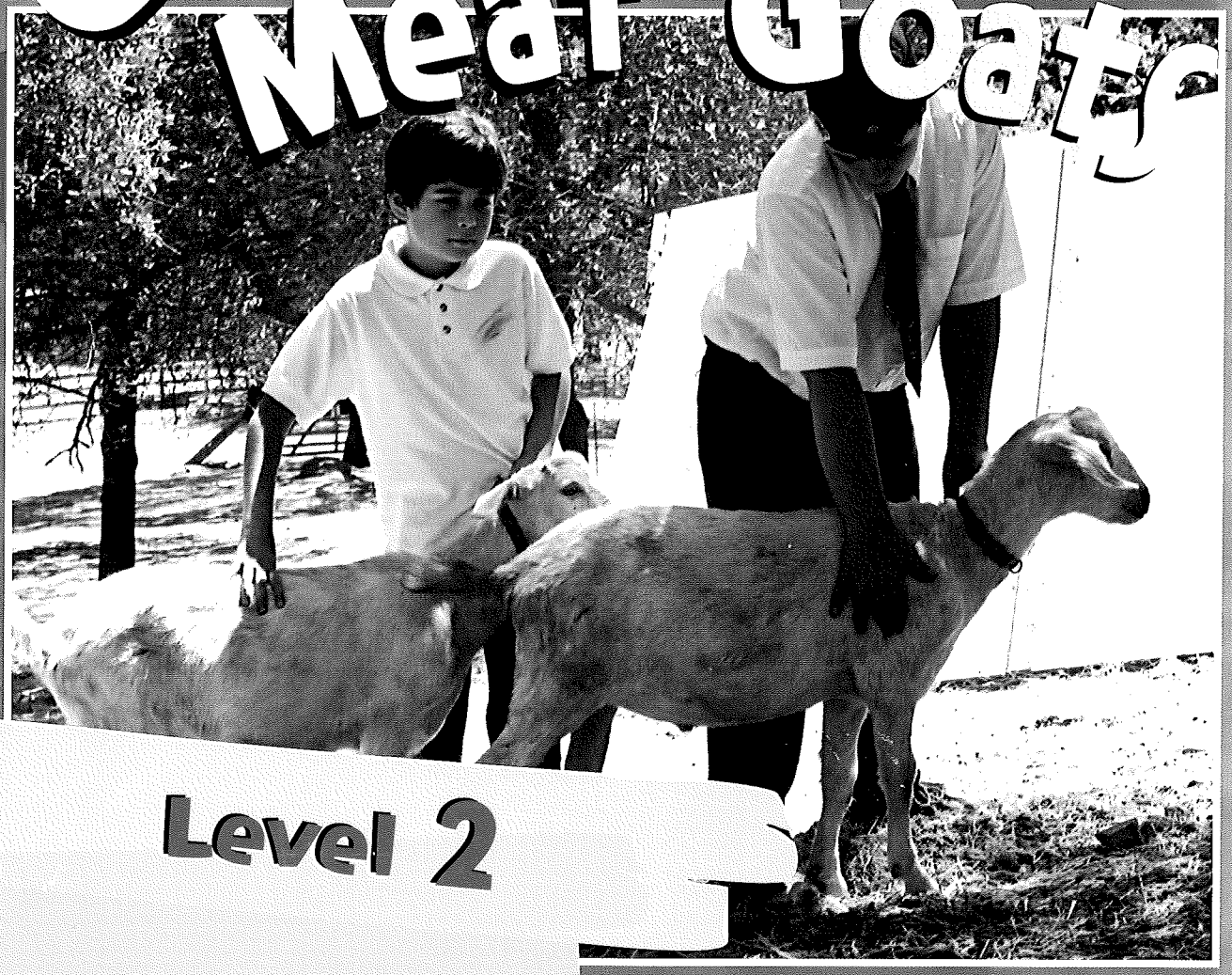
National 4-H Curriculum
BU-07910

4-H SKILLS FOR LIFE ANIMAL SERIES

Growing with Meat Goats



Level 2

Meat Goat Activity Guide

Name _____

County _____

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Note to the Helper

If you were a project helper for one or more youth involved in completing Meat Goat 1, *Just Browsing*, you know what a great experience this important role is. As a helper, you are in a perfect position to help youth grow and develop in positive ways as they learn about meat goats and about themselves. You can nurture and cultivate their interest in this project by guiding their planning, helping them carry out their projects, and recognizing them for a job well done.

Your Role

- Become familiar with the material in this activity guide and the *Meat Goat Helper's Guide*
- Support youth in their efforts to set goals and complete each Achievement Program
- Date and initial the activities on the Meat Goat Achievement Program as they are completed and the two of you discuss them
- Help youth to get to know themselves, including their strengths and weaknesses
- Encourage the use of the experiential learning cycle described on this page

The Meat Goat "Skills for Life" Series

This guide, *Growing with Meat Goats,* is the second in the series of three for youth that also includes Meat Goat 1 *Just Browsing*, Meat Goat 3 *Meating the Future* and the *Meat Goat Helper's Guide*. The three youth guides have been designed to be developmentally appropriate for grades 3–5, 6–8 and 9–12 respectively, but may be used by youth in any grade based on their project skills and expertise.

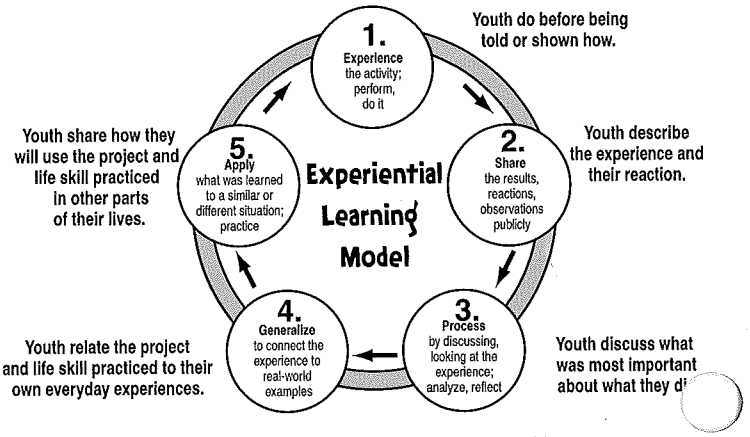
All activities in the guides have several parts: a description of the skills to be practiced; discussion questions; suggestions for additional activities; and additional helpful information. The success indicator listed for each activity is an excellent way to evaluate the youth's success. Each of the guides also includes an Achievement Program to encourage youth to learn more about goats while developing important life skills. In the *Helper's Guide* you will find another evaluation piece titled "Evaluating the Impact." Complete this before the youth begins each level and after completing each level.

Each activity is designed so the young person has an opportunity to learn by doing before being told or shown how. Your challenge is to stay in the background while the youth explores the activity and learns from the experience, even when it doesn't work the way it's expected to. You can most effectively help with the learning by listening as the young person considers the questions and draws conclusions. At times the activity may call for you to be a resource person for content or ideas.

The fourth publication in this series, *Meat Goat Helper's Guide*, provides additional learn-by-doing activities that can be adapted to the family, the classroom, after school programs, 4-H project groups, clubs or other groups. You'll also find helpful hints about characteristics of youth, life skill development, teaching experientially, meeting ideas as well answers to many of the activities in the youth guides.

Experiential Learning Model

This five-step model is included in each activity in this series:



Pfeiffer, J.W., & Jones, J.E., "Reference Guide to Handbooks and Annuals" © 1983 John Wiley & Sons, Inc. Reprinted with permission of John Wiley & Sons, Inc.

As you can see, the youth first attempt the activity without assistance. After the youth do as much as they can, you then meet together and discuss what they did, what was important about what they did, how what they did relates to their lives, and how might they use the life and project skills practiced in the future. Sample questions are included following each experience. Your ability to ask additional thought-provoking questions and to clarify and expand the youth's ideas will add to the educational experience.

Good luck in your role as Project Helper and thanks for contributing to the positive development of our youth.

Acknowledgements

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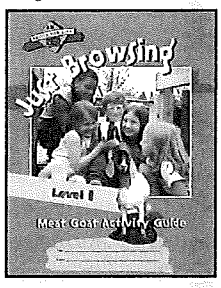
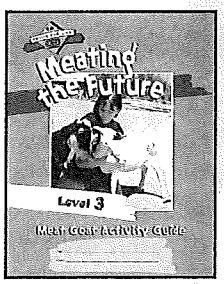
What's Inside?

For more on meat goats, look for these other guides in this set.

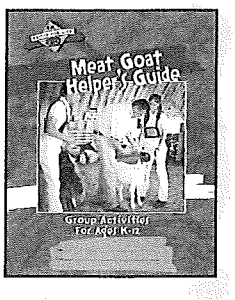
Level 1
Just Browsing



Level 3
Meating the Future



Helper's Guide



Level 2

Growing with Meat Goats

Having Fun As You Learn About Meat Goats

Let's Get Started!

This guide is an important part of the meat goat project. Meat Goat 2 offers you new challenges and opportunities to explore a wide range of activities related to goats. You'll also have fun meeting new people, becoming better acquainted with your community, and expanding your interests and goals. Like Meat Goat 1, an Achievement Program is included to guide your efforts and provide you with an opportunity to be recognized for meeting your goals. Here are some of the many activities you can choose to do:

- Select a veterinarian
- Create flashcards about goat diseases
- Learn about body condition scoring
- Inventory the types of plants on your property
- Develop a predator control program
- Determine breeding dates
- Design a manure management program
- Devise a record keeping system for kidding
- Create a Web page or poster about goat reproduction
- Fit a goat for a show
- Conduct goat meat market research
- Create a weight tape
- Construct a model of a soil profile
- Select breeding animals
- Travel with a veterinarian for a day
- Make a scrapbook of toxic plants

Meat Goat 2 Project Guidelines

- Set your goals and record project highlights.
- Do a minimum of seven activities in Level 2 of the *Growing with Meat Goats* Achievement Program each year and complete the program within three years.
- Participate in a minimum of three learning experiences listed on the planning guide each year.
- Practice and develop the life skills of keeping records, making decisions, self responsibility, marketable skills, and others.
- Increase your goat knowledge and skills.

Achievement Program

While you are having fun doing the activities, you'll also be completing Level 2 of the *Growing with Meat Goats* Achievement Program. A level is included in each of the goat project activity guides. This program will help you set goals, record your successes and be recognized for your hard work.

Your Project Helper

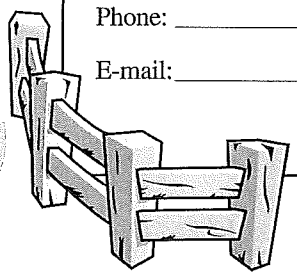
On your team supporting you and making learning more fun is your project helper. This person may be a parent, goat breeder, project leader or advisor, a neighbor, or an older friend who knows about goats. The choice is yours. As you do the activities, discuss with your helper what you did and answer the questions in the "Ruminations" part of each activity. Sometimes your helper will work with you to identify resources, including people, Internet sites, organizations, events, magazines, and books necessary to complete an activity. Once you have successfully completed each activity, your helper will date and initial your Achievement Program.

Write the name, phone number and E-mail address of your project helper here:

My Project Helper: _____

Phone: _____

E-mail: _____



Good Luck with Meat Goat 2 —

Growing with Meat Goats

Growing with Meat Goats
Planning Guide

Project Goals

Name: _____

My goat's name or number: _____

Breed: _____

What I want to do and learn in Meat Goat 2:

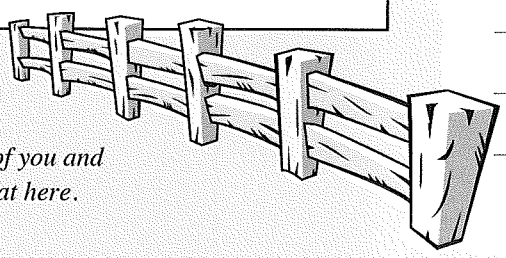
1. _____
2. _____
3. _____
4. _____

Learning Experiences

Complete at least three of these activities each year.

Year	Year	Year	Activity
			Give a demonstration or speech
			Attend three meat goat project meetings
			Help organize a meat goat show
			Recruit a meat goat project member
			Exhibit at a fair
			Participate in a meat goat judging contest
			Help conduct a meat goat skillathon
			Participate on a meat goat quiz bowl team
			Help organize a meat goat showmanship contest
			Help a younger project member
			My Choice:

Glue a picture of you and your meat goat here.



Project Highlights

Date and list the exciting things you do and learn:

_____

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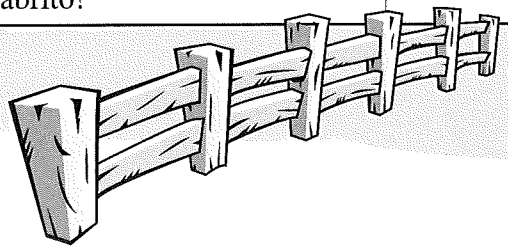
Achievement Program

Directions

1. Do at least seven of the *Growing with Meat Goats* and *Udder Ideas* activities each year.
2. Complete at least 21 of the *Growing with Meat Goats* and *Udder Ideas* activities within three years to complete this Achievement Program.
3. Have your project helper date and initial the activities as you complete them and discuss them.

Growing with Meat Goats Activities	Date completed	Helper's initials
Chapter 1 Health and Disease		
Is Your Wether Under the Weather?		
Put Your Veterinarian on Speed Dial!		
Chapter 2 Selection		
Choosing Your Genes		
Chapter 3 Feeds and Nutrition		
Mares Eat Oats and Does Eat Oats …and Sometimes Toxic Plants!		
Through Thick & Thin		
Chapter 4 Husbandry of Animals and Resources		
The Scoop on Poop		
Being Water Wise		
What You Don't Know…		
Chapter 5 Reproduction		
And…ACTION!		
The Birds and the Bees		
No Kidding Around!		
I Kid You Not		
Chapter 6 Marketing and Products		
'Round the Ring and Back Again		
Holy Cabrito!		



Udder Ideas

Select and do any of the *Udder Ideas* activities in *Growing with Meat Goats* or make up your own. Record the page and number of each one you complete and have your helper initial.

Page	#	Date completed	Helper's initials

Write your own activity here.

Date_____ Helper's initials_____

Write your own activity here.

