National 4-H Curriculum
BU-07911

4-H SKILLS FOR LIFE ANIMAL SERIES

Meating the Future

Level 3

Meat Goat Activity Guide

Name _____

County _____

REVIEWED & RECOMMENDED
National 4-H Curriculum

Note to the Helper

If you were a project helper for youth involved in completing Meat Goat 1 or 2, you know what a great experience this important role is. As a helper, you are in the perfect position to help youth grow and develop in positive ways as they learn about meat goats and about themselves. You nurture and cultivate their interest in this project by guiding their planning, helping them carry out their activities, and recognizing them for a job well done.

Your Role

- Become familiar with the material in this activity guide and the *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 discussed.
- Help them 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, *Meating the Future,* is the third in the series of three for youth, which also includes Meat Goat 1 *Just Browsing*, Meat Goat 2 *Growing with Meat Goats,* 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.

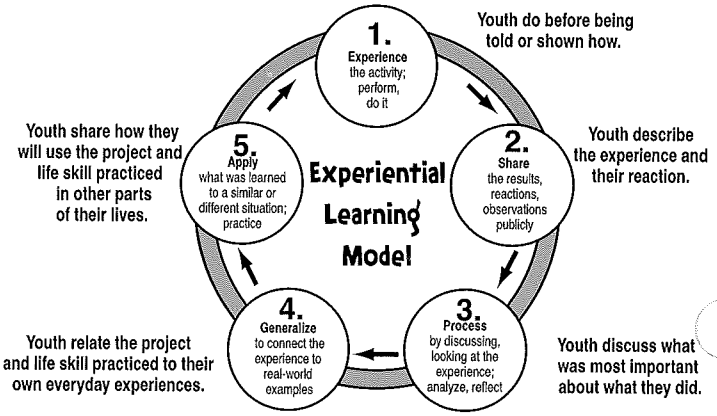
All activities in the guides have several parts: A description of the skills to be practiced, discussion questions, suggestions for additional activities, and additional helpful information. The success indicator listed for each activity is an excellent way to evaluate the youth's success. Each of the 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." Use this before the youth begins each level and after each level is completed.

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 activi and learns from the experience, even when it doesn't work the way it's expected to. You can help with the learning most effectively 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 child care, 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 as 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 on their own. After the youth do as much as they can and answer the questions, you then meet together and discuss: What did they do? What was important about what they did? How does what they did relate to their lives? And finally, 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 participants' 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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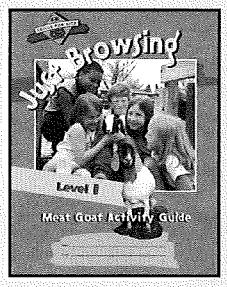
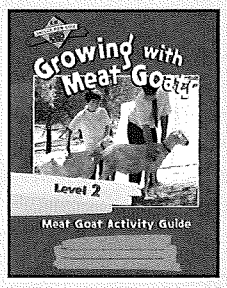
What's Inside?

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

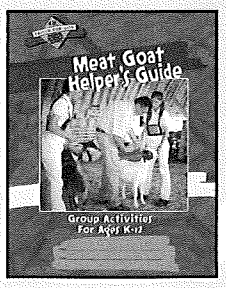
Level 1
Just Browsing



Level 2
Growing with Meat Goats

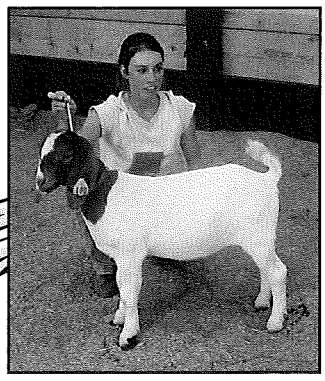


Helper's Guide



Level 3

Meeting the Future

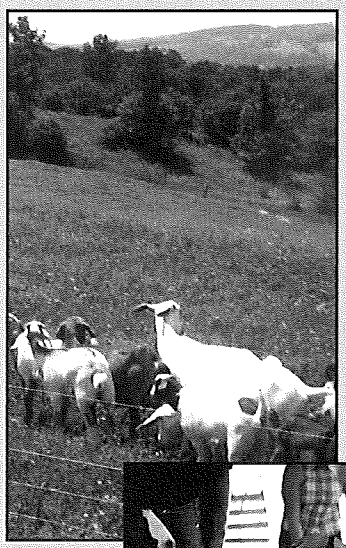


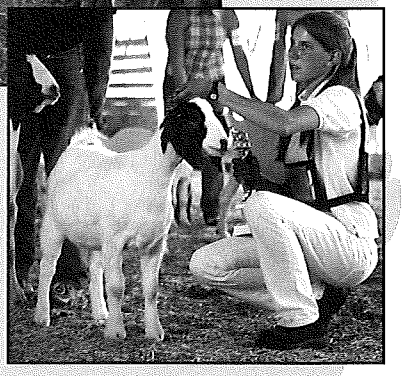
Having Fun with the Meat Goat Project

By now you are probably an expert on meat goats, or you certainly know more than you did when you started this project. Whether you raise one or several project animals, you are in an excellent position to share your experiences with others. *Meating the Future* provides several opportunities for you to develop your leadership skills as you strive to complete the Meat Goat 3 Achievement Program.

Here are some of the things you'll do:

- measure the level of parasite infestation in your herd
- establish your farm's biosecurity
- conduct a judging clinic
- select a herd sire
- judge with oral reasons
- formulate a ration
- measure your pasture's productivity
- consider ethical issues
- examine meat goat products
- investigate land zoning issues
- sponsor a farm field day
- prevent reproductive diseases
- investigate marketing options
- research careers with meat goats





Meat Goat 3 Project Guidelines

- Set your goals and record project highlights.
- Do a minimum of seven activities in Level 3 of the *Meating the Future* Achievement Program each year and complete the Program within three years.
- Participate in a minimum of three of the learning experiences listed on the Planning Guide each year.
- Practice and develop the life skills of keeping records, learning marketable skills, developing self responsibility, making decisions and more.
- Increase your meat goat knowledge and skills.

Achievement Program

While you are having fun doing the activities, you'll also be completing Level 3 of the *Meating the Future* 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 good work.

Your Project Helper

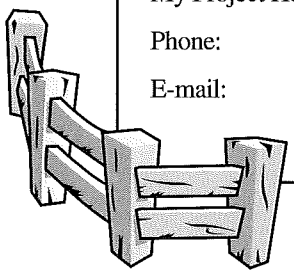
On your team supporting you and making learning more fun is your project helper. This person may be a parent, goat breeder, project leader or advisor, a neighbor, or an older friend who knows about goats. The choice is yours. As you do the activities, discuss with your helper what you did and the questions 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 3 —

Meating the Future

Meating the Future
Planning Guide

Project Goals

Name: _____

My goat's name or number: _____

Breed: _____

What I want to do and learn in Meat Goat 3:

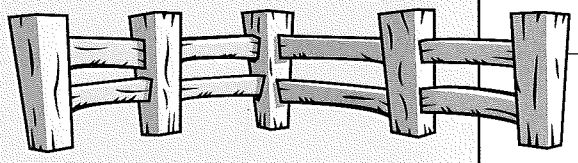
1. _____
2. _____
3. _____
4. _____

Learning Experiences

Complete at least three of these activities each year.

Year	Year	Year	Activity
			Give a demonstration
			Tour a meat goat operation
			Attend a meat goat project meeting
			Attend a meat goat show
			Exhibit at a fair
			Participate in a meat goat skillathon
			Be a member of a meat goat quiz bowl or judging team
			Participate in meat goat showmanship
			Try a meat goat product
			My choice:

Glue a photo of your meat goat here.



Project Highlights

Date and list the exciting things you do and learn.

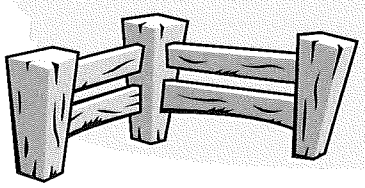
Achievement Program

Directions

1. Do at least seven of the *Meating the Future* and *Udder Ideas* activities each year.
2. Complete at least 21 of the *Meating the Future* 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.

Meating the Future Activities

	Date Completed	Helper's Initials
Chapter 1 Health and Disease		
As the Worm Turns		
The War on Germs		
Chapter 2 Selection		
Behind the Scenes		
Talk the Talk		
Who's Your Daddy?		
Chapter 3 Feeds and Nutrition		
It's a Balancing Act		
In Search of Greener Pastures		
Chapter 4 Husbandry of Animals and Resources		
Is That Ethical?		
This Land is Your Land...		
Ee-i-Ee-i-Oh!		
Chapter 5 Reproduction		
Four for Dinner, Please		
Chapter 6 Marketing and Products		
Getting Market Savvy		
Meat, Milk and More		



Udder Ideas

Select and do any of the *Udder Ideas* activities in *Meating the Future* or make up your own. Record the page and number of each one you complete and ask your helper to initial it.

Page	#	Date Completed	Helper's Initial

Write your own activity here.

Date_____ 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

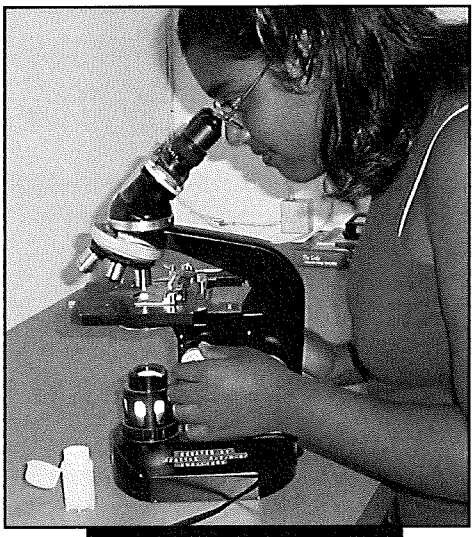
Project skill: Controlling goat parasites
Life skill: Self responsibility
What youth will do: Monitor status of parasites on the farm by running a series of fecal egg counts
Success indicator: Names five internal or external parasites of goats and gives parasite control measures

My Word!

- **Anthelmentic**
- **Quantitative**

As the Worm Turns

Parasites are one of the major challenges to your goat's health, so you have to develop a plan to control them. In this activity you will use your science and recording skills as you assess and monitor the level of parasite contamination on your farm. It will also require some patience, because this activity will take you a year to complete!



"Uh-oh, I see worm eggs."

Start Capering

Find a vet or science teacher who can commit to helping you with this project for one year. Perform a *quantitative* fecal egg count according to the procedure explained in the resource publication on the project Web site. This exam should be done once a month for a year. During the year, practice recommended parasite control measures. At the end of the year, determine if these parasite control measures have helped decrease the fecal egg count in your animals. Your helper will need to help you with the first few exams, but then you should be able to handle things on your own.

Record fecal egg counts once a month for a year and record all parasite control practices. Make a judgment about the effectiveness of your efforts after one year.

Date	Fecal Egg Count (eggs per gram of feces)	Parasite Control Measures This Month

My parasite control efforts DID ___ or DID NOT ___ make a difference in reducing the fecal egg counts in my herd in one year.

shiskaBLURB!

