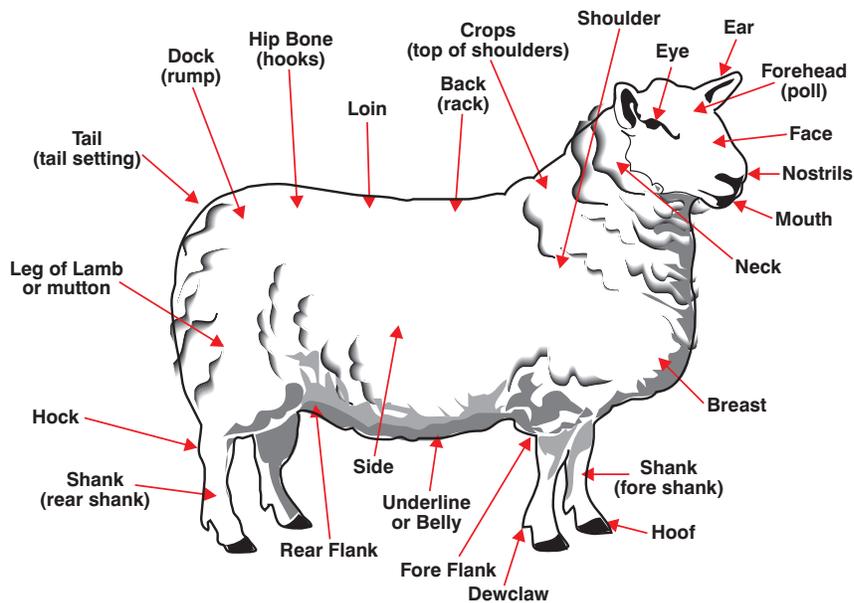
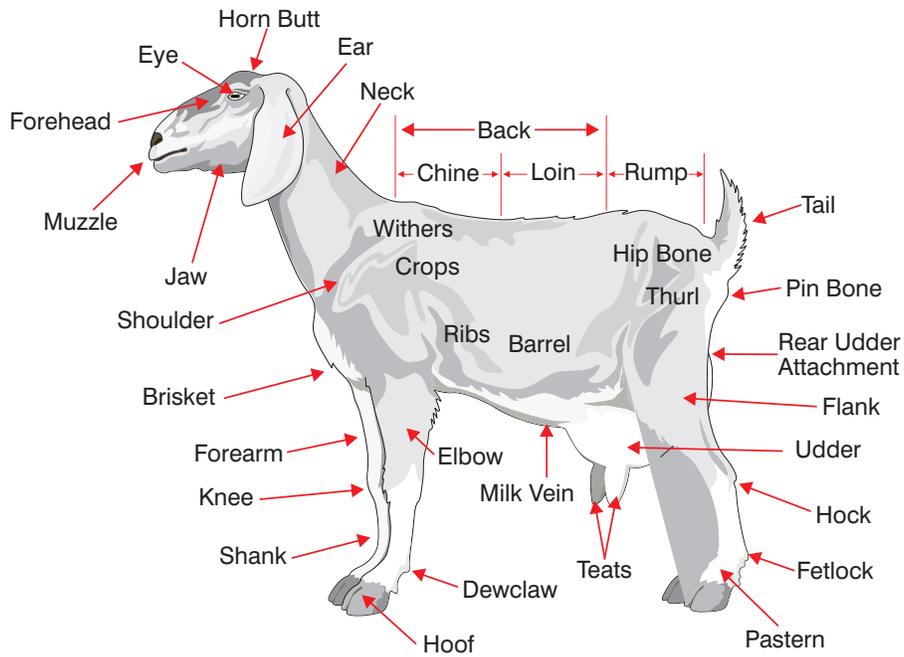
Instructions. Provide information to answer the following question.

Describe five factors that are favorable or unfavorable to sheep production.

SHEEP AND GOAT TERMINOLOGY

- **A doe is a female goat at any age.**
- **A buck is a male goat at any age.**
- **A kid is a goat of either sex under one year of age.**
- **A yearling is a goat of either sex over one year, but under two years of age.**
- **A wether is a male goat or sheep that was castrated when it was young.**
- **A ram is a male sheep that is used for breeding purposes.**
- **A ewe is the term to describe a female sheep.**
- **Kidding is the process of a goat giving birth.**
- **Lambing is the process of a sheep giving birth.**
- **A lamb is a sheep under one year old and also the term for meat from a young sheep.**
- **Mutton is meat from a sheep that is over one year old.**
- **Chammy is leather made from sheep and goats.**
- **Wool is a sheep's coat that is used as a fiber for products such as clothing.**