Date_____ Helper's initials_____

CHAPTER 1

Health and Disease

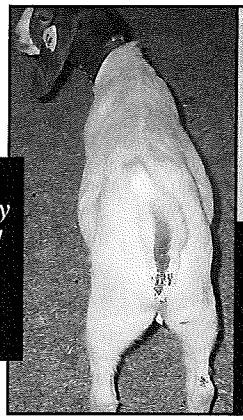
Project skill: Recognizing market goat diseases
Life skill: Learning to learn
What youth will do: Create a set of flashcards to learn about market kid diseases
Success indicator: Names and describes five diseases of market kids

To Be My Word!

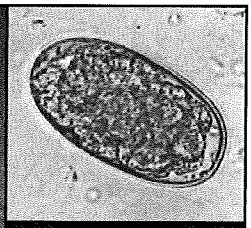
- Anaerobic
- Antibodies
- Abscess
- Diarrhea
- Recumbency
- Calculi
- Carrier
- Coccidiostats
- Colostrum
- Arthritis
- Caprine
- Deficient
- Fatal
- Founder
- Inflammation
- Necropsy
- Nematode
- pH
- Encephalitis
- Modified live vaccine
- Syndrome
- Toxin
- Urolithiasis

Is Your Wether Under the Weather?

You have a lot invested in your market goat, so you'll want to be able to tell if and when he is sick. There are many diseases of goats; many are more common in market animals and others are more common in older animals. The first activity in this book will help you learn how to recognize and prevent market kid diseases so your animal can stay healthy and grow well.



This messy tail could indicate diarrhea.



A nematode egg in manure at 250x magnification

Photo from "Veterinary Parasitology Reference Manual" by William J. Foreyt. Used with permission.

Start Capering

Everyone participating in this activity should have twenty 3 x 5-index cards and a marker. Create a set of flashcards about diseases of market kids. The name of the disease should go on the front of the card. On the back, include the cause, signs of illness, and ways to prevent the disease. Finally, in pairs, teams, or as a large group, have fun playing a game using the flashcards.

Fill in the chart with name of disease, cause, signs of illness, and prevention. These topics will also go on the set of flashcards you make.

Disclaimer:
Always consult your veterinarian if you have a question about your goat's health.

shiskaBLURB!

- *People can catch orf from goats. If your animal has this disease, make sure to wear gloves when handling it until it is fully recovered!*
- *Dark skin pigmentation protects people and animals from skin cancer caused by the sun's ultraviolet rays.*

Disease	Cause	Signs of Illness	Prevention

Ruminations *Discuss the answers to these questions with your helper.*

Chew Your Cud *(Share)*

- Did using flashcards help you learn about these diseases? Why or why not?
- Where did you find the information you needed?

Gain Ground *(Process)*

- Why is learning in a group sometimes helpful?
- Why is it important to be able to tell when your animal is sick?

Forage for More *(Generalize)*

- If you wanted to learn more about diseases of goats, what would you do next?
- Besides flashcards, what other tools can you use to learn new information?

Wattle You Do Next? *(Apply)*

- How can you teach others about diseases of goats?
- How will you change your management practices now that you have learned more about these diseases?

Udder Ideas

Complete one or more of these activities and share the results with your helper.

1. Interview a veterinarian about diseases of market goats.
2. Watch a *necropsy* of a goat.
3. Create an educational poster about a disease of market goats.
4. Sponsor a fun competition with another club using your flashcards.

Meat of the Matter

Major Diseases of Market Kids

Here is a list and short explanation of most of the major diseases of market goats. There are many other diseases of goats, but some (like ketosis, mastitis, milk fever, Johne's Disease, etc.) do not affect young animals such as market kids. Some diseases are more common in some areas than in others. Your vet can help you learn how to recognize and treat these diseases if they ever occur in your herd. Remember, prevention is the key!

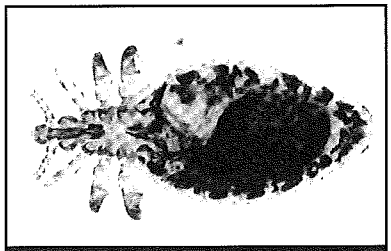
Acidosis: low rumen and body *pH* usually caused by ingestion of high levels of carbohydrates such as grain, fruit, molasses, etc. Animals go off feed, stop chewing their cud, are depressed, can be bloated and have *diarrhea*. Severely ill animals may *founder* or die. Prevent by insuring adequate levels of fiber (hay or browse) in the diet, making ration changes gradually, using probiotics and sodium bicarbonate, and keeping grain safely locked away from goats.

Coccidiosis: very common disease caused by one of several protozoal parasites of the intestinal tract of goats. Very contagious and very hardy in the environment. Affected animals may have diarrhea, often have a rough coat, don't gain well, have a pot belly, and may die. Prevent by buying quality animals from a herd without coccidiosis and/or feeding specific feed additives *(coccidiostats)* to all growing animals. Practice good manure management and do not feed animals on the ground.

Coccidia egg in manure

Photo courtesy Dr. William Foreyt. Used with permission.

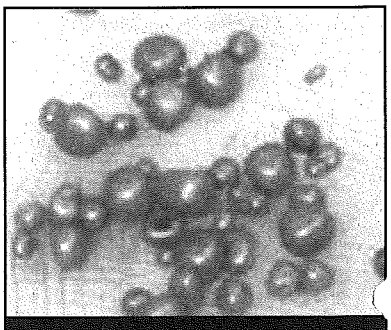
Parasites: there are internal and external parasites. Many types affect young goats, including *nematodes* ("stomach worms" or "round worms"), flukes ("flat worms"), tapeworms, protozoa, bots, lice, and more. The most serious and common are stomach worms; heavy infestations can kill young animals. Prevent by practicing good manure management, avoid feeding on the ground, and deworming young animals with a high-quality wormer every two months, starting at two months of age (or as determined by fecal examinations or recommended by your vet). External parasites include lice, keds, ticks, flies, bots and fleas.



A louse.

Photo courtesy Dr. William Foreyt. Used with permission.

Urolithiasis (urinary stones or *calculi*): minerals in the urinary tract form into stones that block the tract, especially in males on high grain diets. Signs include pain when urinating, bloody urine, frequent attempts at urination, or no urine. The urethra can rupture ("water belly") and the animal may die. Prevent by adding ammonium chloride to the diet, providing at least two parts calcium to every one part of phosphorus in the ration, and feeding as little grain as possible for the desired rate of gain.



Stones removed from the urinary tract of a blocked goat.

Photo courtesy Dr. Ahmed Tibary. Used with permission.

Overeating Disease: caused by *toxins* produced by the bacteria *Clostridium perfringens* types C and D. Most common in large, rapidly growing animals on high grain or milk diets. Signs include bloat, poor appetite, fever, diarrhea, or sudden death. Prevent by vaccinating does with CD&T during the last 2–3 weeks of pregnancy, making sure kids get colostrum within 12 hours of birth, and vaccinating kids with CD&T at 6, 9 and 12 weeks of age (or as recommended by your vet).

Overeating disease. Note discolored intestines.

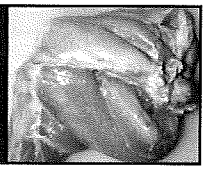
Photo courtesy Dr. Clive Gay. Used with permission.

Tetanus: a *fatal* disease caused by toxins produced by *Clostridium tetani*. Signs include generalized rigid stiffness of muscles. Animals die from the inability to breathe. Prevent as above with vaccinations of CD&T.

Goat with tetanus

Photo courtesy Dr. James Thompson, Somerset Animal Hospital. Used with permission.

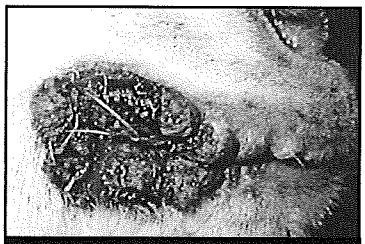
White Muscle Disease: caused by lack of adequate Vitamin E and/or Selenium in the diet. Signs include weakness, stiff gait, frequent *recumbency* and/or death. Prevent by giving pregnant does an injection of Vitamin E/Selenium in the last month of pregnancy and injections to kids at birth, one month of age and even monthly in some areas of the country, on the recommendation of a veterinarian. Also include Selenium in free choice trace-mineralized salt.



White Muscle Disease: Note normal, dark red areas of muscle and abnormal, pale areas of muscle in this hind leg.

Photo courtesy Dr. Clive Gay. Used with permission.

Orf (sore mouth): ulcers of the mouth and muzzle caused by a very hardy and contagious virus. Affected animals go off feed due to pain. Most common in young animals; can spread to does' udder and cause mastitis. Often picked up at shows. If it appears in your herd, prevent by using a *modified live vaccine* in all kids in the future.



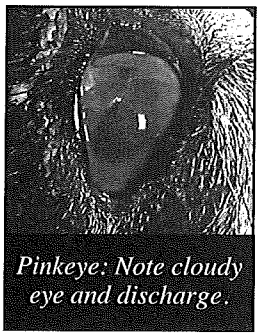
Sore Mouth: Note scabs and crusts on mouth.

Photo courtesy Keith Thompson, Massey University, New Zealand. Used with permission.

Caprine arthritis and encephalitis (C.A.E.): two different *syndromes* caused by the C.A.E. virus., which is most often spread from doe to kid through *colostrum* and milk. In kids less than six months old, the virus often causes fatal *inflammation* of the brain. Adults get arthritis and have swollen and painful joints, and/or hard udders and weight loss. No vaccine is available. Control by working with your vet to test animals and create a negative herd.

Caseous lymphadenitis (C.L. or *abscesses*): contagious disease of sheep and goats caused by bacteria called *Corynebacterium pseudotuberculosis*. Abscesses usually form around the head and neck; they break and drain and contaminate the environment for a long time. Rarely fatal but is a concern due to unsightliness of abscesses and contagious nature of the disease. The disease is very difficult to rid from a herd; avoid purchasing animals from herds with a history of abscesses.

Pinkeye (infectious keratoconjunctivitis): contagious disease of the eyes caused by several kinds of bacteria. Most common during summer months when flies are active. Some animals in a herd can be *carriers*. Affected animals tear, blink, avoid light, and may eat poorly; Surface of eye can turn bluish-white and surrounding tissues are often bright reddish pink. Without treatment, severely affected eyes can go blind. Ask your veterinarian about what medications can be legally used to treat this condition.



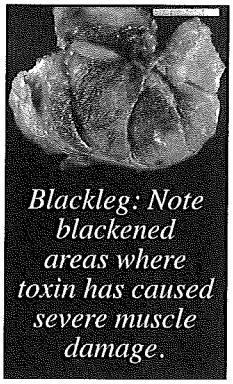
Pinkeye: Note cloudy eye and discharge.

Photo courtesy Keith Thompson, Massey University, New Zealand. Used with permission.

Polioencephalomalacia (pole-E-oh-en-seff-allo-mal-A-sha): softening of the brain caused by lack of Thiamin, also called Vitamin B-1. Normally, rumen micro-organisms make B-Vitamins in the rumen. If these micro-organisms are killed off or otherwise disturbed, as in a case of acidosis, ruminants can become *deficient* in Thiamin and develop polio. Affected animals may act blind, walk in circles, press their head against a wall, twist their heads backwards onto their spines, or display other signs of brain abnormality. Treatment involves restoring normal rumen micro-organisms and supplementing B-Vitamins.

Blackleg: disease of muscles caused by an *anaerobic* bacterium called *Clostridium chauvoei,* which is found in some parts of the country. Bacteria enter the muscles through a tiny wound and kill surrounding tissues with toxins they produce. Affected animals are very lame and often die. Prevent with an eight-way Clostridial vaccination.

Photo courtesy Dr. Clive Gay. Used with permission.



Blackleg: Note blackened areas where toxin has caused severe muscle damage.

Floppy Kid Disease: only affects kids that are about three to ten days old. Cause is unknown but could be bacterial toxins. Kids are not dehydrated, but they are weak and may not be able to stand. The belly may seem enlarged and they may drool and/or cough. The kid may feel cold and the temperature can be lowered or elevated. Without treatment, many kids die within two days. If you see these signs of illness in a young kid, call your vet at once. If Floppy Kid Disease is diagnosed, your vet may recommend that you give the kid a half-teaspoon of baking soda (dissolved in a small amount of water) by mouth to counteract lowered body pH; improvement should be noted within two hours.

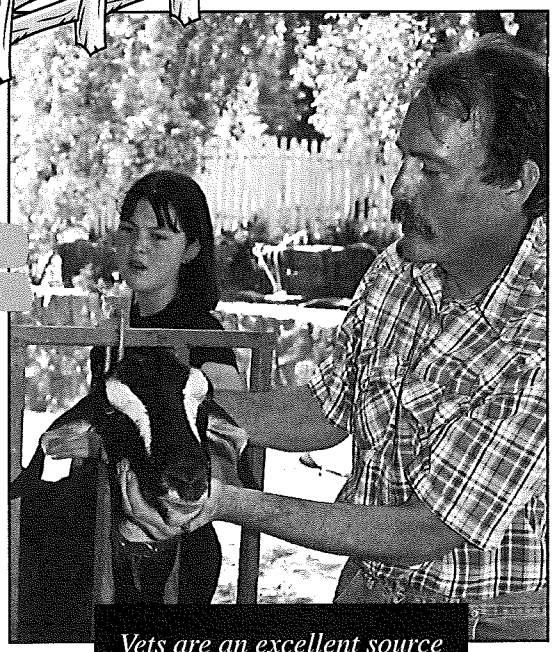
Some other diseases of market kids include pneumonia, foot rot and ringworm.

shiska BLURB!

- *Many of the organisms that cause goat diseases can live a long time in the environment, so it is best not to let them get introduced onto your property!*
- *Colostrum is the first milk produced by a doe after she kids. It contains vitamins, fat for energy, and antibodies to protect the kid against diseases.*

Project skill: Selecting and working with a veterinarian
Life skill: Communication
What youth will do: Select and get acquainted with the veterinarian who will care for their animals
Success indicator: Selects an appropriate veterinarian and knows how to work with him/her to care for goats

Put Your Veterinarian on Speed Dial!



Vets are an excellent source of information about goat health and care.

It was a dark and stormy night. Jorge the goat had gotten out and fallen into Dawson's Creek. Billy Bob, his owner, found him coughing, weak, and running a fever the next morning. This is one of many scenarios you could encounter while raising goats. Do you have a veterinarian you could call and ask for advice? This lesson will help you select a veterinarian and find out how he/she would like to work with you to care for your animals.

Start Capering

Call at least two veterinarians and interview them over the phone about their background and experience with goats. Following the phone interview, schedule an appointment with one veterinarian and meet them in person for additional questions.