- Haemonchus contortus *is called "the barber pole worm." Can you guess why?*
- Parelaphostrongylus tenuis *is a harmless parasite of deer that requires an intermediate host (snails) to complete its life cycle. If other species such as goats ingest snails infected with* P. tenuis *larvae, the larvae can wander throughout the goat's nervous system, causing paralysis and death.*

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

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

Chew Your Cud *(Share)*

- What types of parasite eggs did you see in the fecal exams you did?
- Did you enjoy this activity? Why or why not?

Gain Ground *(Process)*

- Why is it important for you to take responsibility for controlling parasites in your herd?

Forage for More *(Generalize)*

- What other types of research projects might take a long time to carry out?

Wattle You Do Next? *(Apply)*

- How will you use what you learned to improve your parasite control program?
- How can you share what you learned with others?

Resources:

Veterinary Parasitology Reference Manual by Dr. William J. Foreyt, 1997, 4th edition, Pullman, WA. Available from SCAVMA Bookstore, PO Box 2188CS, Pullman, WA 99165, 509-335-8359.

Udder Ideas

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

1. Visit a feed store and examine goat supply catalogs to see what dewormers are available.
2. Interview a veterinarian about parasite control measures and dewormers for goats.
3. Develop an educational poster about the life cycle of nematodes, flukes, coccidia, lungworms and/or lice.

Meat of the Matter

Controlling Parasites

Goat Parasites

- Nematodes (roundworms including *Haemonchus contortus, Ostertagia, Nematodirus, Bunostomum, Cooperia, Chabertia, Trichostrongylus, Strongyloides, Trichuris, Oesophagostomum*)
- Flukes (flatworms including *Fasciola hepatica, Paramphistomum, Fascioloides magna*)
- Tapeworms (*Echinococcus, Taenia, Monezia*)
- Protozoa (*Eimeria, Cryptosporidium, Toxoplasma*)
- External parasites (ticks, lice, keds, fleas, flies, mites)
- Bots (*Oestrus ovis*)
- Lungworms (*Muellerius, Dictyocaulus*)
- Pinworms (*Skrjabinema ovis*)

Parasite Control Practices

- Feeding in bunks or feeders above the ground where goats can't climb in them
- Raking up and removing manure regularly (daily is best)
- Composting manure
- Spreading composted manure on hayfields, not pastures
- Letting animals graze after grass has dried in mid-morning
- Using *anthelmentics* regularly or when indicated by fecal examinations or your vet
- Worming the entire herd all at once
- Harrowing or spreading manure that accumulates in pastures
- Feeding coccidiostats to all growing animals
- Adding to your herd only healthy animals that have been wormed regularly
- Worming all animals before you bring them onto your farm
- Rotating pastures and resting them for at least three weeks before re-grazing
- Draining or fencing off wet areas if allowed by law
- Using a larvacidal wormer mid-winter to kill larvae over-wintering in dormant stage in animals
- Protecting water sources from manure
- Clipping long pastures so the sun can dry out larvae in moisture on plants near ground

Performing a Survey Fecal Exam

Materials:

- Six to ten fecal pellets
- Microscope (available at your school or vet's)
- Fecal flotation solution*
- Mixing stick
- Microscope slide
- Microscope slide cover slip
- Fecal separator (borrow from your vet or purchase from veterinary supply catalogs)
- Disinfectant
- Gloves
- Reference manual to identify parasite eggs
- Materials for quantitative exam (see reference on Web site)

Performing a Survey Fecal Exam

1. Put on gloves.
2. Place goat feces in fecal separator chamber.
3. Cover feces with flotation solution.
4. Mix well with mixing stick.
5. Insert separator unit.
6. Fill fecal separator chamber to top with flotation solution.
7. Place microscope slide cover slip on top.
8. Wait five minutes.
9. Carefully remove cover slip and place on microscope slide.
10. Examine under microscope at 100x power and identify parasite eggs.
11. Wash hands well.

***Recipe for Flotation Solution**

- 8 oz. (one cup) table sugar
- Just under 6 oz. hot water

Refrigerate to discourage mold.

Parasites of Goats

Mesenteries
Taenia hydatigena
(Cysticercus)

Ectoparasites
Lice - Damalinia
Linognathus
Ked - Melophagus
Strike
Flies - Lucilia
Calliphora
Chrysomya
Mites - Chorioptes
Ticks - Dermacentor
Ixodes
Amblyomma
Boophilus
Otobius

Spinal Cord
Parelaphostrongylus
tenuis

Muscle
Taenia ovis
(Cysticercus)
Toxoplasma
(Pseudocyst)

Brain
Taenia multiceps
(Coenurus)

Nasal Sinus
Oestrus ovis (rare)

Lungs
Muellerius
Hydatid cyst

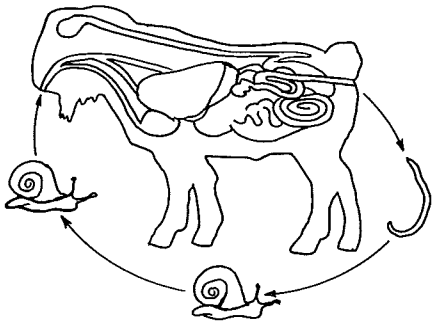
Cecum & Colon
Oesophagostomum
Chabertia
Trichuris

Liver
Fasciola
Thysanosoma

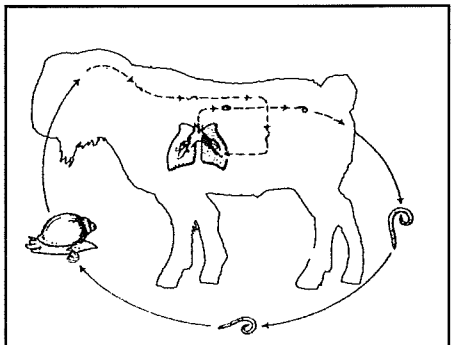
Small Intestine
Cryptosporidium
Trichostrongylus
Cooperia
Nematodirus
Bunostomum
Strongyloides
Moniezia
Eimeria

Rumen
Paramphistomum

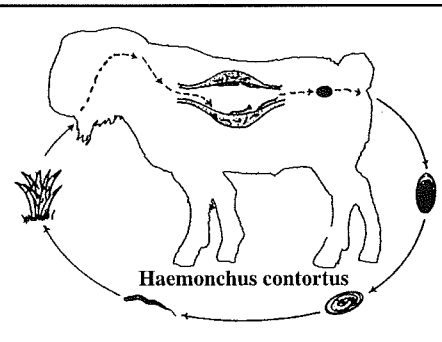
Abomasum
Haemonchus
Ostertagia
Trichostrongylus



Life cycle of Parelaphostrongylus tenuis, *the meningeal worm.*



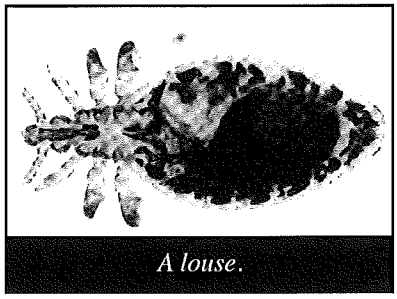
Life cycle of Muellerius capillaris, *the goat lung worm.*



Life cycle of Haemonchus contortus, *an important goat parasite.*

A coccidia egg at 650x magnification.

Nematode eggs at 250x magnification.



A louse.

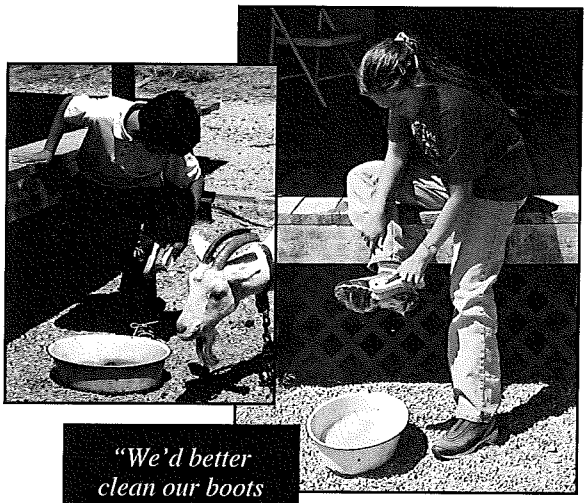
Graphics from "Veterinary Parasitology Reference Manual" by William J. Foreyt. Used with permission.

Project skill: Investigating biosecurity
Life skill: Decision making
What youth will do: Interview several goat producers about their farm biosecurity program, then design a program
Success indicator: Lists three threats to a farm's biosecurity and describes prevention measures

Your Word!

- **Biosecurity**
- **Disinfect**
- **Sanitizers**
- **Quarantine**

The War on Germs



"We'd better clean our boots so we don't spread diseases."

Have you ever noticed the signs in the rest rooms of restaurants that say "Employees must wash hands before returning to work"? Well, that is part of the restaurant's *biosecurity* program. You can't exactly have your goats wash their feet all the time, but there are other things you can do to develop a good biosecurity program for your farm. This activity will help you understand what biosecurity means, learn about biosecurity measures on other farms, and develop a plan for your own farm. Now it's time to put on a clean pair of boots and get going!

Start Capering

Before going any farther, come up with your own definition of "biosecurity." Next, interview three different goat producers about their farm's biosecurity program. (You'll need to do some research first to know what questions to ask them.) Finally, using the results of your interviews and research, design a biosecurity program for your own farm.

What is your definition of "biosecurity"?

What are the results of your interviews?

My Biosecurity Program

Questions to ask producers during interviews:

- Do you have a biosecurity program?
- Do you have a closed or open herd?
- What is your policy regarding visitors?
- What is your policy regarding visitors who have traveled internationally?
- What is your vaccination program?
- What is your parasite control program?
- What steps do you take when you need to purchase a new animal and add it to your herd?
- What factors influenced how you designed your facilities?
- What is your protocol for isolating sick animals?
- What is your quarantine protocol?
- How do you control rats, mice, flies, cats, and birds on your farm?
- What type of disinfectant do you use?
- What type of protective clothing do you use on your farm, and how often do you change it?

shiska BLURB!

The Animal and Plant Health Inspection Service employs hundreds of people throughout the country who inspect plants and animals for important diseases that could threaten our country's biosecurity.

Ruminations

Chew Your Cud *(Share)*

- What is your definition of "biosecurity?"
- How did you feel when you interviewed the producers?

Gain Ground *(Process)*

- Why is biosecurity important?
- What diseases were the producers you interviewed concerned about, and what were they doing to prevent them?

Forage for More *(Generalize)*

- How do you make decisions regarding factors that affect your health?

Wattle You Do Next? *(Apply)*

- How will you teach others about the importance of biosecurity?
- How will you actually apply what you learned about biosecurity to your farm situation?

Udder Ideas

1. Make a scrapbook of current event articles on biosecurity topics.
2. Investigate different types of disinfectants and *sanitizers*.
3. Talk to the operator of a dog kennel and discuss his/her biosecurity issues and program.
4. Develop "blueprints" for the ultimate biosecure goat facility.

Meat of the Matter

Ensuring Biosecurity

By now you have learned that biological security ("biosecurity") refers to establishing and maintaining the health of living things, with an emphasis on reducing the risk of the introduction and spread of disease. There are several specific goat diseases you should be concerned about. Look for information about them on projects on line—Meat Goats on the 4HCCS Web site.