EXTERNAL PARTS OF GOATS AND SHEEP



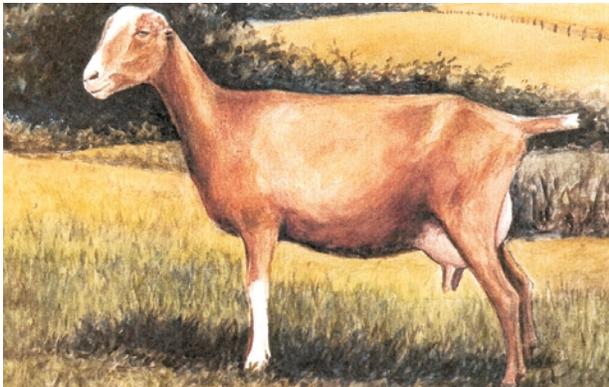
TYPES OF GOATS



Spanish



Pygmy



Lemancha



French Alpine

FIVE TYPES OF SHEEP PRODUCTION SYSTEMS

Farm Flock

Purebred Flock

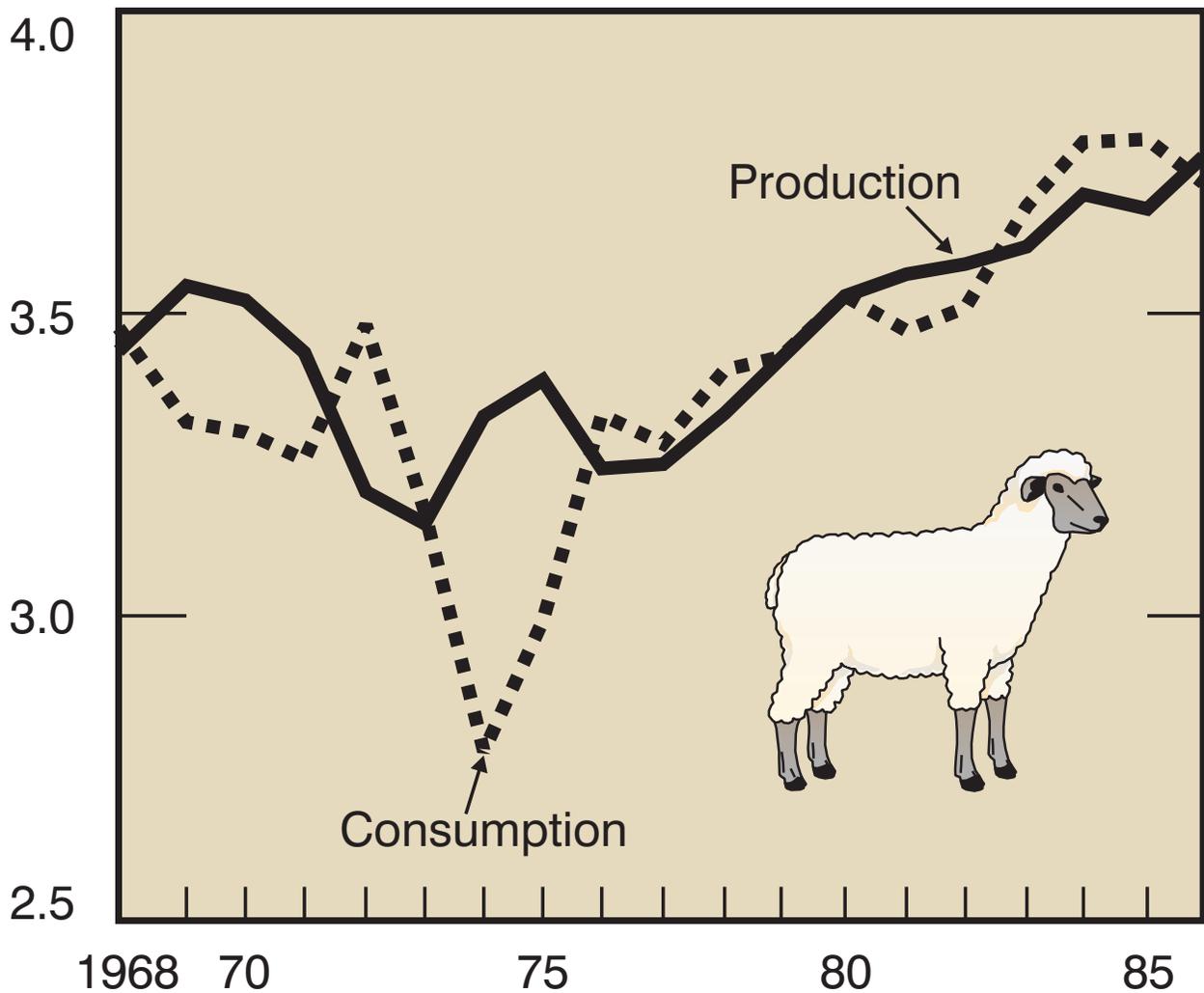
Range Band

Confinement

Lamb Feeding

WORLD PRODUCTION AND CONSUMPTION OF RAW WOOL

Billion pounds



1986 preliminary. Clean content weight. Production data on a marketing basis.

Lab Sheet

Invite a vet or sheep producer into your classroom. Have him or her bring in equipment used to treat, handle, or breed sheep and goats. Lay the equipment on tables and have students try to guess what each piece is and its use.

	Name of tool	Use of tool
1.	_____	_____
2.	_____	_____
3.	_____	_____
4.	_____	_____
5.	_____	_____
6.	_____	_____
7.	_____	_____
8.	_____	_____
9.	_____	_____
10.	_____	_____