Vet #1: _____	**Vet #2:** _____
Date: _____	**Date:** _____
Background/Experience: _____	**Background/Experience:** _____
Appointment Date: _____	**Appointment Date:** _____

Things to know about your goat when you call the vet:

- Temperature, heart rate and respiration rate
- Appetite
- Any swellings, wounds or lameness
- Is the animal bloated?
- Body condition
- Quality and quantity of manure and urine
- Odd odors
- Recent changes in diet or environment
- Date of last deworming
- Vaccination history
- Age, breed, gender
- Kidding history
- Udder health

shiskaBLURB!

About 900 veterinarians are members of the American Association of Small Ruminant Practitioners.

Ruminations

Chew Your Cud *(Share)*

- How did you find the veterinarians you interviewed?
- Which did you prefer, interviewing veterinarians over the phone or in person? Why?

Gain Ground *(Process)*

- Why is it important to have a good working relationship with a veterinarian?
- Why is it a good idea to do some research and select the veterinarian who is the best fit with you and your goats BEFORE an emergency?

Forage for More *(Generalize)*

- What are some other situations where you may need to interview and select someone?
- What other goat-related professionals might you need to select to work with your herd?

Wattle You Do Next? *(Apply)*

- How will conducting these interviews help you when you are interviewed in the future?

Meat of the Matter

Choosing a Vet

Veterinarians are people who have studied a long time to learn how to prevent, diagnose, and treat disease and illness in animals. Also, they care about animals! Not all veterinarians treat goats; you may have to do quite a bit of research to find a goat veterinarian in your area. Goat veterinarians in your area can also be found on lists on the Internet. Try a search for "goat veterinarian."

Veterinarians are busy people, so be sure to set up an appointment for your interview. They will need to block out time to devote to answering your questions without interruptions!

Once they have established a working relationship with you and your goats, many veterinarians are willing to give advice over the phone when you call with a question or problem. As required by federal law, a valid client-patient-veterinarian relationship must exist before your veterinarian can write any prescriptions for your animals or recommend any medications that are not specifically approved for use in goats.

When you are looking for a veterinarian for your goats, here are some questions you may want to ask during an interview:

- Please describe your background and experience with goats.
- How can I tell when something is wrong with my goat, and when should I call you about it?
- What are some of the things you might ask when I call, so I can check on it before I contact you?
- How do I contact you after office hours or during an emergency?
- Is there an additional fee for emergencies or services after office hours?
- Will you come out to my farm or do I have to bring my goats to your office? Is there a difference in fees?
- Do you allow youth to observe your work at your office or on farm calls?
- How can you help me prevent disease and illness in my animals?
- Are you willing to write prescriptions for syringes, needles, and medications for my herd if I need them?
- Are you willing to give educational presentations about goat health and disease to my goat group?
- If I incur a large bill from something that happens to my goats, do you accept payments over time? May I work off part of the bill by helping in your clinic?
- After your interview, remember to thank the veterinarians for their time both in person and with a card.

Udder Ideas

1. Research and learn about five veterinary colleges.
2. Travel with a goat veterinarian for a day.

Chapter 2 Selection

Project skill: Selecting foundation breeding stock

Life skill: Decision making

What youth will do: Youth will learn how to select quality foundation stock for a breeding program

Success indicator: Selects a foundation doe for a market herd and provides reasons for the selection

Choosing Your Genes

You have probably heard that 80% of how your project animal looks is how you have managed it, but what about that other 20%—its genes? A quality market animal begins with a quality doe. Whatever doe you choose will have an impact on what your market kids look like for several generations. Are you ready to choose your genes?

Word to My Word!

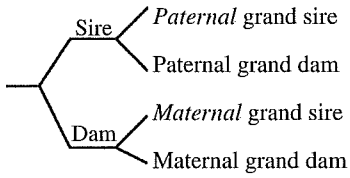
- **Chromosome**
- **Comparative reasons**
- **Weak pasterns**
- **Foundation stock**
- **Commercial stock**
- **Breed registry**
- **Gene**
- **Carcass-to-bone ratio**
- **Breed character**
- **Maternal**
- **Paternal**
- **Select**
- **Stature**
- **Parrot mouth**
- **Folded ears**
- **Ease of kidding**
- **Mammary system**
- **Teat abnormality**
- **Trait**
- **Monkey jaw**
- **Grade**

Start Capering

Go to a few different farms and take pictures of every doe you like. While at the farm, write down why you like her and find out who her parents and grandparents are. Be sure to watch her at rest and on the move; view her from the side, front and back. After you have developed the pictures, apply selection criteria and *select* the best three does. Place their pictures on the page. Next to each picture, provide three *comparative reasons* for choosing these does (example: "This doe has greater width of loin and breadth of chest.").

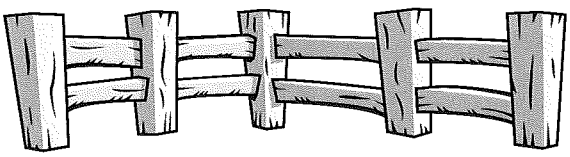
NOTE: *Before you start this activity, you will need to learn the selection criteria for the breed you are interested in. This includes learning about desirable conformation as well as faults and defects.*

Pedigree Example



Attach photos of the best three goats, write down reasons for selection, and draw a mini-pedigree of one animal. If you do not have a camera, write your comments about each animal below.

Goat 1 Goat 2 Goat 3



shiskaBLURB!

- Chromosomes *are made up of "strings" of* genes, *the units of heredity.*
- *One of the most often overlooked defects is* weak pasterns. *A goat's pastern corresponds to the first portion of your toe, closest to your foot. Take off your shoes, point your toes towards the ceiling, and try walking around for several minutes on your heels. Try to jump and run. How did it feel? Did it pull anywhere? Imagine walking around like this every single moment of every day. Why should you select against long or weak pasterns?*

Ruminations

Chew Your Cud *(Share)*

- What traits do you like to see in goats?
- Which animal did you think was best and why?

Gain Ground *(Process)*

- Why is it important to be able to defend your decisions?
- Why is it important to be able to recognize defects?

Forage for More *(Generalize)*

- How does the ability to make decisions help you with your meat goat project?
- What decisions do you have to make every day?

Wattle You Do Next? *(Apply)*

- What types of jobs/careers use decision-making skills?
- How can you continue to improve your ability to make wise decisions?

Udder Ideas

1. Participate in a judging contest.
2. Give a presentation on selecting breeding stock.
3. Use pictures from a meat goat magazine or breed journal and repeat this activity.
4. Have a group discussion about important traits that cannot be judged by an animal's conformation.

Meat of the Matter

Selecting Breeding or Production Stock

When it comes to selecting your *foundation stock*, you need to decide if you want to breed *commercial stock* or registered stock. If you want to breed registered stock, get in touch with a breed registry and obtain a copy of the judges' guidelines and judges' handbook.

Registered stock is expected to conform to specific standards established by *breed registries* or associations. Some of these standards, such as horn set or hair color, have nothing to do with an animal's ability to produce high-quality market stock. They do affect the value of any registered breeding stock you decide to sell in the future. Registered stock is judged on *breed character*.

Commercial stock is not judged on breed character. There are *traits* that are common to all high-quality meat goats, regardless of breed. An animal that is considered commercial stock possesses these traits, but does not conform to any particular breed standard and/or cannot be registered with any breed associations. *Grade* and crossbred animals can make excellent commercial stock.

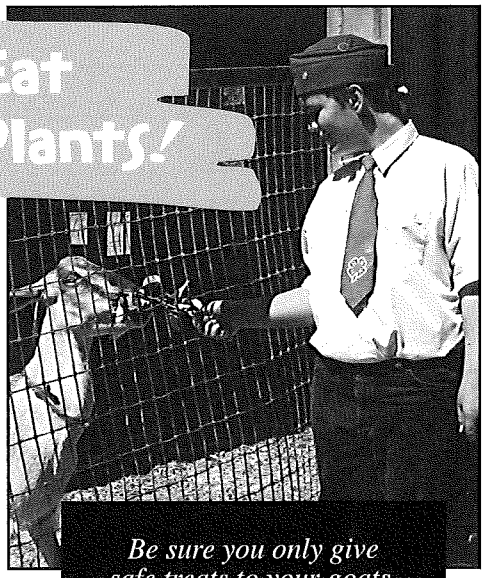
Traits that all quality meat stock have in common are:

1. **Greater *carcass-to-bone ratio*.** Compares amount of an animal's meat to amount of its bones. This characteristic sets meat goats apart from dairy goats. Indications of a high carcass-to-bone ratio are rounded shoulders, thick forelegs, deepness of twist, and a "soft" feel over the ribs.
2. **More correct set and soundness to the feet, legs, and pasterns.** Look for an animal with a correct set to her feet and legs both at rest and on the move. When she walks, she should walk smoothly, with power and grace. Poor, unsound feet can weaken the pasterns. Pasterns should be short to medium length and slightly angled.
3. **Stronger Top Line.** The back must be strong. An ideal back will slope "uphill." Does excelling in *stature* tend to be easier kidders than other does, as do wide does with greater levelness thurl to thurl.
4. **Longer, Deeper, Wider Throughout.** There are three indicators of high carcass-to-bone ratio and good conformation:
   a) Long bone pattern. A long body is evidence of a long bone pattern. This means more bone to put muscle on.
   b) Width. This trait tracks from the head to the chest floor, and clear back to the rump.
   c) Twist depth and rear leg width. The deeper the twist is, the bigger and better cut of meat it will be.
5. **Better Head Character.** The head should have strong breed characteristics. The jaw must be straight and neither overshot *(parrot mouth)* or undershot *(monkey jaw)*. Some breeds have a tendency to produce *folded ears*. If ears are folded side-ways so that the ear canals are closed, the animal should not be bred.
6. **More Correct Reproductive Traits.** Look for a doe with strong mothering instincts, *ease of kidding*, and a strong *mammary system*. Udders lacking attachment are more likely to get torn on brush, stepped on and bruised than are udders held tightly up against the body. All sorts of *teat abnormalities* exist with some breeds of meat goat. Such defects include split teats, fish teats, cluster teats, double orifices, and multiple teats.

Project skill: Identifying poisonous plants
Life skill: Self Responsibility
What youth will do: Make an inventory of all the types of forages in their goats' pastures and determine which ones are poisonous
Success indicator: Names five plants in the area that are poisonous to goats

Your Word!
- **Toxic**
- **Fungus**

Mares Eat Oats and Does Eat Oats...and Sometimes Toxic Plants!



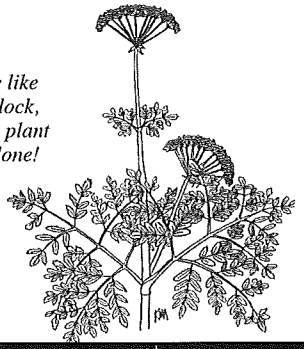
Be sure you only give safe treats to your goats.

The common image of a goat eating a tin can makes people think that goats can eat anything and still be OK, but that just isn't true! There could be many edible dangers lurking in your goat's environment—lead batteries, a whole bag of grain, rat poison, contaminated water, moldy hay, and even poisonous plants. As a responsible goat owner and caretaker, it is your duty to make your goat's environment as safe as possible. In this activity, you will investigate the types of poisonous plants in your goat's habitat. Some are going to surprise you!

Start Caperin'

Whew—this is a major activity that is going to take a while. You are going to make an inventory of every type of plant with which your goat could come into contact. This includes pasture, range, browse, purchased feeds (hay and grain) and treats. Then you will investigate whether or not these plants are safe or possibly poisonous.

Identify and inventory the plants in your goat's environment and include them in the chart below.



With a name like Poison Hemlock, you know this plant is best left alone!

Illustration courtesy Washington State Noxious Weed Control Board

Plant name	Plant type*	Scientific name	Toxic?
Example: *1. Black cherry*	*Tree*	*Prunus serotina*	*Yes*

* Choose from grass, legume, weed, tree, shrub, forb, *fungus*, other.

shiska BLURB! *Activated charcoal is very good at absorbing toxins in the intestinal tract. Make sure it is in your first aid kit!*

Remember, once you have identified the poisonous plants in your goat's environment, you have to do something to prevent goats from eating these plants – this could include fencing the goat out or killing the plant.

Ruminations

Chew Your Cud *(Share)*

- How many different plants does your goat have access to? How many of them are toxic?
- How did you feel at the beginning of this activity? At the end?

Gain Ground *(Process)*

- Why is it important to know if there are poisonous plants in your goat's environment?
- Tell your helper who is responsible for your goat's health and explain why this is so.

Forage for More *(Generalize)*

- What are other sources of danger to your goat?
- Besides protecting him/her from poisonous plants, in what other ways are you responsible for your goat's health?

Wattle You Do Next? *(Apply)*

- How can you share what you learned with others?
- How can you use what you learned to protect your goat's health?

Disclosures/disclaimers: Remember to consult your veterinarian if you have any questions about your goat's health, including questions about poisonous plants.

Meat of the Matter

Safe Eating

Many people think that goats are somehow smart enough to know which plants are safe and which are poisonous, but this just isn't true. Goats are curious creatures and love to sample a wide variety of plants. However, some plants are so *toxic* that just one mouthful can be fatal!

Some poisonous plants are only found in specific areas of the country; others are popular ornamental plants that are common in every neighborhood. For example, Japanese yew is the most common landscape evergreen shrub, but it is also one of the most toxic plants your goat could eat! Often someone will prune the shrubs and throw the prunings over the fence to goats for a treat; goat that nibble on these prunings can be dead within 30 minutes. Other extremely toxic plants include poison hemlock, water hemlock, oleander, rhododendrons, azaleas, locoweed and tansy. Some can kill quickly; others need to be eaten for days, weeks or months to do their damage.

Poisonous plants contain toxic chemicals that work in a variety of ways. Some interfere with the blood's ability to carry or release oxygen to tissues, so animals suffocate. Other toxic plant chemicals can cause severe gastrointestinal upsets such as diarrhea and vomiting. Many toxic chemicals can disrupt or even stop the heart's normal rhythm; animals that eat plants with these chemicals can become weak, tremble, have seizures, go into a coma and die. Other plants cause photosensitization—this means that animals who eat these plants develop severe skin irritation on the white parts of their bodies, usually after they have been out in the sun.

As you can see, there is a lot to learn about poisonous plants, but you have to do it—your goat is depending on you!

Resources: Go to an Internet search engine and type in the words "poisonous plants." Several excellent university Web sites will appear. Your County Extension office also has information on local poisonous plants.

Udder Ideas

1. Make a resource book of poisonous plants with dried examples of the leaves, stems, berries, roots or other toxic parts of these plants (handle them with gloves on). Include the plant's common and scientific name, toxic parts and signs of poisoning.
2. Make a scrapbook of toxic plants using photos, clippings from garden magazines, etc.
3. Go on a field trip to find different types of toxic plants.
4. Create an educational garden with toxic plants (but make sure livestock cannot enter)!