Parts of a Good Biosecurity Plan

Sources of animals. The most secure plan is to have a closed herd. If animals must be brought in, they should come from a reliable source of healthy animals, not an auction or sale yard. Ask your veterinarian to recommend such a source. Test animals for all possible diseases including Johne's Disease, CAE, tuberculosis, Brucellosis, and parasites and only purchase those with negative tests; also, examine them for clinical diseases such as orf, ringworm, CL (abscesses) and foot rot. Do not purchase any with these problems.

Vaccinations. Work with your vet to develop a good annual vaccination program.

Isolation and *quarantine*. Have a well-designed hospital area to isolate sick animals. When doing chores, go from healthy to sick animals, then wash your hands, change your clothes, and *disinfect* your boots and equipment. Have separate feed and water buckets for this area. Isolate all new animals and watch them for signs of illness for AT LEAST two weeks (four is better) before adding them to the herd.

Protective clothing. Use rubber boots that are easy to disinfect. Have several pairs of coveralls—change and wash them often. Use disposable gloves when treating sick animals or when there is a risk of contracting a disease yourself.

Visitors. The most secure facilities do not allow visitors. If you allow visitors and they have been on another farm, ask them to wear clean coveralls and disinfected boots. They should disinfect their boots when they leave your farm, too. People who have visited a farm overseas should launder their clothing, disinfect their shoes and delay visiting your farm for at least one week after international travel. If you visit other farms, avoid livestock pens and direct contact with livestock. Wear protective coveralls and rubber boots; disinfect after returning home. Park vehicles on paved areas away from livestock or feeding areas. Keep tires washed clean.

Vermin control. Flies, birds, rodents and cats can spread diseases from place-to-place on a farm. Take measures to reduce or eliminate the risk these creatures pose.

Facilities. Concrete floors and metal fencing and gates are much easier to disinfect than are dirt and wood. Sunshine, drying and freezing all help kill disease-causing organisms. Good air quality helps prevent pneumonia. Make sure there is enough space for all animals. Crowding stresses animals and they are more likely to become ill. If disinfectant foot baths are used for people or foot baths are used to treat or control foot rot, they must be kept clean and changed often. Keep animals out of feed bunks. Clean pens and haul manure away often. Do not allow over-the-fence contact with animals in other herds.

Disinfectants. Many types are available. Ask your vet to help you pick one. Dispose of used disinfectant as directed on the label.

Personal hygiene. Wash your hands often, especially after handling animals and before eating. Clean under your fingernails.

Biosecurity supplies

- Coveralls—cloth or disposable
- Boots—rubber or disposable plastic
- Latex gloves
- Disinfectant
- Long-handled brush
- Trash bags
- Paper towels
- Spray bottle with disinfectant
- Soap
- Bucket

Chapter 2 Selection

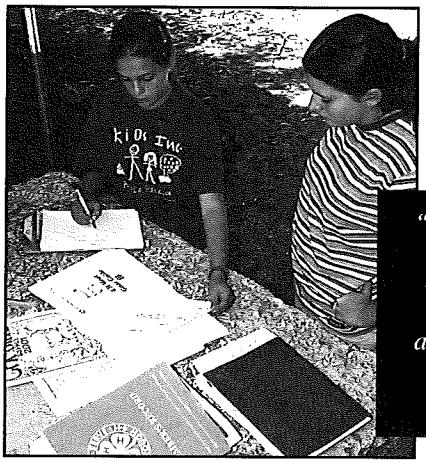
Project skill: Planning and conducting a judging clinic
Life skill: Planning and organizing
What youth will do: Youth will plan, host, and conduct a meat goat judging clinic
Success indicator: Names tasks involved with planning a major event

To Be My Word!
- Resources
- Delegate
- Timeline

Behind the Scenes

Judging is fun, but there is a lot more to a judging event than meets the eye! Have you ever wondered what goes on behind the scenes of a successful event? Well, you're about to find out!

Investigate what is required to host a judging clinic. After you have completed your investigation, inventory your *resources*, create committees, make a task list, develop a task *timeline* and *delegate* responsibility of tasks. The completion of the tasks will result in a successful judging clinic!



"We'll need to be well organized to have a successful judging clinic."

Start Capering

1. Make a list of all resources you have available for this activity.
2. List the names of each committee, members' names, phone numbers and the tasks each person has been assigned. Each person may be on more than one committee and have more than one task.
3. Create a checklist of what needs to be done to host a successful judging clinic. Put "due dates" next to each task on your list and mark them off when they are completed.
4. Create a handout for participants and spectators. Fold and staple the handout to this page. Remember that some spectators may be unfamiliar with goats or livestock shows.
5. Develop a judging scorecard for participants and staple it to this page.

These four doelings would make a good class for judging.

Committee	Member	Phone number	Task
1.			
2.			
3.			
4.			
5.			

"To Do" List	Due Date	Completed?
Example: Reserve building	*July 1*	√
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

Staple handout for participants here:

Staple scorecard here:

Ruminations

Chew Your Cud *(Share)*

- What planning committees did you create for your judging clinic?

Gain Ground *(Process)*

- Why are good planning and organization so important for a large event?

Forage for More *(Generalize)*

- What did you learn about yourself while working with others on this project?
- In what other areas of your life are planning and organizing skills important?

Wattle You Do Next? *(Apply)*

- What are some careers that require good project planning and organization skills?
- What other skills that are important in the workplace did you develop in this activity?

shiskaBLURB!

Companies spend thousands of dollars to send employees to training seminars where they learn how to manage projects.

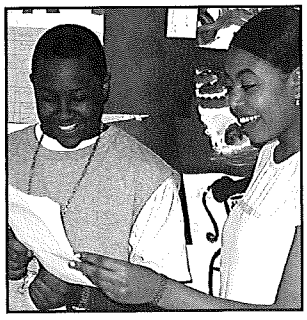
Meat of the Matter

Planning a Project

Committees Needed

Facilities, publicity, finance, equipment, parking, hospitality, clean-up, set-up, judging, livestock, communication, education, prizes.

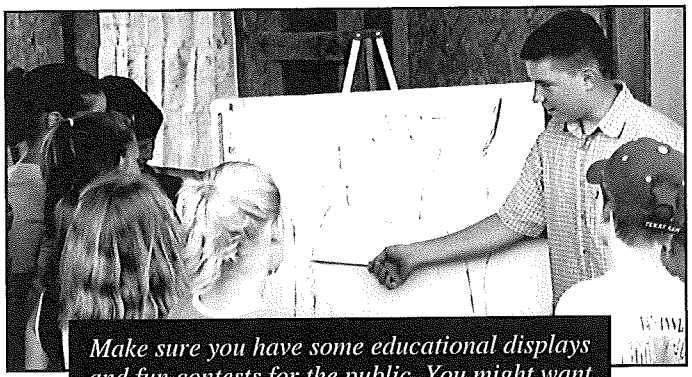
"To do" List



Set date, form committees, assign tasks, reserve building, find healthy goats to judge, get judges, advertise events, call newspaper, arrange for photographer, order educational publications, obtain insurance, arrange for livestock transportation, order portable toilets, make registration forms, make handouts, make scorecards, make oral reasons scorecards and scoresheets, solicit donations for prizes, get tables, get bleachers, get speakers for educational programs, make educational displays, develop judging contests, develop educational skillathon stations, develop carcass data display, get first aid kit, obtain equipment needed, schedule judging classes, set up boot and hand-washing stations, set up holding pens (with shade and water), set up showring, get refreshments, present educational workshops on judging and giving oral reasons, organize volunteers to grade scorecards, clean up, send thank you notes.

Handouts for Spectators

The day's schedule, judging terminology, names of goat parts, list of sponsors and donors, source of goats, information about the judge, life skills taught with judging, information about 4-H and/or the host club, carcass information, recipes and a fun activity like a crossword puzzle or scavenger hunt.



Make sure you have some educational displays and fun contests for the public. You might want to have a goat calling contest, weight guessing contest, hay bale tossing contest and small, friendly kids for young children to pet.

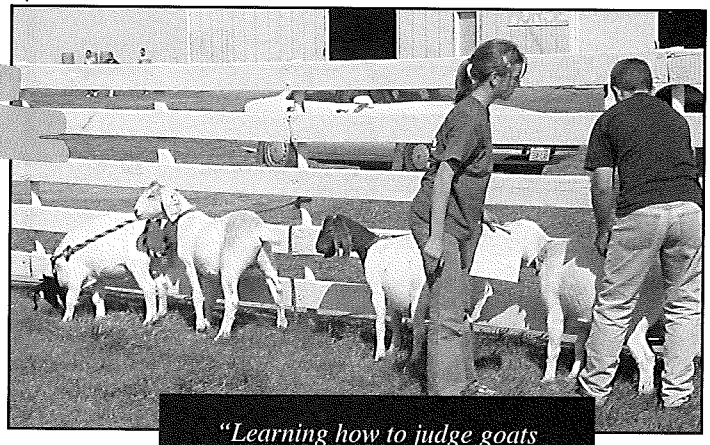
Udder Ideas

1. Plan and conduct another large event such as a 4-H field day, kid show, farm tour, sale, open house, demonstration day, parade of breeds, etc.

Project skill: Judging with oral reasons
Life skill: Decision making
What youth will do: Give reasons in comparative terms for selecting one animal over another
Success indicator: Provides solid reasons for a judging decision

My Word! • **Breed Standard**

Talk the Talk



"Learning how to judge goats will help me select good animals for my herd."

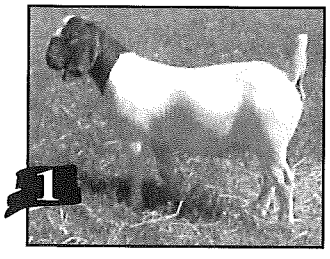
Giving oral reasons is very simple—you do it every day when you tell others why you like one thing more than something else. Judging is pretty simple, too. Every time you decide something is better than something else, you've judged. If you combine these two actions—choosing one thing over another and telling people about your choice—you are judging with oral reasons. Now all you have to do is apply the skills you are already using to goats!

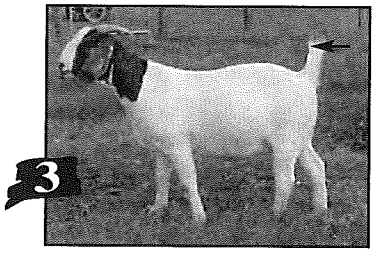
Start Capering

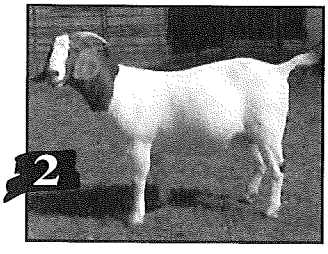
A. There are seven traits that should be your primary focus when placing goats. List the seven traits in order of their importance:

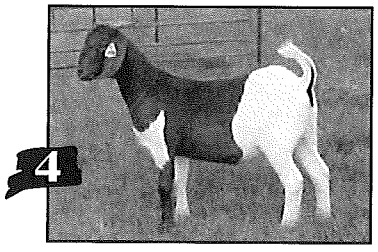
1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____

B. Study the pictures shown and write a set of oral judging reasons. Make sure your reasons include the category and trait and comparative terms. The introduction has been written for you.









Photos courtesy Jack Mauldin

Oral Judging Reasons

I am starting this class of yearling Boer doelings with doe #_____. She is placing over the second-place doe for having greater . . .

Ruminations

Chew Your Cud *(Share)*

- Share with your helper why you like or do not like giving oral reasons.
- What are some things to remember when giving oral reasons?

Gain Ground *(Process)*

- Why is it important to be able to communicate your decisions effectively?
- Why should you use comparative rather than descriptive terminology when giving reasons?

Forage for More *(Generalize)*

- What are some other times you need to explain a decision you have made?
- How will your judging, communicating and decision-making skills help you in your goat project? In your life?

Wattle You Do Next? *(Apply)*

- What are other activities you can participate in to improve your decision-making and communication skills?
- How will being able to express reasons for your decisions help you in the future?
- How can you help others learn how to state their reasons for making a choice?

Acknowledgement:
The International Boer Goat Association
Marsha Gustafson, Pat Hendricks, Annette Maze,
Chris Strickland

Meat of the Matter

Judging Meat Goats

Have you ever felt as though judges were speaking a foreign language when they gave reasons for their placements? It's actually very easy to talk like a judge; you just have to remember a few simple rules.

- Always introduce your class and tell your audience which goat is standing in first place (example: "I am going to start this class of yearling Boer does with the doeling standing on my right.").
- Always start with your first place animal and go straight down the line ("One is placing over two for…., two is placing over three….").
- Always compare positives (example: "She excels in General Appearance, having a more correct rear leg set…").
- There is always at least one nice thing to be said about every animal (example: "Our last doe today must be commended for her excellent breed character and…").
- Always judge the animal as you see it today, NEVER project into the future OR allow consideration for poor management practices of the owner.

A good judge will refer to categories and traits within those categories. Judges try to find two reasons to justify each placement. For example, a judge might say: "One is placing over Two for the advantage she has in General Appearance (category), showing greater (comparative) strength of top line (trait reason #1) and a more desirable (comparative) rear leg set (trait reason #2) when viewed from the side. However, she will yield a more ideal (comparative) depth of body (trait) to the doe standing second. For this advantage in Body Capacity (category), Two will…."

All goats are judged against an ideal standard. The judging standards of an organization put individual traits into categories and assign point values to them; the more important a trait, the higher the point value. This standard varies from breed to breed and is set by the breed association. You need to know what standard to judge by. Many times this decision is made for you by a show committee. If you are competing in a judging contest, be sure to find out well in advance what standard they will be using. To find out what the *breed standards* are, you will need to contact each individual breed association or look for information on their Web site.

Udder Ideas

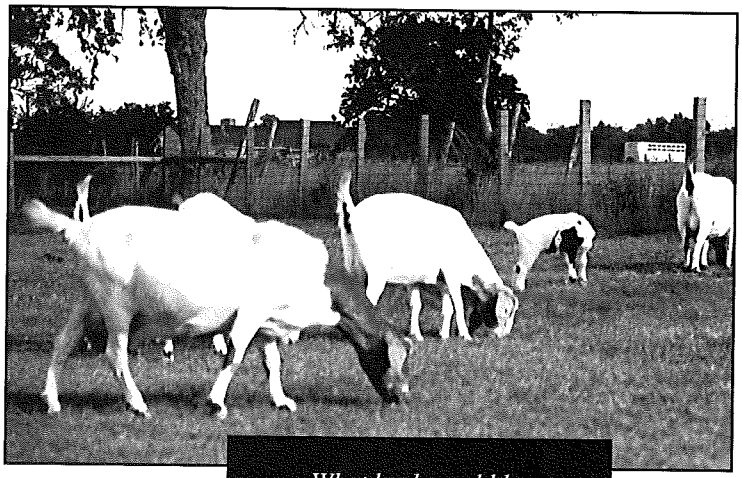
1. Participate in a judging contest.
2. Teach others how to give oral reasons.
3. Make a videotape of someone giving oral reasons.

Project skill: Choosing sires to improve a herd
Life skill: Decision-making
What youth will do: Select which bucks are best for particular herd situations and construct a selection index
Success indicator: Decides which breeding sires to use based on evaluation of sires' and does' production traits

Who's Your Daddy?

- Tandem selection
- Dry lot
- Estimated progeny difference
- Inbreeding
- Line breeding
- Performance test
- Progeny test
- Selection index
- Non-assortative mati
- Rib-eye area
- Heritable
- Out crossing
- Rear leg circumference
- Heritability
- Milking ability
- Average daily gain
- Feed efficiency
- Cross breeding

What makes a good herd? A healthy environment, good nutrition, shelter and health care definitely help. The genetic make-up of your herd also plays a big part in determining how good your herd is. The bucks you decide to use for breeding will have a major influence on your herd's genetic makeup and performance. Breeding bucks can be evaluated and selected for several different heritable traits. In this activity, you'll select a breeding buck for each of three different herds using different kinds of genetic evaluations and then construct your own selection index.



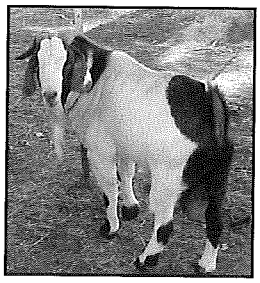
What buck would be best for this herd?

Start Capering

Imagine that you are asked to recommend herd sires for three different herds from two lists of sires. The first list of bucks has undergone *performance tests* at a buck testing facility. Decide which buck from this set would work best in each herd. Are any important traits missing? The second list of bucks has been *progeny tested* to see how well their offspring perform. Now, select a buck from this set for each herd. What traits would you select for your herd? As your final activity, construct a *selection index* using three traits that are important to you.

shiska BLURB!

- *Remember, the does in your herd are often sired by different bucks, so their performance records can be used as progeny tests for their sires.*
- *If a sire's EPD for weaning weight is + 5 his future offspring will average 5 pounds heavier at weaning than the offspring of an average buck (after adjusting for herd environment, litter size, sex, season of birth, age of dam, and any other environmental factors that might affect weaning size).*



A paint Boer buck *Photo courtesy Arn4A,© 2002 GoatWorld.com. Used with permission.*

Performance Tested Sires

	Buck 1	Buck 2	Buck 3	Buck 4
Rank by Index	2nd	1st	3rd	4th
Average Daily Gain (lb./day)	0.85	0.80	0.70	0.60
Feed Efficiency (lb. feed/lb. gain)	6.0	5.0	6.5	7.0
Rib Eye Area (square inches)	1.6	2.0	2.4	2.1
Rear Leg circumference (inches)	15.0	18.0	21.0	16.0

Progeny Tested Sires

	Buck A	Buck B	Buck C
Rank by Index EPD*	2	1	3
Weaning Weight EPD	+ 4	+ 3	+ 2
8-Month Weight EPD	+ 4	+ 5.5	+ 6
Milking Ability EPD	+ 2	+ 3	+ 1

* EPD is the *Estimated Progeny Difference* of this buck's kids compared to the kids of all other bucks evaluated.

Make Your Own Selection Index

Trait	Importance	%
Trait	Importance	%
Trait	Importance	%
Total Importance (should sum to 100%)		%

Herd #1:
Sells male kids for the Easter market prior to weaning. All doe kids are kept as replacements. Does are in barn on hay and grain while raising kids and then pastured until winter.

I chose performance-tested buck ___.
I selected him because

_____
_____
_____

OR...
I chose progeny-tested buck ___.
I selected him because

_____
_____
_____

Herd #2:
Male kids are either sold to 4-Hers as show prospects or raised on a *dry lot* until 8 months old. Carcasses are then sold to restaurants paying a premium for top quality hindquarter cuts.

I chose performance-tested buck ___.
I selected him because

_____
_____
_____

I chose progeny-tested buck ___.
I selected him because

_____
_____
_____

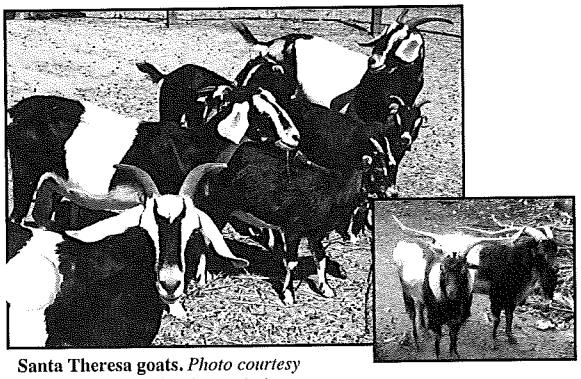
Herd #3:
Male kids are dry-lotted after weaning and sold at 6–8 mo. of age by live weight. Females are sold to other commercial producers.

I chose performance-tested buck ___.
I selected him because

_____
_____
_____

I chose progeny-tested buck ___.
I selected him because

_____
_____
_____



Santa Theresa goats. *Photo courtesy Stephen Bird. Used with permission.*

Summary

If I had to choose the same buck to use on all these herds, I would select

Buck # _____ because _____

_____

San Clemente bucks. *Photo courtesy Earth Spirit Preserve. Used with permission.*

Ruminations

Chew Your Cud *(Share)*

- How did you decide which sire to use in each herd?

_____
_____
_____
_____

Gain Ground *(Process)*

- Why are different bucks better for different herds?
- Why is it important to consider more than one factor when making a decision? Give an example.

_____
_____
_____
_____

Forage for More *(Generalize)*

- Give an example of a trait of your parents or grandparents inherited by you or another member of your family.
- Give an example from your own life of a situation where you had to consider many factors in order to make a fair decision or evaluation.

_____
_____
_____
_____

Wattle You Do Next? *(Apply)*

- When you have to make decisions about other things in the future, how might writing down the positives and negatives of each help you?
- What records do you have to keep to evaluate how well different bucks' progeny are performing in a herd so you can make comparisons?

_____
_____
_____
_____

Acknowledgements:
Thanks to Dr. Terry Gipson, E (Kika) de la Garza Institute for Goat Research, insights and edits

Genetically Improving Your Herd

The first step in selecting a buck is to evaluate your herd. What inherited traits are most important to profitability and where is the most improvement needed? Decide which *heritable* traits you want to focus on in your herd. Remember that genetic improvement usually slows down as you include more traits.

Tandem Selection

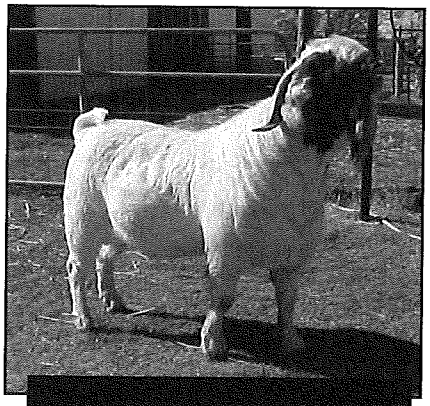
Tandem selection is when you focus on one trait until it has improved to an acceptable level in your herd and then switch to another trait. For example, you might focus on getting meatier conformation on does and later switch to getting more milk. The disadvantage with tandem selection is that progress is inconsistent because it can't consider the relationships between traits. For example, if meatier does also tend to be poorer milkers, then you may actually be selecting your does for opposite traits each time you make a switch.

Non-Assortative Mating

Another common practice is *non-assortative mating*. This is when you breed a goat that is weak in some traits to a goat that is strong in the same traits and vice versa. You might breed a goat that is short in stature but high in muscling to one that has tall stature but less muscling. The disadvantage again is that the relationship between traits isn't considered. Using non-assortative mating doesn't allow you to identify genetically unique goats, such as an unusually tall goat with heavy muscling.