Project skill: Evaluating body condition of meat goats
Life skill: Making decisions
What youth will do: Determine the body condition score for three meat goats
Success indicator: Determines the level of conditioning of meat goats

To My Word!

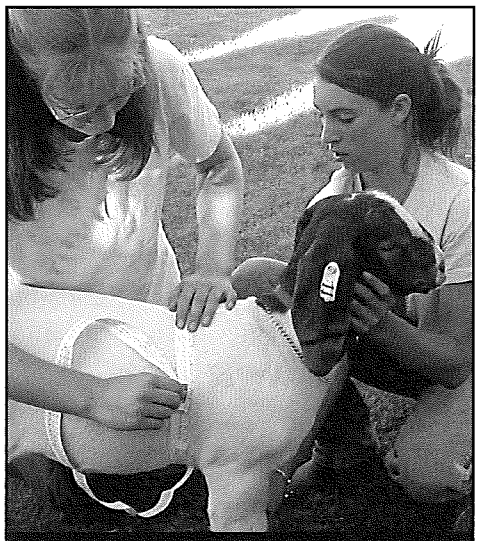
- **Tail head**
- **Pregnancy toxemia**
- **Dystocia**
- **Flushing**
- **Body condition score**
- **Weaning rate**
- **Twinning rate**
- **Pins**
- **Loin**

Through Thick & Thin

By properly feeding and managing your goat, you can assure its health and well-being. Being able to tell the difference between desirable and undesirable body condition is an important skill; learning to manage and feed your goat to achieve the desired body condition will help you be a successful meat goat producer. This activity will guide you in learning to properly evaluate and manage the body condition of your meat goat.

Start Capering

Take three photographs of meat goats—one of a thin goat, one of a fat goat, and one that is in between. After you photograph the goats, use the provided Body Condition Scoring (BCS) chart on page 16 to determine the body condition score for each of the goats you have photographed. Then, on the back of each picture, write your reasons for scoring each goat as you did. Finally, discuss what you did and learned with your family, club or group.



A weight tape can help you monitor your animal's BCS.

To determine an animal's BCS, you must touch it.

BONUS ACTIVITY: On the cross section diagram, identify important BCS landmarks.

Match the parts of the goat with the proper names for each part from the list below each drawing.

Word Bank

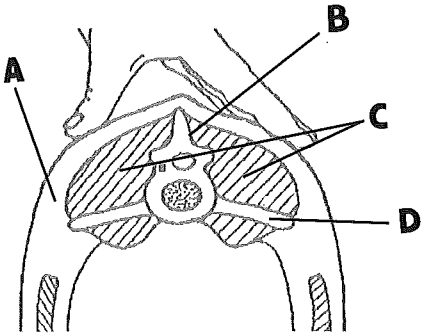
Spinous process
Transverse process
Loin eye muscle
Fat cover

A. _____

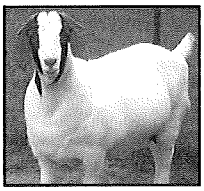
B. _____

C. _____

D. _____

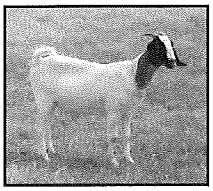


Graphic courtesy James Thompson, Oregon State University. Used with permission.



What is the body condition score of this doe?

Photo courtesy G&L Quality Boers, ©2002. Used with permission.



What is the body condition score of this doe?

Photo courtesy GoatWorld.com. Used with permission.

shiskaBLURB!

"Flushing" is the practice of increasing energy intake 3 to 4 weeks before and 2 to 4 weeks after breeding. The purpose is to increase the number of eggs that are released and increase the number of kids a doe will have.

Ruminations

Chew Your Cud *(Share)*

- How do you determine the body condition score of a meat goat?
- How did you decide what goats to take photos of?

Gain Ground *(Process)*

- Why would body condition affect meat goats' ability to reproduce?
- How can you control the body condition of your meat goat to assure optimal health and productivity?

Forage for More *(Generalize)*

- What are some negative effects of obesity for both goats and people?
- What types of performance are affected if goats or people are too thin?

Wattle You Do Next? *(Apply)*

- How will you use information about BCS to better manage your meat goats?
- How can you teach others about the importance of BCS?

Resources: Monitoring the Body Condition of Meat Goats: A Key to Successful Management. ANS 00-605MG. J.M. Luginbuhl and M.H. Poore. North Carolina State University.

Meat of the Matter

Knowing the Score

What is BCS? The term *body condition* refers to the amount of body fat an animal possesses. Like people, goats are healthiest when they are neither too thin nor too fat. Does can have difficulty reproducing if they are either under- or over-conditioned at the time of breeding or kidding. *Pregnancy toxemia, dystocia,* and low *twinning and weaning rates* may result from improper condition of does.

How to Determine BCS. Body condition may be evaluated visually and by handling the goat physically. To help evaluate body condition, a body condition scoring system has been developed. Scores are based on the degree of fat deposited over the goat's ribs and spine. Properly managed meat goats will have a body condition score between 4 and 7. Thin goats will have a body condition score between 1 and 3. Goats between 4 and 6 are moderate, and goats with a score of 7 to 9 are fat to obese. The ideal body condition score, just before breeding, is between 5 and 6. Maintaining your doe in this body condition will increase the number of kids she births and raises.

Looking at goats may give you an idea what their condition is. However, to get an accurate reading, you should handle the goat by pressing your fingers against the animal's ribs and down both sides of the spine. You should also feel the shoulders, the *tail head*, the *loin* edge, and the hook bones and *pin* bones. If an animal is thin, you will be able to feel the ribs and vertebrae easily. Extremely fat animals will feel smooth and you will not be able to feel ribs or vertebrae.

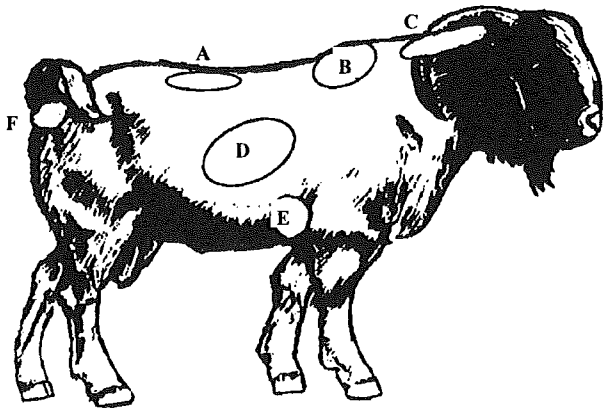
How to Manage BCS. Thin animals should receive supplemental feed. This may be accomplished by moving the animals to a higher-quality pasture or by feeding grain. They may also be thin due to parasites, illness or bad teeth. Although extremely fat goats with BCS of 8 to 9 are rarely seen, their feed should be restricted until they reach a BCS of 5 to 6.

Anyone can learn body condition scoring.

Udder Ideas

1. Sponsor a hands-on BCS clinic on a farm.
2. Take photos of goats with as many different BCSs as you can.
3. Make an educational poster about BCS.

USBGA South African Boer Goat Condition Scoring



A. Loin

B. Withers

C. Neck

D. Ribs

E. Behind the elbow

F. Tail-Pin bone

Many physiological functions of the Boer goat are influenced by the body condition of the animal. These include maintenance, reproductive efficiency, and the immune system. In addition, proper condition is necessary to bring top price for market animals. A high meat to bone ratio with minimum fat is the desired condition, *thus a score of 5 on a scale of 1–9 is ideal.*

Description of Condition Scores

1 Emaciated: Spinous processes, transverse processes of loin, ribs, tail head, pin bones, hooks (hips) projecting prominently. Bone structure of the withers, shoulders and neck structure easily noticeable. No fatty tissue can be felt.

2 Thin: Transverse processes of loin vertebrae, spinous processes, ribs, tail head, pin bones, hooks (hips) prominent. Bone structure of withers, shoulders and neck structure discernible. Slight fat covering may be discernible.

3 Somewhat Thin: Transverse processes of loin vertebrae, ribs, tail head, pin bones and hooks (hips) discernible but with a slight fat covering. Individual spinous processes cannot be identified. Visually, hooks (hips), pin bones and shoulders barely rounding. Neck and shoulders beginning to blend.

4 Moderate: Transverse processes of loin vertebrae covered and not visible. Fat around tail head and covering ribs can be felt. Hooks (hips) not discernible. Withers and shoulders area rounded. Neck not obviously thin. Back beginning to appear flat.

5 Conditioned: Back flat and smooth with transverse processes of loin vertebrae well covered. Withers and shoulders are rounded and smooth with good muscle cover. Neck is wide and blends smoothly into the shoulder/wither area. Ribs not visually distinguishable but can be felt. Fat layer can be felt under the skin. Rump, hooks (hips) and thighs muscular and rounded.

6 Fleshy: Fat over ribs and around tail head spongy. Fat beginning to be deposited between shoulder blades and fore ribs, sides of withers, behind the point of elbow and along the neck. Individual ribs can be felt but with a noticeable filling between them.

7 Fat: Difficult to feel ribs with pronounced filling between them. Fat deposited between shoulder blades and fore ribs, side of withers, behind the point of elbow and along the neck with the neck beginning to thicken.

8 Extremely Fat: Unable to feel ribs. Shoulder blades showing separation due to fat deposit. Bulging fat behind point of elbow. Additional fat deposits in front of shoulders with heaviness in the neck area. Fat deposits along inner thighs.

9 Grossly Fat: Shoulder blades separated from shoulder assembly with bulging fat behind the point of shoulder, in front of shoulder and in brisket area. Neck heavy and thick. Heavy layer of fat under skin, in tail head area and between thighs. Walk labored.

Adapted from information provided by U.S. Boer Goat Association; used with permission

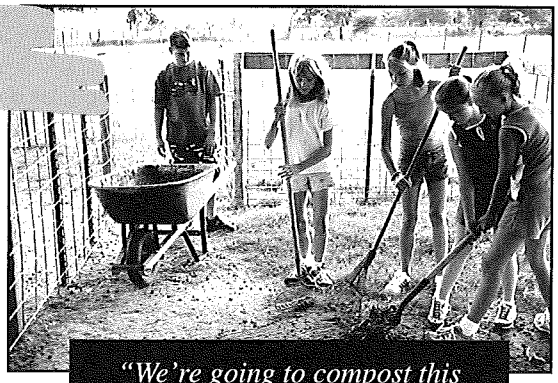
CHAPTER 4 Husbandry of Animals and Resources

Project skill: Handling manure properly
Life skill: Self responsibility
What youth will do: Apply Best Management Practices to their farm's manure handling operation
Success indicator: Makes sound decisions about handling manure on a goat farm

My Word!
- Compost
- Nutrient
- Buffer strips

The Scoop on Poop

Can you think of some reasons why you should be a good steward of land and water? In this activity you will look at the features of your operation that affect how you should handle manure. You will also learn about the environmental consequences of not handling manure properly. It's time to get the scoop on poop!



"We're going to compost this manure and spread it on our vegetable garden next year."

Start Capering

In the chart, record how you currently manage the manure on your farm. Compare your practices to the Best Management Practices that are listed.

My Current Practices	Best Management Practices
Example: *Spread manure year round*	*Stockpile manure and spread in spring and fall*
	Store manure under cover and/or on a stone or concrete pad
	Create plant buffer strips *along streams, ponds and ditches*
	Use rotational grazing
	Do not stockpile manure within 100 feet of property lines, streams or any body of water
	Compost *manure and use as fertilizer*

Ruminations

Chew Your Cud *(Share)*

- What resources did you use to learn about manure Best Management Practices?

Gain Ground *(Process)*

- Why should you be concerned about disposing of your manure properly?

Forage for More *(Generalize)*

- How will you use what you learned about manure management to change your manure handling system and minimize your negative impact on the environment?

Wattle You Do Next? *(Apply)*

- How can you teach others about the importance of water quality, manure management and responsible environmental stewardship?

Udder Ideas

1. Give a presentation to your class about the benefits of managing manure properly.
2. Learn the proper way to take a soil sample. Practice your new skill by taking a soil sample from your parents' lawn or garden.
3. Give a presentation to your group about composting manure.

shiska BLURB!

- *Manure contains nutrients that, when managed properly, can help plants grow. If managed improperly, they can have a negative effect on the environment.*
- *Manure can be composted to produce a valuable end product.*
- *Some types of composting systems use worms to digest the composting material.*

Project skill:	Identifying threats to water quality
Life skill:	Wise use of resources
What youth will do:	Build a soil profile and learn how nutrients can leach through soil
Success indicator:	Understands water quality issues related to livestock production and manages livestock in a way that preserves water quality

My Word!

- **Nitrogen**
- **Erosion**
- **Leaching**
- **Sediment**
- **Eutrophication**
- **Runoff**
- **Aquifer**
- **Hypothesis**
- **Soil profile**

Being Water Wise

Why should we use water responsibly? What effects can our livestock have on the quality of our water? How can the way in which you manage animal wastes affect the quality of our water? In this activity you will create your own soil profile and learn why we need to manage animal wastes to minimize negative impacts on our water resources. Get ready to become water wise!

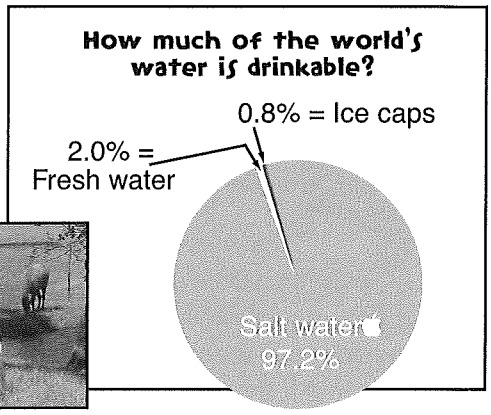


Photo courtesy Holly Jentsch, © 2002. GoatWorld.com Used with permission.