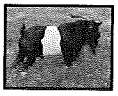
Independent Culling Levels

Two other methods allow you to make faster genetic progress. One way is selecting on "independent culling levels." This is when you only consider sires that meet certain standards for each trait. You might use only bucks who were from twin or larger litters, in the top 5% of their herd for yearling weight, and in the top 10% for overall conformation. Unfortunately, you ignore bucks that may be so superior in one trait that it makes up for their other deficiencies.



Would this buck improve your herd?

Photo courtesy Jack Maudlin. Used with permission.



A Fainting buck.
Photo courtesy Gloria Humphrey © 2002 GoatWorld.com Used with permission.

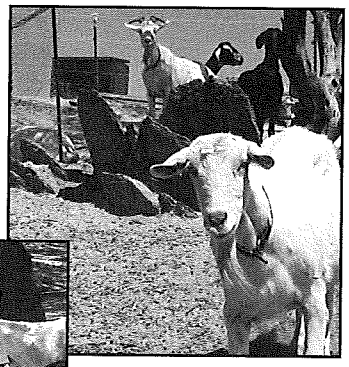
Selection Index

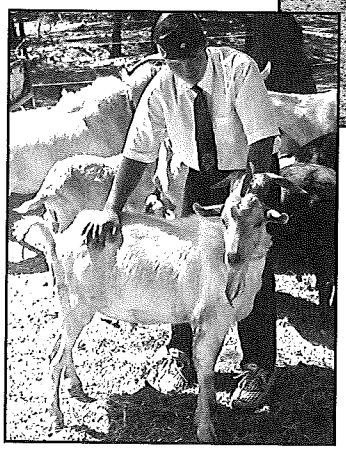
Another way to select bucks is to use a selection index where you weigh each trait by its relative value and then calculate each buck's overall score. One example is the Oklahoma Meat Buck Performance Test. Bucks are scored 30% on feed efficiency, 30% on average daily gain, 20% on rib-eye area, and 20% on rear leg circumference. Selection indices usually result in the fastest genetic progress.

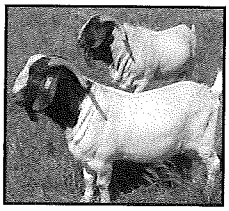
Performance Testing

Bucks can be evaluated on their own performance and/or on their offsprings' performance. Performance testing is when bucks are taken to special testing facilities and treated equally and fed individually. It is valuable for traits with high *heritability*; for example, market weight. Progeny testing is when you evaluate a buck based on his offspring. The buck's offspring need herdmates born in the same kidcrop but from different sires to compare against and you usually need genetic links across more than one herd. It requires good record keeping but is the best way to evaluate traits like litter size and *milking ability* that are strongly influenced by environment as well as genetics.

A sire contributes 50% of the genes in a kid crop, so take some time to select the right buck for your herd.







A Boer sire and his son.
Photo courtesy Butch Elrod, © 2001 GoatWorld.com Used with permission.

Udder Ideas

1. Obtain a performance test summary from one of the meat goat performance stations and decide which buck you like best.
2. Decide on a three-year breeding strategy for your own herd or an imaginary herd. Describe the selection criteria you would use for choosing herd sires and for deciding which doelings to keep every year for herd replacements. List culling criteria for deciding which mature does to cull every year.
3. Investigate *cross breeding*, *line breeding*, *inbreeding* and *out crossing* breeding programs.

CHAPTER 3 Feeds and Nutrition

Project skill: Formulating a ration
Life skill: Decision making
What youth will do: Formulate a ration for their meat goat
Success indicator: Formulates a balanced ration for meat goats

My Word!

- Amino acids
- Fats
- Grass tetany
- Growth
- Lactation
- Maintenance
- Protein
- Reproduction
- TDN
- Non-protein nitrogen

It's a Balancing Act

Just like each of us, goats need a balanced diet to grow. A balanced diet includes the correct proportion of each nutrient. Nutrients enable us and our goats to grow and develop properly. Your goat relies on you to provide the proper balance of nutrients in its diet. It's time to learn how to do it!

Do you know how much hay your goats will eat this year?

Start Capering

Using information presented in the following tables, balance a ration to meet the nutritional needs of your goat. Use Table 1 to determine the requirements of the goat you wish to feed (weanling, yearling, pregnant doe, lactating doe, or buck). Next, using Table 2 as a guide, determine the value of the feedstuffs you intend to feed your goat. Determine how many pounds of each feedstuff you intend to feed.

Multiply the pounds of each feedstuff by its percent of each nutrient (*protein*, *TDN*, calcium, and phosphorus); this will give you pounds of each nutrient provided by the diet. Once you have completed this for each feedstuff, add up the columns. For a balanced diet, the number in the bottom of each column should meet or slightly exceed the nutrient requirements for your goat.

Feedstuff	Amount Fed (lb.)	Protein (lb.)	TDN (lb.)	Calcium (lb.)	Phosphorus (lb.)
Total provided by diet					
Requirement					
Surplus or deficit?					

"I'm glad my owner knows how to formulate a balanced ration for me!"

Table 1. Nutrient Requirements for Meat and Fiber Producing Goats[1,2]

Nutrient	Young Goats			Does		Bucks
				Lactating		
	Weaning (30 lb.)	Yearling (60 lb.)	Dry (Pregnant)	Avg. Milk	High Milk	(80 – 120 lb.)
Daily Feed, lb.	2.0	3.0	4.5	4.5	5.0	5.0
TDN, %	68.0	65.0	60.0	60.0	65.0	60.0
Protein, %	16.0	14.0	10.0	11.0	14.0	11.0
Calcium, %	0.6	0.4	0.4	0.4	0.6	0.4
Phosphorus, %	0.3	0.2	0.2	0.2	0.3	0.2

Table 1. Nutrients in Common Feedstuffs for Goats [1,3]

Feed	% of Dry Matter*			
	Protein	TDN	Calcium	Phosphorus
Fescue hay, full bloom	9	56	.35	.20
Grass/clover pasture, good	15	65	.50	.30
Weathered grass pasture	6	45	.25	.15
Honeysuckle, leaves and buds	16	72	—	—
Kudzu, fresh	18	65	2.50	.40
Shelled Corn	10	88	.03	.30
Whole Cottonseed	24	98	.15	.55
Soybean meal 48	54	88	.34	.75
Dicalcium Phosphate	—	—	26.00	20.00

* Dry matter is the weight of feed when all water has been removed. To calculate how much to actually feed an animal, we have to figure the weight of the water back in. Example: your hay is 90% dry matter. You calculated on a dry matter basis that you have to feed two lbs. of this hay. On an as-fed basis (accounting for the weight that water contributes to feeds in real life), you need to feed 2.2 lbs. of hay (2.2 x 90% = 2.0 lbs. of hay on a dry matter basis).

Ruminations

Chew Your Cud *(Share)*

- What resources helped you with this activity?
- Describe the final balanced ration you developed to feed your animal.

Gain Ground *(Process)*

- Why is a balanced diet important, especially for a growing or lactating animal?
- What types of decisions do you need to make as you formulate a ration for your goats?

Forage for More *(Generalize)*

- What decisions do you make about your own diet?
- What are the consequences of not getting enough energy, protein, vitamins, minerals and water every day?

Wattle You Do Next? *(Apply)*

- How will you use what you learned in this activity to make sound decisions in the future?
- How can you tell if the ration you formulated doesn't meet your goat's requirements?
- How can you learn more about feeding an animal properly?

Acknowledgements:

M. Poore, Nutritional Management of Meat and Fiber Producing Goats, *North Carolina State University*

R.E. Taylor, 1992, Scientific Farm Animal Production, *MacMillan Publishing Company, New York*

Meat of the Matter

The Importance of Proper Nutrition

Efficient *growth, lactation, reproduction,* and the general health of your goat depend greatly on proper nutrition. A certain amount of each nutrient (energy, protein, minerals, vitamins, and water) is necessary for proper health and development. By balancing your goat's diet, you will assure it receives all the proper nutrients in the proper amounts.

Maintenance

The nutrients a goat consumes first meet its *maintenance* needs before they are available to meet the additional needs of growth, reproduction and lactation. Generally, about half of the feed your goat consumes will be needed for maintenance. Maintenance needs are dependent on the environment and the animal's body size. Larger goats require more feed simply to maintain themselves and perform normal body functions such as standing, walking, breathing, regulating temperature, repairing cells, growing hair, etc.

Energy

Energy is the body's fuel. Goats get their energy from consuming carbohydrates, *fats* and sometimes protein. Carbohydrates are found in grain and in the digestible portion of plants. Fats may be found in the animal's grain, but are generally present only when supplemented; they are costly. Protein is the most expensive source of energy, so feeding high levels of protein to enhance energy intake is not economical. TDN (total digestible nutrients) is a means of measuring energy contained in feedstuffs.

Proteins

Diets for young, growing meat goats should contain a total of 14 to 16% crude protein (CP). CP is the most practical and common measurement available to evaluate and compare the quality of goat feeds. The amount of protein in goat rations is much more important than protein quality. Bacteria in the goat's rumen can manufacture some of the *amino acids* necessary for maintenance and growth. Young goats need sufficient amounts of protein to support growth. Goats grow by increasing the number and size of their body's cells. Amino acids are the building blocks of proteins. Amino acids are made of nitrogen. Goats may use *non-protein nitrogen* (NPN) like urea for a portion of their protein requirements, but formulating diets using NPN takes extra care and attention; these rations can be toxic if too much urea is fed at one time, and any amount is toxic to members of the horse family.

Minerals

Minerals are necessary for proper growth and development. Major minerals are sodium, chloride, calcium, magnesium and phosphorus. Some of the trace minerals are copper, iodine, zinc, and selenium. When balancing a diet for goats, be sure to include a trace mineral salt that includes these minerals. Providing free-choice dicalcium phosphate during the first three months of lactation can help meet the doe's needs for calcium and phosphorus. To prevent *grass tetany* during lush spring grazing, provide a mineral mix that contains 20 to 25% magnesium oxide. Do not feed sheep salt to goats because it is too low in copper to meet goats' requirements.

Vitamins

Like minerals, vitamins are essential for proper growth and development. Goats obtain most of the vitamins they need from the forages they consume. Vitamin A is most likely to be deficient if goats are not consuming adequate amounts of green leafy forages. Like most other animals, goats make their own Vitamin D when their skin is exposed to sunlight. Goats raised in barns with little exposure to sunlight may develop a Vitamin D deficiency, so they should receive supplemental Vitamin D in their diet. Rumen microbes make B vitamins, so deficiency is not a problem unless these bacteria die. Goats also make their own vitamin C and K.

Water

Water is the most important nutrient for any animal. A goat may be able to live a couple of weeks without feed, but it will last only a few days without water. Be sure your goat has free access to clean water at all times.

Ration Evaluation

To evaluate rations, you must first understand a few simple concepts and terms about feeds and rations. **Ration** is the total combination of foods that the animal is consuming and the proportions being fed. **Feed** is a mixture of feedstuffs. **Feedstuffs** are classified as either a concentrate or roughage. **Roughages** are forages such as clover, alfalfa, grasses, pasture, hay, and browse. **Concentrates** are grains such as corn, oats, wheat, barley, etc. or high-protein feeds such as soybean meal, cottonseed meal, etc.; they have more energy or protein when compared with roughages, which are higher in fiber.