Start Capering

Create your own soil profile and learn how nutrients applied to the earth's surface can affect our drinking water. Gather the following materials for each group:

- Sphagnum moss *(available from craft stores)*
- Water
- 1.5 cups of sand
- Mixing bowl
- 1.5 cups of cat litter
- Clear or white container to catch leachate
- Coffee filter
- Paper towels for clean up
- 1 packet of red Kool Aid®
- 1 c. measuring cup
- One 1-lb. coffee can with plastic lid per group, with both ends cut off and holes punched in the plastic lid

1. Place the plastic lid with the holes in it on one end of the coffee can.
2. Put the coffee filter in the can on the lid.
3. Add one cup of cat litter and spread out evenly on the filter. This layer represents the B horizon subsoil layer.
4. Mix ½ cup of sand and the remaining cat litter in the bowl. Layer this mixture in the coffee can on top of the cat litter layer. This layer represents the transition between the A and B horizons.
5. Add one cup of sand and spread out evenly on top of the transition layer. This layer represents the A horizon topsoil layer.
6. Add one handful of sphagnum moss and spread out evenly. This layer represents the O horizon humus layer.

You have created a representation of a soil profile and will now "fertilize" your profile.

7. Take a minute to think about what the water is going to look like after the soil is "fertilized" and watered. Record your *hypothesis* in your project book.
8. "Fertilize" your soil profile by sprinkling a packet of Kool Aid® granules on the top layer.
9. Place a container underneath your coffee can soil profile. Water your soil gently with two cups of water.
10. Observe and record what happens as the water filters through and out of the soil profile.
11. Compare what you thought would happen with what actually happened.

Leaching Activity

Record your hypothesis and observations on the leaching activity.

My Hypothesis: _____

_____

_____

_____

My Observations: _____

_____

_____

_____

Ruminations

Chew Your Cud *(Share)*

- What part of this activity did you like the best?
- What did you learn that surprised you the most?

Gain Ground *(Process)*

- What did the colored water in the bottom of your bowl indicate? What can happen if fertilizer moves all the way through the soil profile?
- Why is it important to think about preserving our natural resources?

Forage for More *(Generalize)*

- In addition to water, what other natural resources should we be concerned with?
- Besides managing manure wisely, how else can you protect water quality?

Wattle You Do Next? *(Apply)*

- How can you manage your goats and protect water quality?
- How can you apply what you have learned to help others understand this important issue?

Acknowledgements:

Soil, Water, and Youth Nutrient Management (SWANM) Youth Curriculum Guide. D.J. Hansen, R. Marasco, S. Truehart Garey, University of Delaware, 2000-2001.

Nutrient Management for Water Quality Protection. K.L. Gartley, J.A. Shirey, J.T. Sims, University of Delaware, 1999.

Meat of the Matter

Gaining Water Wisdom

Water is a valuable natural resource. We must manage it wisely because the amount of water in the water cycle always remains the same. We cannot make more water. We are using the same water that people were using 1,000 years ago! It just keeps recycling itself. Only a very small portion of all the water on the Earth can be used for drinking, brushing our teeth, or bathing. As our planet becomes more populated, the need to properly manage this natural resource becomes even more critical.

Fertilizer or nutrients from animal wastes are added to soils to help plants grow. However, if more nutrients are added than can be held by the soil, *nitrogen* and phosphorus can move through the soil and get into the underground *aquifers* that our fresh water comes from. This process is known as *leaching*. Nutrients can also get into surface water bodies such as lakes, ponds, and streams through *erosion* and *runoff*.

High levels of nutrients and *sediment* in water bodies can lead to *eutrophication* (yew-trow-fa-KAY-shun). In this process, high levels of nutrients in water bodies cause plant life to flourish. The plants use all of the dissolved oxygen in the water that the fish need to breathe. Fish die because they cannot breathe. Eventually the plant life dies, too. In this case, a decline in water quality causes a huge disruption in the food chain.

It is important to add only as many nutrients to the soil as it and plants can use because excess nutrients leach out into water. Make sure you prevent nutrients from leaching out from your animals' wastes; this could mean covering manure piles and spreading manure during drier times of the year. Spreading manure during drier times of the year or when plants are actively growing helps to prevent nutrient loss through leaching and runoff, which can contaminate our water bodies both on the surface and underground the earth.

If you have more manure than you can use on your land, you may want to consider sharing your excess nutrients with your friends and neighbors. Many people buy nutrients for their lawns and gardens; you can share nutrients with them for free or earn extra income by selling composted manure. Compost is a great source of nutrients and can improve the fertility and production of any garden.

Udder Ideas

1. Develop a list of water-saving tips to share with your class or club.
2. Investigate manure management techniques that reduce leaching of nutrients into water.
3. Learn about how to protect streams and rivers from animal wastes.

Project skill: Developing a predator control program

Life skill: Decision making

What youth will do: Identify predators and their habits, assess the predator risk on farms, investigate different forms of predator prevention and develop a plan for the farm

Success indicator: Lists predators that threaten goats, characteristics of these predators and prevention methods

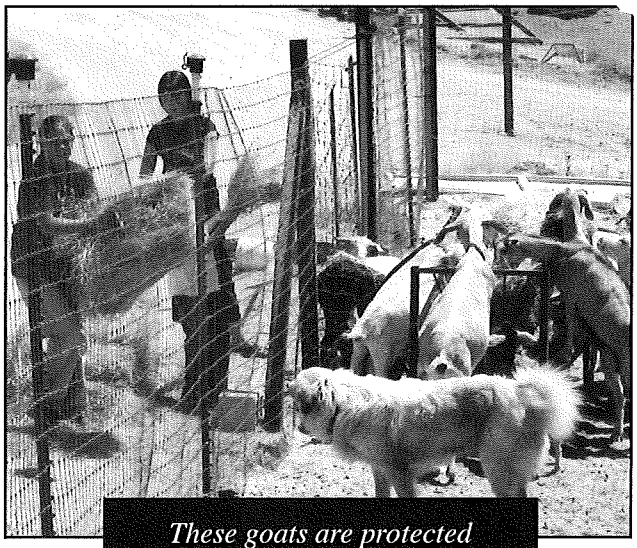
My Word!

- Carrion
- Predation
- Omnivore
- Nocturnal

What You Don't Know...

Did you know that ravens are as much of a threat to your kids as raccoons are? One strikes during the day from the air, the other on the ground under the cover of darkness. Of course, neither is quite as bad as coyotes or feral dogs. There is a solution for every individual predator, but which is best for your farm? What type of predators do you need to plan for right now? What you don't know can hurt you...and your goats!

Youth will need to conduct research to complete this activity. Several excellent Web sites have good information. Also, other breeders and livestock producers in the area will be able to provide information on what types of predators they have had trouble with over the years and what prevention methods work for them. County Extension agents, Fish and Wildlife Department personnel, and National Forest Service or Park staff are also great resources.



These goats are protected by a good fence and guardian dog.

Start Caperin'

Investigate predators of goats and fill in the chart below.

Summary of Goat Predators

Predator	When active?	Signs of attack	Present in my area?	Prevention methods
ex.: *Alligator*	*Mostly night*	*Missing animals*	*Yes*	*Fencing; water goats away from ponds or rivers; pen goats at night*
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				

Explore more at www.4-hcurriculum.org
National 4-H Curriculum

shiskaBLURB!

In many areas, dogs are the most common predators of goats.

Research various ways to prevent damage from predators and complete the chart below. Finally, describe the predator prevention plan you developed for your farm.

Summary of Goat Predator Control Options

Livestock Protection Method	Easy to acquire?	Cost	Maintenance requirements	Advantages	Disadvantages
1.					
2.					
3.					
4.					
5.					

My predator control plan: _____

_____

_____

_____

Ruminations

Chew Your Cud *(Share)*

- What types of predators are in your area?
- What are their characteristics?

_____

_____

Gain Ground *(Process)*

- Why is it important to know what predators you need to protect against?
- What can you do to make your farm more predator proof?

_____

_____

Forage for More *(Generalize)*

- What are some other times you've had to do research and make a decision?
- Why do you need to consider others (farmers, neighbors, visitors, etc.) when planning a predator prevention program?

_____

_____

_____

_____

Wattle You Do Next? *(Apply)*

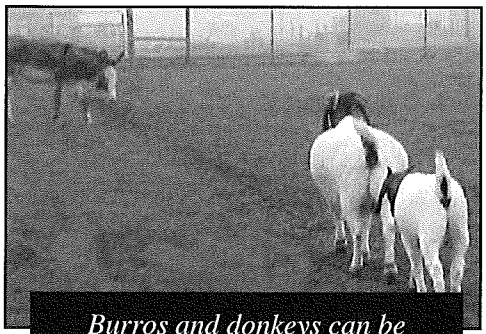
- Now that you have learned about predators, what predator control measures will you use on your farm?
- Describe how you will monitor predator damage on your farm.

_____

_____

_____

_____



Burros and donkeys can be excellent guardian animals.

Photo courtesy Jack Mauldin.

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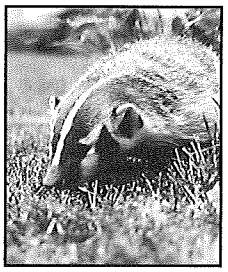
- *If you use guardian dogs, make sure that your goats cannot eat the dogs' food. Federal law prohibits feeding some types of proteins to sheep and goats, and these proteins are often found in dog food.*
- *If you use donkeys, burros, or horses for predator control, don't let them have access to coccidiostats in goat grain or salt; coccidiostats are toxic to equines.*
- *Guardian dogs should be raised so they bond to goats, not people.*

Meat Goat Predators

Alligators. Large problem in some areas of the south. Goats of any size may just "disappear." Prevent goats from watering at ponds or rivers, especially in the evening. Pen animals in secure area in the evening.



Badgers. Very strong and aggressive burrowing animals; may attack and kill young goats. Detect presence by evidence of extensive digging. May leave head and pelt of prey behind. Control with buried fences, lights, dogs; live trap and relocate with caution.

Bears. Usually attack after dusk and leave deep bite marks on top of neck, near ears; may leave claw marks on body. Tend to eat internal organs, udder, and hindquarters of prey first, then return to scene for later meals. Sometimes carcass is buried with leaves and dirt. Control *predation* by keeping goats in secure barn at night, using guardian dogs that bark, using night lights, having electric fences, removing dead animals promptly.

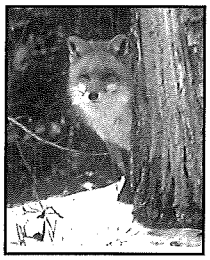
Bobcats. Bite marks in the skull, throat, or back of the neck of victim; may leave claw marks on the body, sides, and shoulders. Control measures are similar to cougars.

Cougars. Large problem in some western states. Fatal bites to head and neck of victim; neck may be broken and carcass may have claw marks; may leave carcass drag marks and large paw prints in dirt. Control measures include housing goats in secure barn during the evening, lights, noise, and barking dogs.

Coyotes. The most important predator of sheep and goats in most parts of the country. They attack during the day or night and usually bite the victim's throat, head, or neck. Many animals can be damaged or killed during one attack by one or more coyotes. Control measures include livestock guardian dogs, llamas, burros, donkeys, and electric fences. Poisoning is discouraged due to its ability to kill non-target species; shooting is labor intensive.

Dogs. Domestic and *feral* dogs as well as coyote-dog hybrids are serious threats in most areas, especially suburban areas. These animals may travel in packs of two or more. Marauding dogs often damage many animals at one time, and rarely eat their victims. They usually leave bitemarks in hindquarters and/or neck. Control measures are similar to coyotes; also, contact your county dog control department.

Eagles. Golden and bald eagles will eat *carrion* and kill newborn goats. Newborns less than 10 lbs. may be picked up and carried into the air, then dropped and killed. Birds strike during the day and often eat the eyes out of carrion first, then the nose, navel, and anus. Control by removing kids from large, open expanses of land where birds can swoop down on prey; kid in protected areas or after eagles have migrated out of the area.



Foxes. Damage is typically done to young animals and resembles that of coyotes. Control measures are similar to coyotes.

Raccoons. *Omnivores*; will eat carrion and attack weak or young goats. *Nocturnal.* Scare off with noise, lights, dogs; use live traps and relocate.

Vultures, Ravens, Hawks, Gulls, and Crows. Primarily carrion eaters but can be very aggressive and attack newborn goats during the day, starting with eating their eyes, nose, navel, and anus. Bring newborns into protected area as soon as possible to prevent damage.

Wild hogs. Damage from hogs occurs when other food is scarce. Hogs will eat carrion and attack live goats, especially during kidding time; the entire carcass may be eaten, leaving no clues. Control with fencing, hunting, protecting kidding area.

Wolves. Rare in most parts of country; multiple animals may be damaged during an evening attack; bites on head, neck, throat, back, and hindquarters. Eat internal organs and hindquarters first; may drag carcass to den, bury it, or return to site for later meals. Control by electric fencing, guardian dogs, lights, housing animals at night.

Udder Ideas

1. Find out how protecting habitat to encourage natural prey (rodents, deer, game birds) for predators can help prevent predators from killing livestock. Give a presentation on what you learned.
2. Give a presentation on identifying predators by examining kill site, tracks, carcass damage, and other signs.

CHAPTER 5

Reproduction

Project skill:	Recognizing when a doe is in labor
Life skill:	Record keeping
What youth will do:	Observe and record the birth of a kid
Success indicator:	Describes the normal kidding process

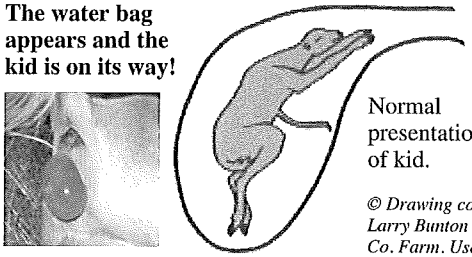
Key My Word!

- **Malpresentation**
- **Retained placenta**
- **Fetus**

And...ACTION!

To get you excited to learn more about reproduction, we are going to start this chapter with everyone's favorite topic: kidding! Many youth with market animals choose to take on breeding projects, too. In this activity you will learn about the normal kidding process as well as some signs of trouble. As always, if you ever have any questions about your goat's health, contact your veterinarian.

The water bag appears and the kid is on its way!



© Photo courtesy Molly Bunton of Fias Co. Farm. Used with permission.

Normal presentation of kid.

© Drawing courtesy Larry Bunton of Fias Co. Farm. Used with permission.

Start Capering

For this activity, you will need a camera (35mm, digital camera, or videocamera) and a goat in labor! Talk with friends, your helper, or local goat producers to find out when some goats in your area are due to kid. Ask if you can record the event on film, either with a camera or videocamera; ask them to call you when the goat goes into labor. It would be best if the animal is due on a weekend or during school vacation. Make sure to be clean, quiet, and abide by the host farm's rules. Do NOT disturb the goat in any way; just film the process of giving birth. If you don't have a camera, that is OK … just watch. Even in a normal birth, this could take an hour or more, so get comfortable!

Attach one of the photos you took here or on a separate piece of paper, draw something you observed.