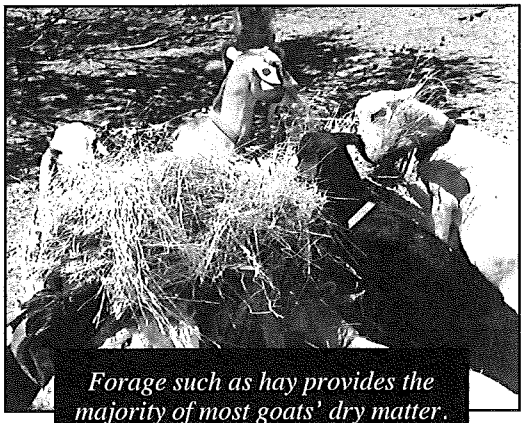
Properly harvested legume hays (clovers and alfalfa) have a protein content of 12 to 23% and can provide adequate to surplus protein for goats. However, CP is not the only factor that must be considered when evaluating and comparing goat rations; TDN must also be considered. Grains are typically high in TDN but low in CP.

In order for a goat ration to be complete, it must have the correct balance of CP and TDN; this is especially important for growing, lactating, and late gestation animals. Both roughages and concentrates often must be provided to ensure proper nutrition. Don't forget the trace-mineral loose salt, either!

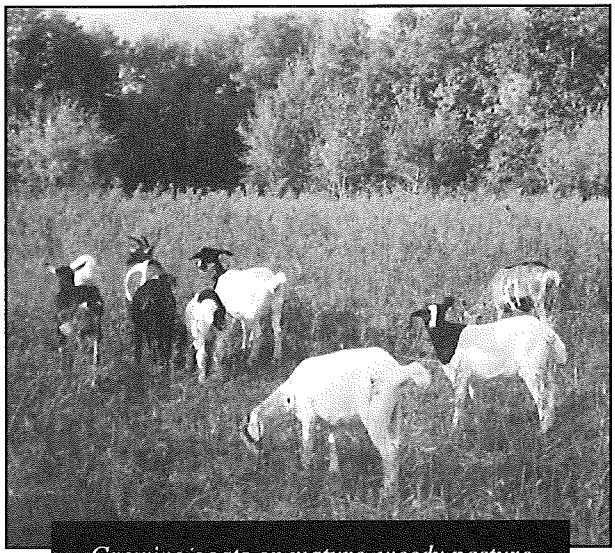
Monitor your animal's condition regularly so you can tell if the ration you formulated is working well. You may need to weigh your goat or learn how to score its body condition to assess how it is doing.

For detailed help with formulating a ration for your animal, contact your county Extension agent.

- *Changing your goat's feed should be done gradually over a 7 to 10 day period because rapid changes can cause rumen microbes to die. These microbes are essential for digestion and health.*
- *Feeding some types of mammalian proteins to ruminants is a violation of federal law. Never feed ruminants any feed that is labeled with this statement: "Do not feed to cattle or other ruminants." This law is part of the national Scrapie Eradication and Bovine Spongiform Encephalopathy prevention programs.*



Forage such as hay provides the majority of most goats' dry matter.



Growing goats on mature, weedy pasture will need additional protein and energy.

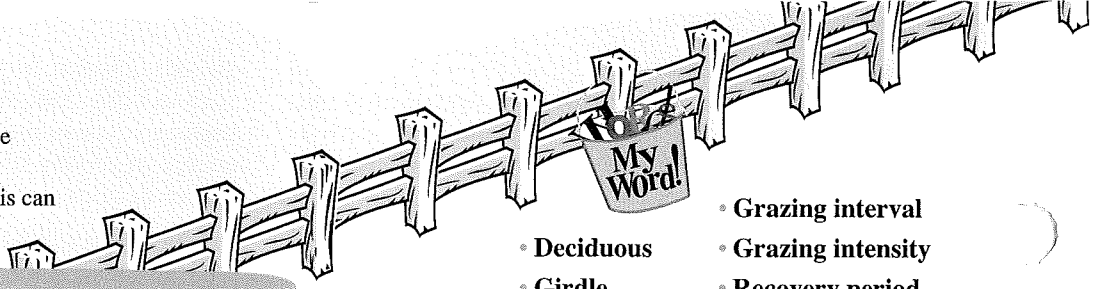
Resources:

1. *Nutrient Requirements of Goats*, National Research Council, 1981.
2. *Feeding Programs for Angora Goats*, 1989, Dr. Frank Pinkerton, Bulletin #605, Langston University.
3. *Feedstuffs for Angora Goats*, Dr. Frank Pinkerton, Langston University.
4. *Goat Manual*, Stephen Schafer, University of Wyoming.

Udder Ideas

1. Using the diet you created above, determine the percent of each nutrient in the diet. To do this, divide each column's total by the total pounds of the diet (example: 12% protein).
2. Work with a younger person and help them balance a ration for a meat goat.
3. Obtain feed tags from various goat feeds and compare ingredients and costs. Why are some feeds more expensive than others?
4. Learn how to use the Pearson Square method to balance a ration.
5. Conduct a forage analysis on some hay or pasture and review the results with your Extension Agent.
6. List the five nutrients and describe what each does in the goat's body.

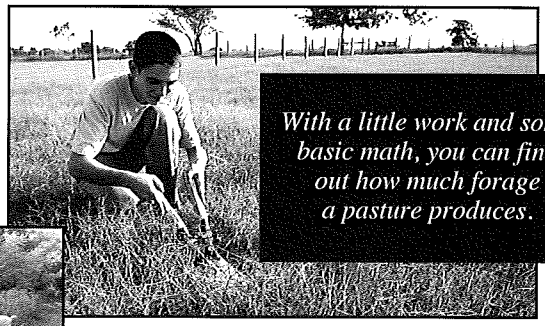
Project skill: Evaluating goat pastures
Life skill: Decision making
What youth will do: Assess the value of forage sample from two pastures
Success indicator: Describes how nutritional analysis can help with pasture management



- Deciduous
- Girdle
- Defoliate
- Grazing interval
- Grazing intensity
- Recovery period

In Search of Greener Pastures

If you want to raise meat goats successfully, it's important to use your resources wisely. In this activity you'll compare two pastures to determine how many goats each of these forage resources can support, and which is more nutritious. Learning to manage your goats on pasture can help put "green" in your own pocket!



With a little work and some basic math, you can find out how much forage a pasture produces.

These goats keep trails open as they browse on multifloral rose, honeysuckle and poison ivy.
Photo courtesy Living Earth EcoVillage. Used with permission.

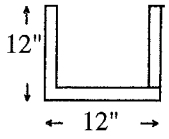
Start Capering

Part 1 – Pasture sampling

You'll need two pastures or forage areas to sample, a "U" shaped frame, two grocery bags, and a pair of pruning shears or old scissors.

- **Step 1:** Choose two fields to sample that differ in the way they've been managed or in the kind of forage in them. Avoid poisonous plants and be sure to get the property owner's permission for sampling.
- **Step 2:** Construct a three-sided wooden, metal, or cardboard frame to sample one square foot of land.

It should have the following inside dimensions:



- **Step 3:** In both fields, walk to the center, close your eyes, spin a few times and toss your frame. Ease plant stems and leaves into or out of the frame so only those whose roots are in the area of the frame have stems and leaves in the frame area. Cut the forage inside the frame down to the level you think it would normally be grazed down to. If the forage is brush, trim only the plant parts goats would normally eat. Put trimmings from each location in a separate grocery bag and label them.

Part 2 – Sample analysis

You'll need a microwave, small scale capable of measuring gram or ounce increments, a microwave-proof cup filled with water, a paper plate, two large pieces of poster paper or newspaper, two 12" squares of cheesecloth or muslin, string, a two-quart saucepan, tweezers, and a waterproof marker.

For each sample:

- **Step 1:** Weigh the grocery bag of forage and record this number. Empty the bag onto a paper plate. Weigh the empty bag and subtract this weight from the total weight of the bag and forage. This will give you the weight of fresh forage in one square foot of the pasture.
- **Step 2:** To determine the amount of water in the sample, arrange the sample in a circle on the paper plate, leaving the center empty (like a doughnut). Heat the sample in a microwave along with a cup of water on high power in three-minute increments. Weigh the sample between each heating. As the sample dries, the weight will show less change. Switch to 30-second increments of heating between weighing. When the weight stops changing, stop heating the sample. Record the weight, empty it back into your grocery bag, and weigh the paper plate. Subtract the weight of the plate from the total weight. Repeat for the second sample.
- **Step 3:** Dump the dried sample on a large piece of poster paper or newspaper. Label the four corners of the paper as 1) leaves, 2) blades of grass, 3) vegetative stems, and 4) twigs and woody stems. With a pair of tweezers, separate your sample into these four categories. Estimate what percentage of your sample is made up of each category.
- **Step 4:** Stir up and crumble your sample. Put a large handful of it in the cheesecloth. Tie shut with a piece of string and label. Boil each cheesecloth bag in a saucepan for one hour in a solution of one tablespoon of baby shampoo per cup of water. Add more water/shampoo solution as needed. Let cool, rinse with cold water, squeeze out each bag and dry the contents. This procedure dissolves the most nutritious parts of the sample, leaving the coarse fibers that a goat can't digest well. Estimate the percent of the sample that is indigestible and record b elow.

FORAGE PRODUCTION MEASUREMENT

Sample Number _____ Location _____

Type of vegetation _____ Type of management _____

Weight of fresh forage: ____ (forage + bag) – ____ (empty bag) = _____ weight per sq. ft.

Dry weight ____ (dry weight + paper plate) – ____ (paper plate) = _____ weight per sq. ft.

Dry matter percentage = $\frac{\text{Dry weight x 100}}{\text{Fresh weight}}$ = _____ = _____ %

There are 43560 sq. ft. in an acre. Dried weight x 43560 = ___ x 43560 = ___ weight per acre

Conversion between units: 454 g = 1 lb. or 16 ounces = 1 lb.

This pasture contains _____lbs. of dry matter per acre.

If a weaned 50-lb. kid requires 5% of its body weight in dry matter per day, how many kids could one acre of this pasture feed for one day? Show your work. _____

_____

_____

Estimate: % leaves____ % grass blades____ % stems____ % non-edible_____ in sample.

Estimate how much of the sample still remains as fiber after boiling: _____%

Ruminations

Chew Your Cud *(Share)*

- How did you sample the pastures?

Gain Ground *(Process)*

- How did the samples differ from each other?
- Which one would you prefer to feed to goats and why?

Forage for More *(Generalize)*

- What information on a nutritional analysis label helps you decide what foods you eat?
- What are some decisions you need to make when it comes to managing your pasture?

Wattle You Do Next? *(Apply)*

- What are other factors that are important in pasture evaluation that were not covered in this activity?
- How could you use scientific analysis and decision making in a future career?

Did you know that goats can eat poison oak and poison ivy with no ill effects?

Acknowledgements:

Sustainable Goat Production: Overview by Linda Coffey, Ann Wells, and Richard Earles, published by Appropriate Technology Transfer for Rural Areas (ATTRA), PO Box 3657, Fayetteville, AR 72702.