Record the following information:

Name of host farm or owner of doe: _____

Name or number of doe: _____

Time when labor started: _____

Time when first kid was delivered: _____

Time when second kid was delivered: _____

Time when third kid was delivered: _____

Time when placenta was passed: _____

Time when doe stood up: _____

Time when first kid nursed: _____

Ruminations

Chew Your Cud *(Share)*

- How did you feel as you watched the kid being born?

Gain Ground *(Process)*

- Why is it important to learn about kidding?

Forage for More *(Generalize)*

- How can you learn how to tell when a doe needs help to deliver her kid?

Wattle You Do Next? *(Apply)*

- How can you use the photographic record you created to teach others about kidding?

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- *If the placenta hasn't been passed within 12 hours, it is called a* retained placenta. *This can make the doe ill, so call your vet for advice.*
- *Contact your veterinarian or an experienced goat producer whenever you have a question about a goat in labor*
- *An unborn kid is called a fetus.*

Udder Ideas

1. Create an educational poster about kidding with your printed photographs or drawings.
2. Show your videotape at a group meeting, fair or other public event.
3. Travel with a goat vet and learn how to correct a *malpresentation.*

Project skill:	Describing the reproductive cycle of meat goats
Life skill:	Communication
What youth will do:	Learn about and describe the reproductive cycle of meat goats
Success indicator:	Describes the estrous cycle in goats and understands reproductive terminology

The Birds and the Bees

To My Word!

- **Artificial insemination**
- **Puberty**
- **Estrous cycle**
- **Estrus**
- **Standing heat**
- **Ovulation**
- **Fertilization**
- **Estrous synchronization**
- **Buck effect**
- **Seasonal breeders**
- **Anestrus**
- **Fertility**

The purpose of having a meat goat herd is to produce and raise kids that you can show and/or sell. But simply putting a buck and a doe in the same pen or pasture will not necessarily result in the birth of kids five months later. There are only certain times of the year when most does will become pregnant and only certain times during their reproductive cycle that most does will allow the buck to mate them. An understanding of the doe's reproductive cycle is essential to producing kids when you want them!

Start Capering!

Develop a Web page, poster, demonstration or other activity to teach other youth about reproduction in meat goats. Define terms and explain the doe's estrous cycle, the seasonality of goat reproduction, mating behavior, methods for manipulating the doe's reproductive cycle, and/or parts of the reproductive tract.

In the area below:

a. Attach a print-out of your Web pages; or

b. Draw and label diagrams of the doe's and buck's reproductive anatomy and cycle; or

c. Attach a photo of your poster; and/or

d. Draw the storyboard of your proposed Web page(s), including text (definitions, explanations), drawings (diagrams, clip art), images and links to other Web sites.

A doe's reproductive tract

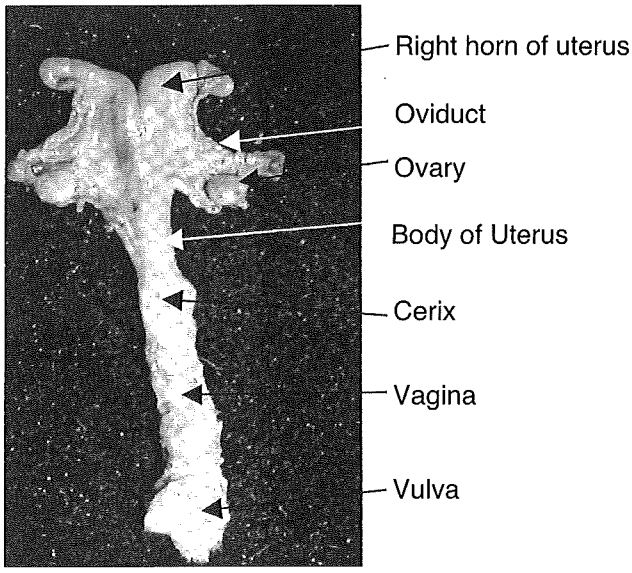


Photo courtesy Dr. Ahmed Tibary. Used with permission.

Ruminations

Chew Your Cud *(Share)*

- Describe the goat's estrous cycle and name the parts of the reproductive tracts.
- Where did you find the information you needed for this activity?

Gain Ground *(Process)*

- Why do you think goats are short-day breeders and produce young in the spring?
- Why is it important to understand the goat's reproductive cycle?

Forage for More *(Generalize)*

- What are some consequences of not understanding the goat's reproductive cycle?
- How do you like to receive information—over a Web page? In a book? On a poster? Through a lecture? Why?

Wattle You Do Next? *(Apply)*

- What did you learn that you can apply to your goat project in the future?
- How can you improve your ability to communicate what you know to others?

Udder Ideas

1. Observe a buck and doe during the mating and non-mating season and note the behavior differences.
2. Draw and label the reproductive parts of a doe and buck.
3. Get a reproductive tract from a slaughtered goat (doe and/or buck) and identify the parts.
4. Research the hormones that control various aspects of the reproduction cycle.
5. Observe *artificial insemination* in goats.

Meat of the Matter

The Nuts and Bolts of Breeding Goats

To breed, goats need to have reached *puberty*. Some goats reach puberty as early as four months of age, but the average is more like six to nine months. Age is not the only factor that determines when a goat is ready to breed. Health and body condition are also important factors. Only well-grown does should be bred at seven months to kid at a year of age. As a general rule, does should achieve 70 percent of their mature body weight before being bred for the first time. Pregnant doelings should be kept separate from mature does and fed at a higher level of nutrition that not only supports pregnancy and maintenance, but also continued growth.

In the northern hemisphere, most goats are *seasonal breeders*, meaning they are more likely to breed during certain times of the year and less likely to breed at other times during the year. Goats are called "short-day" breeders because they start their reproductive cycle when the length of day becomes shorter, in late summer through early winter. Though some breeds and some individuals within all breeds have tendencies to breed "out-of-season," *fertility* is generally highest for goats during their normal breeding season of August through January.

During breeding season, the doe will come into heat every 18 to 22 days (20 to 21 is the norm). The *estrous cycle* is the period from the beginning of one *estrus* to the beginning of the next. Estrus (or heat) is the period when the doe is receptive to the buck. The duration of estrus varies from 12 to 48 hours. Within that duration, *standing heat* usually lasts 24 hours. Standing heat is when the doe stands firmly when a buck mounts her.

There are many signs that a doe is in heat and ready to be bred by the buck: an increased level of activity, tail wagging, frequent bleating and urination. A doe in heat will seek out the buck and may mount another doe or allow another doe to mount her. Her vulva may appear swollen and have a discharge. At the beginning of the heat cycle, the discharge is clear and colorless. It becomes progressively whiter towards the end of standing heat. *Ovulation* (egg release) usually occurs 12 to 36 hours from the onset of standing heat. A doe will continue to cycle every 20 to 21 days until she becomes pregnant or enters her non-breeding *(anestrus)* period. Lactation tends to inhibit estrus.

During the breeding season, the buck will urinate on his front legs, chest and beard to attract does. When a buck finds a doe in heat, he will begin to court her. He begins by sniffing her vulva and urine. He will raise his head and raise his upper lip. He may nudge the doe with his shoulder while pawing her with a foreleg. Finally, the buck will mount the doe and deposit semen (sperm and fluid) into her reproductive tract; *fertilization* of the egg may or may not occur.

It is possible to manipulate the doe's reproductive cycle to increase reproductive efficiency. It is possible to use hormones to control the doe's reproductive cycle, either to bring does into heat out-of-season or to *synchronize estrus* in multiple animals. Controlling the amount of light that the doe is exposed to can also affect reproduction by "confusing" the doe's hormones into thinking that it is fall, when it is really spring. The *"buck effect"* is another way. If bucks and does are kept separate (no sight, smell, or visual contact) until the start of the breeding season, the introduction of a buck can stimulate estrus and ovulation in does.

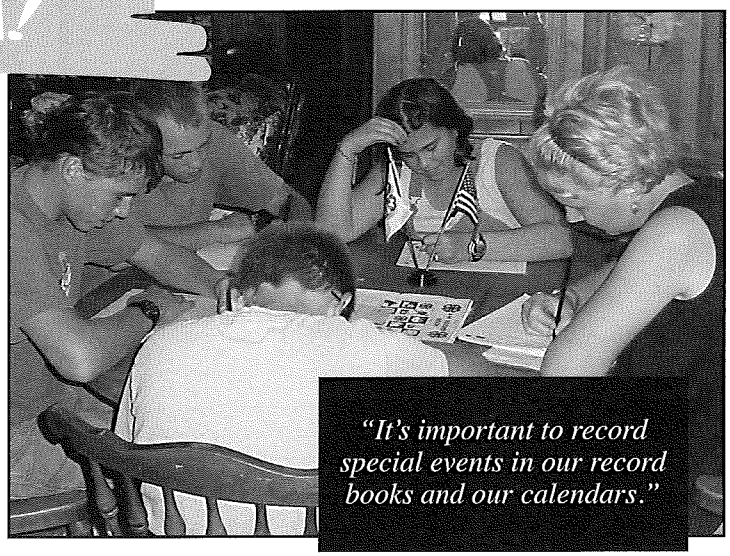
- *Do not let bucks have access to a doe until she is old enough for breeding.*
- *Breeds of tropical origins and meat goat breeds tend to be less seasonal breeders than dairy goat breeds.*

Project skill: Determining breeding dates
Life skill: Decision making
What youth will do: Determine when to breed does to have kids ready at a certain date
Success indicator: Names the factors involved with planning breeding dates to have kids ready at a certain date

To My Word!

- **Gestation**
- **Service**

No Kidding Around!



"It's important to record special events in our record books and our calendars."

Can you think of some reasons why kids might need to be a certain weight at a certain time? That's right—sometimes you might need to have kids ready for a fair or a holiday market. To have kids ready on a certain date, you'll have to be able to work backwards and determine their does' breeding dates. In this activity, you'll learn how to plan so you can have kids ready for a target date. Is your pencil sharpened?

Start Capering

Determine a real or made-up holiday or fair date for which kids will need to be ready. Calculate when you will need to breed your does to have market kids ready on this date.

Market date:_____

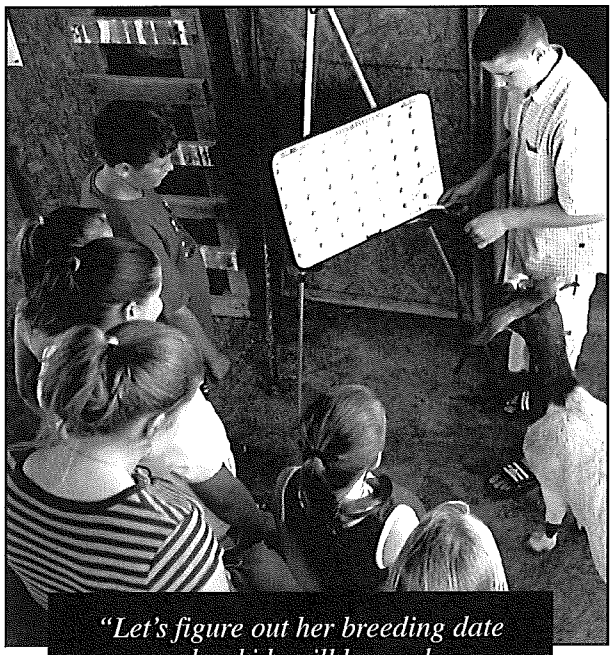
Weaning date: _____

Kidding date:_____

Breeding date: _____

Other information you will need:

- Length of gestation
- Age of meat kids when weaned
- Average rate of gain of meat kids
- Weight of kids when ready for market or show



"Let's figure out her breeding date so her kids will be ready for the sale."

Disclosures/disclaimers: ***Remember, not all does will conceive the first time they are bred. If a doe needs to be re-bred, you will need to adjust your feeding program so the kids will still be ready for a certain market date despite this 21-day delay.***

shiskaBLURB!

- *The gestation period for goats ranges from 145 to 155 days; average is 150 days.*
- *April through July are "out of season" breeding times. Not all breeds will come into heat naturally during these months.*

Ruminations

Chew Your Cud *(Share)*

- How did you determine the breeding date needed to have kids ready on a certain date?
- What type of information did you need to complete this activity?

Gain Ground *(Process)*

- Why is it so important to be able to plan, organize, and make decisions?
- Why are the skills developed in this activity important for meat goat producers?

Forage for More *(Generalize)*

- How can you use your new planning and decision-making skills in another area of the meat goat project?
- What other events that you participate in require planning and scheduling far in advance of the event?

Wattle You Do Next? *(Apply)*

- What will you be doing in the next year that requires you to start planning now?

Meat of the Matter

Pencil It Out

Goats' *gestation* period is 5 months long. The rate of gain of meat goat kids varies greatly depending on breed, feed, genetics, climate, health and so on. For this example, we will use an average daily gain of 0.4# per day from birth to market date.

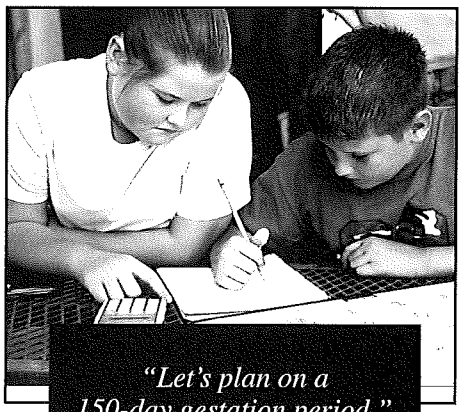
80# market weight
-5# birth weight
75# weight gain needed

75# divided by 0.4# per day = 188 days needed to get to market weight

+150 days of pregnancy
= 338 days from breeding to market

This is only 27 days short of a year. Take the May 5 date and add 27 days. This will give you the breeding date 338 days before the needed market date. The final answers: Breed on June 1; kid born on Oct. 28; ready for sale on May 5. Special management may be needed to get the doe to breed out of season.

Not all animals get pregnant the first time they are *serviced*. To adjust to this fact, you could either breed more than one doe on June 1 to help ensure that a kid will be ready on May 5, or you could allow for two services, one on May 11 and the second on June 1. If she conceives on the earlier service, you could have a kid that is a little heavier than 80# ready on May 5; make sure this is still acceptable with the buyer.



"Let's plan on a 150-day gestation period."

Udder Ideas

1. List the factors involved in getting a kid to market weight and describe what you can do to speed this up.
2. Research the actual dates of various ethnic holidays for which goat meat is desired.