Managing Forages for Meat Goats by Bruce and Frank Pinkerton, in *Meat Goat Production and Marketing Handbook*, sponsored by Rural Economic Development Center, Raleigh, North Carolina.

Meat of the Matter

Managing Pastures Wisely

Grazing goats can be very beneficial for the environment. Pasture managers can reduce the use of herbicides to kill weeds, reclaim useful pasture from weeds, establish a firebreak by reducing fuel, and increase land's productivity through grazing of multiple species of animals.

Goats are versatile feeders. They can browse on brush and small woody trees as well as on conventional grass pastures and small weeds. When given a choice, they usually select a diverse diet that includes the youngest, most nutritious parts of several different plants. Almost all goats will browse naturally but goats that have been fed alfalfa or grass hay all their life often have a hard time recognizing the same plants as feed when they encounter them in a field. Goats learn their eating habits from the herd.

Most pastures consist of legume/grass mixtures. Depending on water availability, these pastures can be grazed repeatedly over a growing season and can sustain grazing for many years. In contrast, browse recovers slowly after being grazed heavily. Once *defoliated*, a brush plant must exhaust its root reserves in order to grow new leaves. If browsed repeatedly over a growing season, it may weaken and die, especially if goats *girdle* the trunks. This is no problem if you want to eradicate brush, but it is a problem if you plan on grazing your goats in the same brush pasture over time. Conventional pastures lose protein and increase in fiber rapidly as they are allowed to mature. Browse plants lose their nutritional quality less readily. However, most brush plants are *deciduous* and provide no forage in the winter months.

Generally speaking, pastures should never be grazed below 3" tall, be rested at least 21 days between grazing (non-irrigated pasture will need even longer), and be kept in a vegetative state to keep pasture most nutritious. This means grazing or mowing before plants head out and go to seed. The best way to measure a pasture's productivity is to perform quantitative forage production and chemical analyses.

The chances of goats getting heavy worm infestations from fecal contamination increase when pastures are overgrazed in either duration or frequency. Browse plants are taller; thus there is less chance of goats ingesting worm larvae.

In summary, pastures tend to improve in productivity when grazed by well-managed goats because the goat's diverse eating habits help control weeds. However, the management of goats on pastures (determination of *grazing intervals, grazing intensity, recovery period*) is always an uneasy balance between keeping the pasture young and nutritious while keeping the worm population under control. In contrast, brush pastures tend to get eradicated under sustained goat use despite goats' ability to thrive on them.

Udder Ideas

1. Take a sample from a field with your "U" frame and feed the sample to a goat. Observe and record which parts of the sample the goat chooses to eat first. Make the same observations using samples from different fields and different goats.
2. Send forage samples into a commercial laboratory and ask your Extension Agent to help you interpret the results.

CHAPTER 4

Husbandry of Animals and Resources

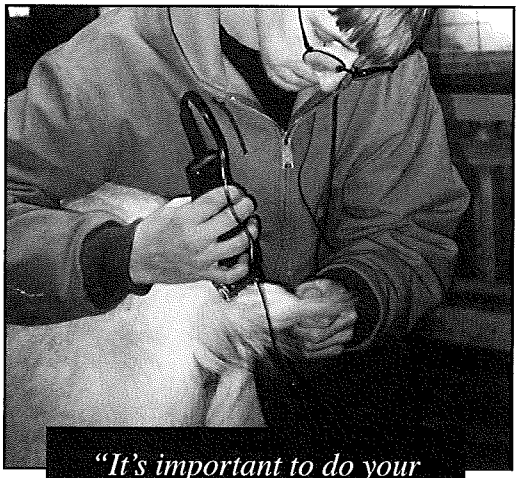
Project skill: Practicing ethics
Life skill: Decision making
What youth will do: Complete the activities and discuss the issues with a parent or other knowledgeable adult
Success indicator: Describes the role of ethics in decisions and practices

My Word!

- **Ethics**
- **Urbanization**

Is That Ethical?

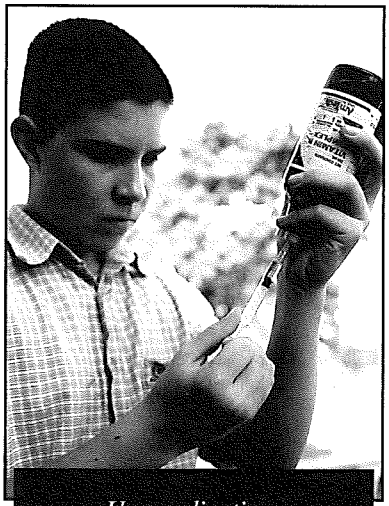
When you participate in 4-H activities, you are carrying on a 100-year-old tradition of positive youth behavior. Because you are representing 4-H, your actions have an impact on the public's perception of 4-H. It is important that your behavior is legal and ethical at all times so that 4-H continues to have a good reputation, and you start to build your own reputation as an ethical and fair person. By understanding what is ethical, you will be better equipped to make correct decisions and do the right thing.



"It's important to do your own fitting when you show your animal."

Start Capering

Work through the situations listed below. Decide for yourself whether or not each is okay according to your own beliefs. Share what you believe with others in your group. Discuss why you believe what you do.



Use medications on a veterinarian's recommendation and follow all withholding guidelines.

Be bold, be brave, and be true to principles, true to ethics, true to real world agriculture, and most importantly, be true to yourself.

— Hubert Wilkerson

What I Believe

Situation	OK? (Legal)	OK? (Ethical)
Flavoring an animal's water		
Filling/pumping the animal with five gallons of flavored water		
Holding a goat off water for two days to make a weight limit		
Tranquilizing your goat due to its temperament		
Giving your goat steroids to improve its muscling		
Trimming your goat's hooves		
Painting black hooves black		
Painting white hooves black		
Dyeing the goat's hair with hair dye		
Using a painkiller in order to help your animal walk better for the show		
Using a painkiller at home in order to help your animal walk better		
Using fake or additional hair when fitting your animal		
Using an antibiotic one day before a sale to help an animal get over a runny nose		
Using an antibiotic/needle to induce swelling to make an animal thicker		
Injecting air or other substance under the skin to produce a thicker animal		
Feeding nutrient supplements in your feed		
Having a professional fit your goat for you		
Paying someone else to care and feed your animal		
Dehorning and castrating animals		
Inserting genes and growth stimulants		

Ruminations

Chew Your Cud *(Share)*

- What are *ethics*?
- What types of unethical behaviors have you witnessed?

Gain Ground *(Process)*

- How do your decisions and behaviors reflect your character?
- Why is it important to make an ethical choice?
- Is ethical behavior even more important if you are representing an organization? Why or why not?

Forage for More *(Generalize)*

- How will what you learned change what you will do when you see someone doing something unethical?
- What are some examples of unethical behavior that you have heard about in the news?

Wattle You Do Next? *(Apply)*

- How will you convey what you learned about the importance of ethics to others?
- What will you do if you have a question about ethical behavior in the future?

Acknowledgements:
Adapted from 4-H beef and dairy curricula. Also adapted from information provided by Sunni B. Page and Dr. Timothy G. Page.

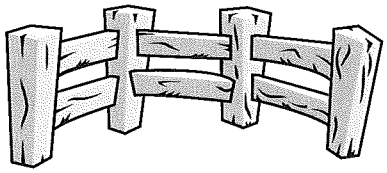
Meat of the Matter

Livestock Show Ethics

The initial purpose of junior livestock shows was to teach young, soon-to-be farmers and ranchers about the business of animal agriculture. Then it was discovered that an added benefit of junior livestock shows was youth development. Positive things happened to young people as they raised and cared for a project animal. Individual responsibility developed and was fostered when an animal was dependent upon young hands for its care and management. Leadership was cultivated as older, more experienced project members taught younger ones what they had learned. FFA and 4-H members learned sportsmanship through their projects as they competed and learned how to win and how to lose graciously, both of which are important life skills.

Today, less than 2% of Americans are directly involved in production agriculture. The *urbanization* of American society brought with it a new function and purpose of the exhibition of livestock: consumer education about agriculture. Urban consumers come to youth livestock shows to learn about agriculture. They do not want to see—nor should they see—unethical behavior from livestock producers of any age. A small percentage of people will do anything in their power to win. Their unethical actions give American livestock production a bad reputation.

Think carefully about your actions—an impressionable youngster could be watching; the public could be watching. If you always act as though you have a camera recording everything you do, you will probably always do the right thing. When you are tempted to bend the rules, ask yourself these questions: "Is it legal? Is it ethical? Will I feel bad about myself afterward? Do I want anyone to know?" If the answer to *any* of these questions is NO, don't do it! You'll be glad you made the right choice.



Examples of Ethical Violations at Livestock Shows

- Fabricating show animals. Covering up defects and putting together the "perfect" animal by use of vegetable oil, air, glue, etc.
- Drenching. Tubing water or other liquids into an animal's stomach to increase their weight is misrepresentation of an animal for the deceptive and deceitful purpose of breaking the rules and/or monetary gain. Drenching animals with special liquid diets is unethical and dangerous to the animal's health.
- Illegal and improper use of drugs in show animals. The disregard of withdrawal times and the use of illegal drugs jeopardizes the safety of our food supply and the future availability of these medications for their intended use.

Udder Ideas

1. Make a video of skits involving ethical issues.
2. Go to www.charactercounts.org and learn more about this program.
3. Watch the livestock ethics video series listed on page 36.

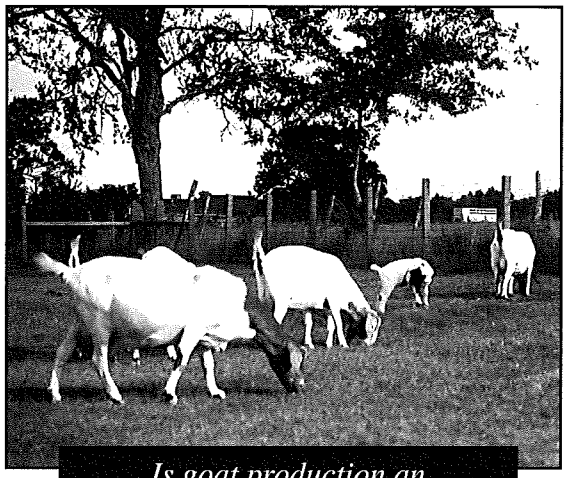
Project skill:	Researching land use issues
Life skill:	Marketable skills
What youth will do:	Research land zoning and its effects on how land may be used
Success indicator:	Completes a land zoning survey and presents the information to peers

My Word!

- **Zoning**
- **Urban**

This Land is Your Land ...

Due to population growth and urban sprawl, less land in the U.S. is now available for raising crops and livestock. Zoning is a tool used by local governments to help regulate land use. It specifies what someone can and cannot do with their land. Raising meat goats may be restricted by some zoning ordinances. It is important that you understand what restrictions apply before you buy land or decide to raise goats.



Is goat production an acceptable use for this zone?

Start Capering

Learn how land is zoned in your community, who is responsible for the zoning, and how that affects what the land is used for. Draw or take a photo of each of three landscapes that represent three different land use zones in your area. Share this information with others in your family or group.

Attach the photos or drawings of each of three landscapes of different land use zones. Complete a chart that highlights the differences between land use zones that are found in your area/community. Determine who is responsible for determining and policing zoning ordinances in your community.