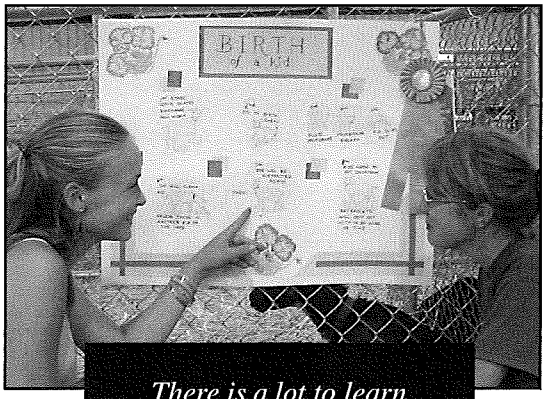
Project skill: Record keeping
Life skill: Record keeping
What youth will do: Devise a system for keeping records to manage kidding in a meat goat herd
Success indicator: Develops a record sheet for keeping kidding records and keeps records on animals

My Word!

- **Birth type**
- **Cull**
- **Data**
- **Micro-chips**

I Kid You Not

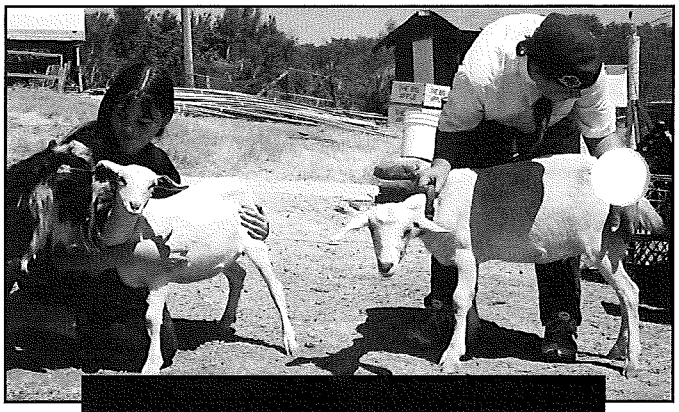
Record keeping is an important aspect of 4-H project work. It helps you set and obtain goals and record accomplishments. In the meat goat project, record keeping takes on even greater significance because it enables you to manage your herd more effectively. By keeping records on kidding, you will know when does are due, which doe is doing the best job, and which kids should be saved for breeding or sold for meat. In this activity, you will develop a record keeping system for a meat goat breeding project.



There is a lot to learn about kidding!

Start Caperin'

Write down the information that you think should be collected and recorded for each doe and kid. Then, visit several meat goat producers and ask them to review their records with you. Develop record sheets or cards for keeping kidding records on a meat goat herd. The record sheet/card may be an individual doe record and/or a barn sheet for recording all the activities of the herd. Attach a copy of the record sheet you developed to this page.



Record which buck breeds which doe and when breeding occurs.

Information to collect and record:

_____

_____

_____

_____

_____

_____

Producers I visited:

_____

_____

_____

Attach the record sheet you develop here.

Ruminations

Chew Your Cud *(Share)*

- Explain the record sheet you developed.
- How did the producers you visited help you?

Gain Ground *(Process)*

- Why is it important to keep accurate records on a meat goat herd?
- What are the consequences of not keeping accurate records?

Forage for More *(Generalize)*

- State examples in your life where it might be important to keep records.

Wattle You Do Next? *(Apply)*

- What other kinds of records should you keep on your goat project?
- How can you teach others about the importance of keeping good records?

Meat of the Matter

For the Record

Records can be very simple or quite complicated, depending upon the needs and goals of each producer. All that is really needed to keep records is a calendar, notebook and/or card file, and a pencil. Past and future events can be noted on a calendar: breeding dates, due dates, kidding dates, booster shot dates, etc. A notebook or card file can contain record sheets for individual does and bucks, as well as barn sheets that contain all the information on kidding for a year or season. Many producers use a computer to keep production records. Records can be entered into a simple spreadsheet or database program. There are a number of commercial software programs that can be purchased for meat goat record keeping.

Of course, to keep records, you must collect information *(data)*. Collecting data need not be cumbersome or time-consuming. Observation is the key, then you must put it down on paper. In addition to breeding and kidding dates, the number and gender of kids born should be recorded, along with their sire and dam. Ease of birth, birth weight, vigor of the kids, *birth type* and mothering ability of the doe should also be noted.

A scale will help you with some important data gathering. At minimum, kids should be weighed at birth and at weaning. Additional weights can be taken before and after weaning. Pre-weaning weights will reflect how well a doe milks, while post-weaning weights will be a measure of the buck's ability to sire fast-growing kids. At the end of the year, you can use your records to determine the performance of individual animals as well as the herd as a whole. This will help you decide which animals to keep and which to *cull*.

Can records help you manage kidding? You bet! Knowing breeding dates will help you determine kidding dates. Important management activities such as boostering vaccinations, deworming and boostering Selenium depend on having accurate due dates. Being observant and recording times of events in a doe's record will also help you decide if and when she needs help with kidding.

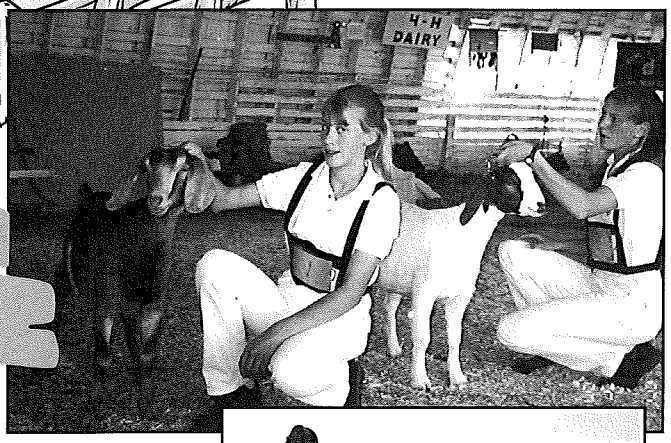
Udder Ideas

1. Develop a record sheet for keeping records on bucks.
2. Develop a record sheet for health records.
3. Collect record sheets from various sources.
4. Using records, compare the performance of your herd with other youth's herds.
5. Write a computer program for keeping meat goat records.
6. Watch someone insert a *micro-chip* in a goat.

CHAPTER 6 Marketing and Products

Project skill:	Fitting and showing market and breed stock
Life skill:	Self-responsibility
What youth will do:	Learn how to fit and show both market and breed stock by observing, working with, and being taught by more experienced exhibitors
Success indicator:	Shows market and/or breed stock at a show, and understands that a successful project takes responsibility

'Round the Ring and Back Again



It takes a lot of work to be successful in the showring.

Taking on the responsibility of getting ready for a show should start early in a project. This responsibility includes fitting your animal properly, practicing showmanship, training your animal and then showing. The whole process is a lot of fun! You have to start early to be successful, though. Are you ready to begin? Take responsibility for investigating all aspects of fitting and showing for the shows in which you plan to participate. Your helpers may suggest references and resource people that can help you.

Start Capering

1. What are three things the youth in photo A are doing to insure that their goats are ready for show?

1. _____
2. _____
3. _____

2. What are three other things you can do to make sure your project goat is ready for show?

1. _____
2. _____
3. _____

3. What are three parts of both meat stock and breeding stock that must be trimmed for a show?

1. _____
2. _____
3. _____

4. Research whether or not your local, county or state show requires additional fitting of market goats. Describe how you will fit your market goat for this show: _____

_____

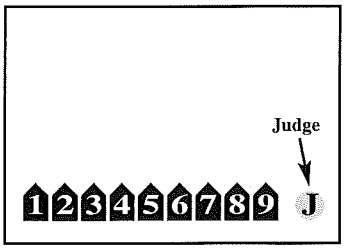
_____

5. List questions that a judge may ask during a show:

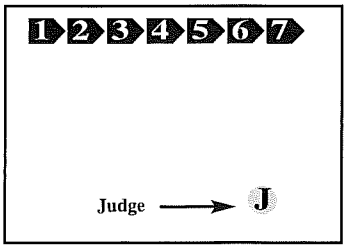
1. _____
2. _____
3. _____
4. _____
5. _____

6. Draw how you would move your animal if a judge

Side-by-side



Head-to-tail



Ruminations

Chew Your Cud *(Share)*

- Where did you get your information on fitting and showing your meat goat?
- How did it feel to take responsibility for your own success?

Gain Ground *(Process)*

- What are you going to do to insure that you and your goat are ready for show?
- What are the consequences of not learning how to fit and show properly?

Forage for More *(Generalize)*

- What other responsibilities have you been entrusted with at your home, in your school and on the farm?
- How do you "fit" yourself every day?

Wattle You Do Next? *(Apply)*

- How will what you learned change how you prepare a goat for a show?
- What would happen if you never took responsibility for anything?

shiskaBLURB!

In the showring, the front of the line should remain at whatever location it begins. If the goat standing at the front of the line is asked to move, the rest of the line should move forward to what was the front of the line.

Meat of the Matter

The Ins and Outs of Fitting and Showing

Proper fitting and showing begins long before you enter the ring.

1. Select a good quality animal with proper conformation.
2. Ensure good health by vaccinating, worming, housing, and feeding properly.
3. Groom, lead, and handle your goat regularly, and get your goat used to being handled by strangers.
4. Investigate fitting and showing regulations for the shows you plan to participate in.
5. Study! Learn about your goat, its breed, showmanship, and answers to questions the judge may ask.

There are many different ways to groom a meat goat for show. You will need to check with your meat goat helper, senior show person, judge, or another knowledgeable person on what fitting standards will be used at your show. Certain aspects for fitting are the same everywhere for market and breed stock. All goats need to be clean and brushed. The long hair in the ears needs to be trimmed. The long hair around the hooves should also be trimmed so that the judge can clearly see the shape of the hoof and the angle of the pastern. You will also need to "square-off" the tail by trimming all the long hairs off the side and tip (see drawing).

Prepare yourself, too! Dress professionally for showing. Dark slacks or pants, black or brown boots or shoes, and a nice long-sleeved shirt are suggested. Never wear shorts, t-shirts, shirts with logos, sleeveless shirts, or open-toed or open-heeled shoes. When you are at the show, remember to smile and have fun!

When you enter the ring, lead your goat in a clockwise direction. Your goat's shoulders should be even with your front legs. Walk at a slow pace that is comfortable for both you and your goat. Always be courteous and give other exhibitors a chance to start up again, catch up, or step back into line if they have trouble with their goat; if his/her goat refuses to move, pass them on the side closest to the judge.

Remember, the judge wants to see as much of your goat as possible at all times. At some shows you will be expected to switch sides, keeping your goat between you and the judge at all times; at other shows, you will be expected to remain on the left side of your goat. An experienced exhibitor, your meat goat helper, or another knowledgeable person can tell you what is most appropriate for showing in your area.

Udder Ideas

1. Give a presentation on how to fit your project for show.
2. Give a presentation on how to show a goat in the ring.
3. Videotape a goat show.
4. Videotape someone fitting a goat for show.

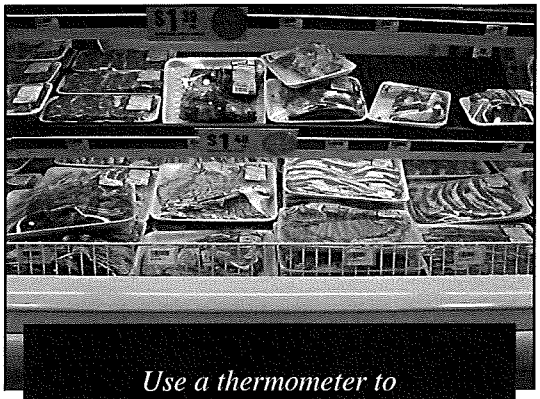
Project skill: Discovering goat meat markets
Life skill: Marketable skills
What youth will do: Learn about the holidays when goat meat is popular, and what type of goat is desired for this holiday
Success indicator: Names three holidays and the type of goat that is desired for each

My Word!

- Consumer
- Collagen
- Cabrito

Holy Cabrito!

Have you ever sold a goat for meat? Who bought it? Were they buying it for a special holiday? Were they satisfied with the animal they bought? In this activity you'll learn more about the holidays when goat meat is popular and the type of goats *consumers* want for these holidays—then you will be better able to meet your consumers' needs!



Use a thermometer to make sure all roasts and steaks are cooked to an internal temperature of at least 145°F and ground meat is cooked to at least 160°F.

Start Capering

Choose one of the holidays in the Holiday Table. Make sure it is a holiday that your family does not celebrate. Find out more about the holiday by surfing the Web, looking it up in the library, or interviewing someone who celebrates the holiday. Then answer the following questions:

- What holiday did you choose?
- What does the holiday celebrate?
- Who celebrates this holiday?
- How is the holiday traditionally celebrated?
- What part of the world does this holiday come from?
- What sort of goat is typically wanted for this holiday (age, gender, weight, and condition)?
- Are there any special requirements for how the goat is slaughtered or processed? If so, explain.
- What sorts of meals are cooked for this holiday?
- Do you live near or know anyone who celebrates this holiday?

Holiday Table

Name of Holiday	Date celebrated in 2004	Date celebrated in 2005
Festival of Sacrifice or Id al Adha	Feb 1	March 21
Passover	April 6–13	April 24–May 1
Roman Easter	April 11	March 27
Greek Easter	April 11	May 1
Cinco de Mayo	May 5	May 5
Independence Day	July 4	July 4
Jamaican Independence Day	August 6	August 6
Dassai or Navadurgara or Nauratra Dashara	Sometime in October	Sometime in October
Ramadan	Oct 15–Nov 14	Oct 4–Nov 3

shiskaBLURB!

- *Did you know that many different calendars have been used throughout history? In everyday life, we use a calendar based on a solar year (the 365 days the earth takes to orbit the sun). However, many religious holidays are influenced by the stages of the moon as well. The Muslim calendar is based on a lunar year, which is 10 to 11 days shorter than the solar year. Passover and both Easters are also affected by the stages of the moon. For example, Roman Easter occurs on the first Sunday after the full moon on or after the March Equinox.*
- *Goat meat accounts for the majority of the red meat consumed throughout the world.*

Ruminations

Chew Your Cud *(Share)*

- Where did you find the information you needed?
- How did learning more about the holidays that other families celebrate make you feel about those families?

Gain Ground *(Process)*

- Why is it important to find out what consumers want before you try to sell them something?

Forage for More *(Generalize)*

- Why should you research something carefully before you try to make a business out of selling it?

Wattle You Do Next? *(Apply)*

- How can finding out more about how other families in the United States live help you to be a better citizen?
- How will you use what you learned to change how, when, or where you raise and market your animals?

Udder Ideas

1. Get together with some friends or your family and prepare one of the typical dishes eaten for the holiday. If you do not have goat meat, substitute another type of meat or choose a recipe that does not include meat.
2. Get together with other youth and an adult and conduct a market survey at your school or local grocery store asking people, 1) Have you ever tried goat meat? 2) If you have never eaten it, what do you imagine it tastes like? 3) Would you be willing to try goat meat? 4) If you have tried goat meat, how often do you eat it? 5) What keeps you from eating it more often? Tally up your results and get together to discuss them.

Meat of the Matter

Got Goat Meat?

Does your family eat goat meat? Goat meat is not traditionally served in the United States but is very popular worldwide. When families immigrate to the United States, they bring along their tradition of eating goat meat. Goat meat is often an important part of their holiday celebrations.

When you sell meat goats it is important to know the dates of the special holidays when goat meat is desired. It is also important to know what sort of goat is wanted for that particular holiday. For some holiday celebrations, a tender, suckling goat kid is preferred; for others a big, mature goat is desired so there's enough meat to feed many people. Some religions require that the goat be slaughtered a certain way or the meat be prepared a special way. Keep in mind that there will be differences in opinion about the perfect goat. It is important to be careful about generalizing about a culture. Sometimes people who originally came from the same country have different ideas about what sort of goat meat they want. One family might want an intact male while another might want a wether. One family might think a goat is too fat while another thinks it's just right. Ask your consumers what they want so you can meet their needs. You will also learn more about their culture and just might make a new friend, too!

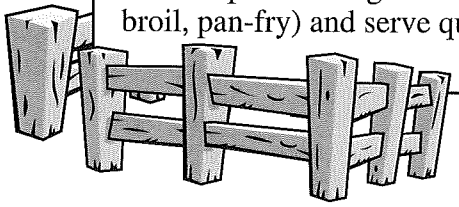
Cooking with Goat Tips

Goat meat is low in fat. It can get dry and tough if cooked at high temperatures and under dry conditions.

The forequarters contain connective tissue called *collagen*. Collagen breaks down to a delicious gelatin if it is cooked properly. Cuts from the forequarter can be marinated prior to cooking or cooked slowly by moist heat to make very tasty stews and curries.

The hindquarters contain less collagen. They are more tender but be sure not to over cook them or they can lose their flavor and become dry. They are good for roasting and braising.

The tenderloin is the underside of the loin. This muscle does not get much exercise and is the most tender part of the goat. It is probably the best part of the goat to cook fast (grill, broil, pan-fry) and serve quickly. Enjoy!



Meat Goat Talk Glossary

A

Abscess - swelling due to infection; contains pus

Anaerobic - without oxygen

Anestrus - a period of no cycling or heat in does, usually during the long-day time of year

Antibodies - proteins produced by animals in response to vaccination or exposure to disease-causing agents; protect animals against disease

Aquifer - porous, permeable, water-saturated rock; where well water comes from

Arthritis - inflammation of the joints

Artificial insemination - placing sperm in a doe using equipment instead of a buck

B

Birth type - the number of offspring born to one doe at one kidding (single, twin, triplet, etc.)

Body Condition Score - measurement of an animal's finish or fat

Breed character - the standard traits of a breed

Breed registry - organization that records purebred animals of a certain breed

Buck effect - introduction of the buck (after at least three weeks of no contact with does) to stimulate and synchronize heat in does

Buffer strips - grassy strips planted alongside water bodies such as streams, ditches or ponds that help to uptake nutrients and filter out particles before they enter the water body

C

Calculi - stones made of minerals in urinary tract.

Caprine - pertaining to goats

Caprine Arthritis Encephalitis (C.A.E.) - disease of the brain, joints and other tissues of goats caused by a certain virus

Carcass-to-bone ratio - a measure of how much of a goat is meat and how much is bone; the higher the carcass-to-bone ratio, the more meat the carcass has

Carrier - animal that harbors a disease-causing agent, often without becoming ill

Carrion - decaying meat; a dead carcass

Chromosome - a strand of special protein found in cells; made up of genes that control inherited traits

Coccidiostats - medications added to feed to control the population of coccidia

Collagen - the tissue that connects bones and muscles; can be boiled down to make gelatin

Colostrum - special milk high in fat, vitamins and antibodies that is produced for the first few days after a female gives birth

Commercial stock - goats that are used for producing market stock only

Comparative reasons - justifiable comparison of goats' characteristics

Compost - stockpile organic residues such as grass clippings, leaves, manure, etc. and allow them to heat, which helps the materials decay quickly into a nutrient-rich soil additive

Consumer - someone who uses goods or services

Cull - to remove an animal from the herd

D

Data - information

Deficient - lacking

Diarrhea - loose or watery manure

Dystocia - difficulty giving birth

E

Ease of kidding - a doe's ability to give birth to kids without assistance

Encephalitis - inflammation of the brain

Erosion - movement of soil particles off the land by water, wind, and other forces

Estrous cycle - the entire hormonal cycle of a female, including estrus, metestrus, diestrus and anestrus

Estrous synchronization - when all does in a herd are at the same point in their estrous cycle

Estrus (heat) - the period when the female is receptive to the buck

Eutrophication - condition in which high levels of nutrients in water cause plant life to grow quickly, depleting water oxygen levels and killing fish

F

Fatal - deadly

Feral - wild

Fertility - ability of an animal to reproduce

Fertilization - when the sperm from the male unites with the ovum (egg) of the female and begins the formation of a new life

Fetus - unborn kid

Flushing - increasing the amount and/or quality of nutrition given to does before and after breeding to increase the number of eggs that are released

Folded ears - the bottom of the ear is folded up (uterine molding), or folded in half horizontally (genetic)

Foundation stock - the first animals in a breeding program from which all other animals in the herd come; includes foundation doe(s), foundation buck, and first generation of kids

Founder - also known as laminitis; inflammation of tissue that connects hoof to underlying bone; usually due to too much carbohydrate intake or high fever

Fungus - a large group of organisms that usually have to live off other organisms or decaying organic matter; includes yeast, mushrooms and molds

G

Gene - unit of heredity found on a certain spot on a chromosome; responsible for a certain trait

Gestation - length of time an animal is pregnant

Grade - a crossbred animal that meets the breed standards of a registry and could be registered as a specific breed; also an unregistered purebred animal

H

Hypothesis - a testable theory that attempts to explain a condition or situation

I

Inflammation - body's reaction to damage, toxins, infection, etc; signs include pain, heat, swelling, redness, and loss of use of affected part

L

Leaching - downward movement of any substance carried by water through the soil

Loin - the edge of the short ribs or loin muscle

M

Malpresentation - abnormal position of kid, making birth difficult

Maternal - pertaining to a mother

Mammary system - the udder, teats, and udder attachment

Micro-chips - small devices that are inserted into an animal's tissue for permanent identification; require a special scanner to be read

Modified live vaccine - vaccine that contains weakened virus that cannot cause disease but against which animals mount a strong protective reaction

Monkey jaw - extends out farther than the front of the top jaw

N

Necropsy - an examination of a dead animal to find out why it died

Nematode - type of intestinal parasite; also known as stomach worms or round worms

Nitrogen - a very common element found in air, proteins, minerals, fertilizers, and animal wastes; used by plants for growth

Nocturnal - active at night

Nutrients - elements such as nitrogen and phosphorous that are found in manure

O

Omnivore - a type of animal that eats a wide variety of food, including meat, plants, grubs, carrion, etc.

Ovulation - when eggs (ova) are released from the female's ovaries

P

Parrot mouth - the front of the top jaw extends over the front of the bottom jaw

Paternal - pertaining to a father

pH - measurement of acidity

Pins - the prominent bones on both sides of the tail head

Placenta - temporary organ that develops during pregnancy to help with exchange of nutrients and wastes between mother and unborn baby

Predation - killing of one type of animal by another

Pregnancy toxemia - a serious illness of pregnant goats caused by inadequate energy intake

Puberty - when an animal is sexually mature and able to reproduce (ovulate fertile eggs or ejaculate fertile sperm)

R

Recumbency - lying down

Retained placenta - placenta that is not passed within 12 hours of birth of kid

Runoff - water that isn't absorbed by soil and flows across the surface of the ground, picking up particles and debris and carrying it into water bodies, storm drains, etc.

S

Seasonal breeders - animals that cycle at a certain time(s) of the year

Sediment - small particles that are carried by water and end up in water bodies

Select - to choose an animal for breeding or other use

Service - breeding or mating

Soil profile - a vertical section of soil showing different layers commonly lettered A, B, C, starting at the surface

Standing heat - the period when the female will stand and allow the buck to mount her

Stature - an aspect of conformation; long bone pattern with shoulders higher than hips

Syndrome - recognizable condition or set of signs

T

Tail head - the beginning of the tail, where it leaves the body

Teat abnormality - any condition in which there is more than one teat with a single orifice per hemisphere of udder, or any other defect in teat size, shape, or appearance

Toxic - poisonous

Toxin - poison

Trait - an observable feature or characteristic

Twinning rate - the percent of live births that were twins

U

Urolithiasis (your-oh-lith-EYE-a-sis) - disorder of urinary tract where mineral crystals and/or stones form and interfere with animal's ability to urinate normally; most common in wethers on high grain diets

W

Weak pasterns - pasterns that are not strong enough to support a goat's body weight

Weaning rate - the percent of kids born that live until at least weaning time

Meat Goat Resources

Associations

International Fainting Goat Association
3450 230th St.
Terril, IA 51364-7510
(712) 853-6372
http://www.faintinggoat.com

American Meat Goat Association
P.O. Box 676
Sonora, TX 76950
http://www.meatgoats.com

American Kiko Goat Association
P.O. Box 186
Lakeland, GA 31635
(229) 244-6058
www.kikogoats.com

American Boer Goat Association
1207 S. Bryant Blvd., Suite C
San Angelo, TX 76903
(915) 486-2242
www.abga.org

International Boer Goat Association
P.O. Box 310
Bonham, TX 75418
(877) 402-4242
www.intlboergoat.org

U.S. Boer Goat Association
P.O. Box 663
Spicewood, TX 78669
(877) 640-4242
www.theibga.org

Books

Meat Goats of Caston Creek
by Sylvia Tomlinson
Redbud Publishing Company, 1999
ISBN: 0739202367

Meat Goats, Their History, Management and Diseases
by Stephanie and Allison Mitcham
Crane Creek Publications, 2000
ISBN: 096644762X

Goat Health Handbook
by Thomas R. Thedford, DVM
Winrock International, 1983
ISBN: 1-57360-001-6

Raising Meat Goats for Profit
by Gail Bowman
Bowman Communications, Inc., 1999
ISBN: 0-9670381-0-3

Your Goats: A Kid's Guide to Raising and Showing
by Gail Damerow
Capital City Press, 1993
ISBN: 0-88266-825-0

Raising Goats for Milk and Meat
by Rosalee Sinn
Heifer Project International, 1986

Meat Goats by Sara Emond
Alberta Agriculture, Food and Rural Development, 1994
ISBN: 0-7732-6119-2

Veterinary Parasitology Reference Manual
by Dr. William J. Foreyt
Washington State University
College of Veterinary Medicine
SCAVMA Bookstore
P.O. Box 2188CS
Pullman, WA 99165-2188
509-335-8359

Goat Medicine by Mary C. Smith and David M. Sherman
Williams and Wilkins, 1994
ISBN: 0-8121-1478-7

Catalogs

Sydell Inc.
46935 SD Hwy. 50
Burbank, SD 57010-9605
800-842-1369
http://www.sydell.com

PBS Livestock Health
2800 Leemont Ave. N.W.
P.O. Box 9101
Canton, OH 44711-9101
800-321-0235

Quality Llama Products & Alternate Livestock Supply
33217 Bellinger Scale Rd.
Lebanon, OR 97355
800-638-4689
www.goatproducts.com

Valley Vet Supply
P.O. Box 504
Marysville, KS 66508-0504
800-468-0059
www.valleyvet.com

American Livestock Supply, Inc.
P.O. Box 8441
Madison, WI 53708-8441
800-356-0700
www.americanlivestock.com

Wiggins & Associates, Inc.
1155 Southwest Towle Ave.
Gresham, OR 97080-9626
800-600-0716
www.wigginsinc.com

Pipestone Veterinary Supply
1300 So. Hwy. 75
P.O. Box 188
Pipestone, MN 56164
800-658-2523

Nasco Agricultural Sciences
901 Janesville Ave.
Fort Atkinson, WI 53538-0901
800-558-9595
www.enasco.com

Caprine Supply
P.O. Box Y
DeSoto, KS 66018
800-646-7736
www.caprinesupply.com

Sullivan Supply
701 Iowa Ave.
Dunlap, Iowa 51529-1335
www.sullivansupply.com
800-475-5902

Magazines

Ruminations
The Nigerian Dwarf Goat Magazine
Editor: Cheryl K. Smith
22705 Hwy. 36
Cheshire, OR 97419
ruminations@karmadillo.com

The Goat Rancher
731 Sandy Branch Rd.
Sarah, MS 38665
gogoats@gmi.net
www.goatrancher.com
(662) 562-9529

The GOAT Magazine
9250 New Salem Rd.
Pleasantville, OH 43148
(866) 221-4628
www.goatmagazine.com
Editor@goatmagazine.com

Ranch Publishing
P.O. Box 2678,
San Angelo, TX 76902
www.ranchmagazine.com/mgn.html
(915) 655-4434
info@ranchmagazine.com

Videotapes

The Line in the Sand Video
What's The Beef Video
A Step Beyond Video
The Heart of the Matter Video
A Question of Ethics Video

All available at:
Goodwin Educational Videos
Instructional Materials Service
Texas A&M University
College Station, TX 77843-2588
(409) 845-6601
Fax: (409) 845-6608
$55.00 per tape; shipping and handling add 10%

Other Resources

Goat Learning Kit
The Ohio State University
254 Agricultural Administration Building
2120 Fyffe Rd.
Columbus, OH 43210-1067
(614) 292-4848
Fax: (800) 292-4919
www.cms.ag.ohiostate.edu/4DACTION/WEB_InventoryIndividualDisplay/4041K

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Communication and Expressive Arts
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- Step Up To Leadership

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- Consumer Savvy
- Financial Champions

Workforce Preparation
- Be the E—Entrepreneurship
- Get in the Act!

Resources

- Experiential Learning Video

Find more about **Meat Goats** and other projects online at:

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The 4-H Pledge

I pledge
my Head to clearer thinking,
my Heart to greater loyalty,
my Hands to larger service, and
my Health to better living,
for my club, my community,
my country, and my world.

Explore more curriculum projects online at:

www.4-hcurriculum.org