Tape landscape photo 1 here

Tape landscape photo 2 here

Tape landscape photo 3 here

Identifying Land Use Zones

Zone	Title	Description of Zone (type/location of land—allowable uses)

Who regulates zoning in your community? _____

shiskaBLURB!

"Agriculture is the keystone of our economic structure. The wealth, welfare, prosperity and even the future freedom of this Nation are based upon the soil." — Louis Broomfield, in Pleasant Valley

Ruminations

Chew Your Cud *(Share)*

- What did you learn about zoning ordinances?
- Name some zoning categories.

Gain Ground *(Process)*

- Why is it important to have zoning laws?
- How could your meat goat project be affected by zoning ordinances?

Forage for More *(Generalize)*

- What do you need to know about zoning before you purchase land?
- What are your options if what you want to do with your land is not permitted by local zoning laws?

Wattle You Do Next? *(Apply)*

- How can zoning laws help protect land for agricultural use?
- What jobs or careers involve knowledge of zoning laws?

Meat of the Matter

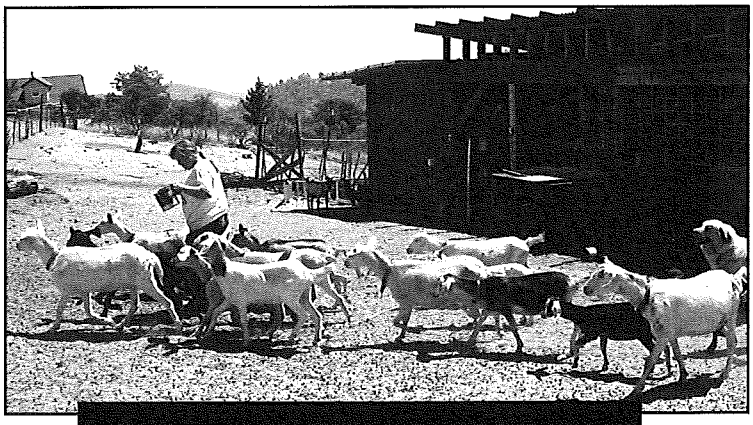
In the Zone

Agriculture is an industry that relies on large tracts of open land. Many *urban* citizens want to own small farms or tracts of land that allow them to spread out, let their pets run, and have some quiet space. As a result, many cities are spreading out and taking land that was previously used for agricultural purposes. People are moving from the city to the country and finding that the transition is not always what they had envisioned. The peaceful oasis they sought may be next to a confined animal operation that produces undesirable odors, or farm machinery that starts running early in the morning.

Land *zoning* helps regulate what land can and cannot be used for. By doing so, zoning laws help avoid conflicts between landowners. These laws also help preserve land for agricultural purposes.

Purposes of Zoning

- Use land for its most suitable purpose.
- Protect or maintain property values.
- Promote public health and safety.
- Protect the environment.
- Manage traffic.
- Encourage housing for a variety of lifestyles and economic levels.
- Manage aesthetics.
- Provide for more orderly development.
- Help attract business and industry.



Make sure your area is zoned for livestock production before you invest in animals or facilities.

Udder Ideas

1. Visit with your county, town, or city planner to determine why "tax base" is an important issue to the growth of a community.
2. Learn about the zoning appeal process in your area.
3. Visit with your county agricultural agent and/or agribusiness owners to determine what happens to local economies when agricultural land is converted to urban land.

Project skill: Practicing advanced goat husbandry and farm management skills

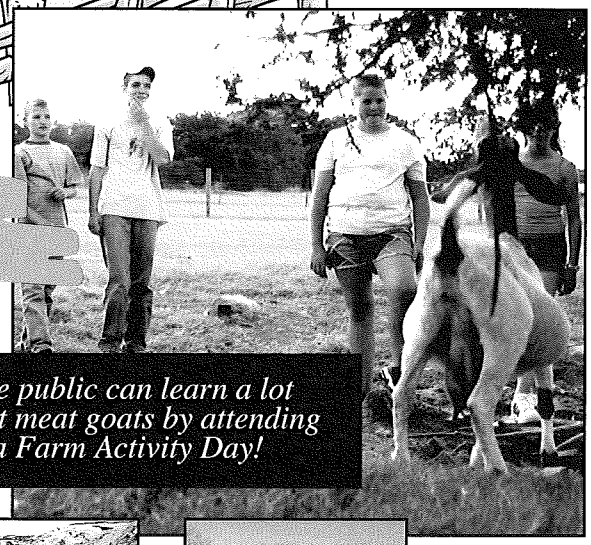
Life skill: Marketable skills

What youth will do: Host a Farm Activity Day and demonstrate various skills

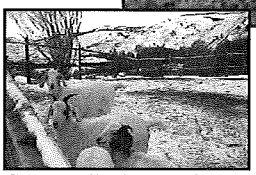
Success indicator: Hosts a successful public education event

Ee-i-Ee-i-Oh!

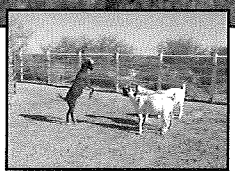
You have learned so much about meat goats! It is now time to learn more goat husbandry skills as you share what you know, not only with other goat producers but also with your community. Plan a public Farm Activity Day during the middle of kidding season. Demonstrate beginning and advanced skills that goat producers need to master. If you don't know these skills, you will first have to learn them from someone with more experience.



The public can learn a lot about meat goats by attending a Farm Activity Day!



Goats can live in cold climates as long as they have shelter and are fed to meet their increased maintenance requirements. *Photo courtesy Juanita Dixon, © 2002 GoatWorld.com. Used with permission.*



Farm tours are a good opportunity to show clean facilities, good fences, safe environments and goat antics to the public! *Photo courtesy GoatWorld.com. © 2002. Used with permission.*

Start Capering

List tasks to accomplish before, during and after the event.

Tasks to Accomplish		
Before	**During**	**After**

List skills to demonstrate and teach at Farm Activity Day.

shiskaBLURB!

Only one to two percent of the U.S. population produces food for the whole country—and the world! Thank a farmer today!

Ruminations

Chew Your Cud *(Share)*

- How did you plan your Farm Activity Day?

Gain Ground *(Process)*

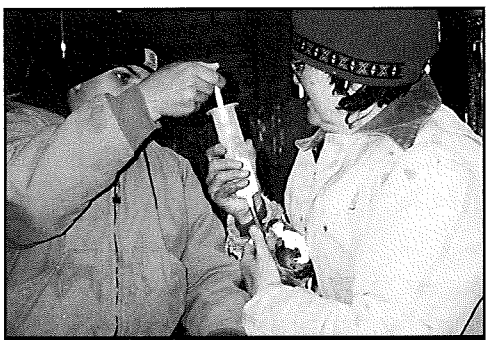
- How does educating the public about goat production help the goat industry?

Forage for More *(Generalize)*

- What did you learn about planning a large event?

Wattle You Do Next? *(Generalize)*

- What do you plan to do with your goats when you graduate from school?
- What jobs or careers use the skills you developed in this activity?



Tube feeding is an essential skill. Have a knowledgeable person teach you how to do it.

Meat of the Matter

Ready, Set, Go!

Farm Activity Day Program Ideas

- Disbudding kids: how and why it's done
- Castration: methods, tools, timing, reasoning
- Hoof trimming: methods, tools, timing, reasoning
- Identification: methods (ear tagging, tattooing, micro-chipping, neck chains), tools, timing, purposes, locations
- Drawing blood for diagnostic purposes
- Biosecurity measures
- Proper injection techniques: locations, methods, reasoning
- Manure/waste management: methods, reasoning
- Body condition scoring: methods, reasons, examples
- Pasture management, including rotational grazing
- Fencing: types, costs, advantages, disadvantages
- Soil and pasture sampling: reasoning, methods
- Ration formulation
- Feed identification: grains, forages
- Breed identification
- Marketing products
- Kidding: normal and abnormal situations, when and how to help, neonatal kid care, kidding supplies
- Selecting show, market, and breeding stock
- Predator prevention programs
- Designing a health action calendar (vaccinations, worming, flushing, Selenium boosters, etc.)
- Handling
- Quality assurance plan
- Facilities: types, reasoning, costs

Planning Checklist

- Find a suitable host farm
- Determine a good day (consider weather, holidays, school schedules, kidding season)
- Advertise on the radio, in newspapers, at feed stores, etc.
- Find someone to be responsible for each skill station
- Determine the skills you want to demonstrate
- Locate tools, instruments, and equipment and make sure they are disinfected and in good working order
- Get volunteers for a registration and welcome station
- Obtain insurance for your event (contact your county 4-H agent for more information)
- Help the host farm with a clean-up day before and after the event
- Learn about each skill being demonstrated
- Set up boot- and hand-washing stations and portable rest rooms
- Determine what refreshments to serve and who will be in charge
- Ask a vet to volunteer to be on hand as a resource person
- Disinfect and return borrowed equipment
- Write and submit a news article to the newspaper (with photos)
- Send thank you cards to all those involved
- Have a debriefing meeting to discuss the event and make it better next year
- Celebrate your success!

Udder Ideas

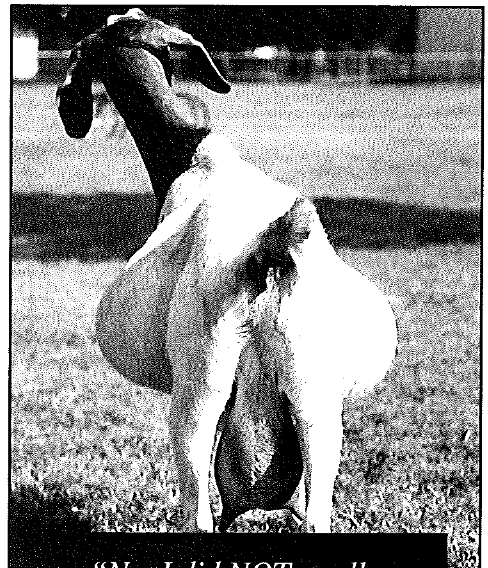
1. Develop a video or photo scrapbook of your Farm Activity Day.
2. Write an educational article about some aspect of goat production for your local newspaper.
3. Write a children's book called *My Visit to a Goat Farm.*

Project skill: Preventing diseases
Life skill: Self responsibility
What youth will do: Prevent various diseases that are common around kidding time
Success indicator: Names three major kidding-time diseases and describes how to prevent them

My Word!
- **Ketosis**
- **Abortion**
- **Mastitis**

Four for Dinner, Please

Five months is a long time to wait for your doe to have her kids! It can be an exciting—and nerve wracking!—time, especially if your goat is expecting multiple kids. Unfortunately, several diseases threaten the health of your doe and her kids, even right up until the time she delivers. In this activity, you will learn about some of the diseases and conditions that can affect your goat's health at kidding time.


"No, I did NOT swallow a Volkswagen!"

Start Capering

Find a veterinarian who treats goats and ask him/her what type of diseases he/she sees around kidding time. Discuss the causes of these diseases, signs of illness, and devise a prevention plan for each one.

Diseases

Name of Disease	Cause	Signs of Illness	Prevention

Q: When is a doe carrying $2,002?

A: When she is carrying two does and two bucks (say it fast!)

Ruminations

Chew Your Cud *(Share)*

- What diseases did you explore?
- How did you feel when you talked with the vet?

Gain Ground *(Process)*

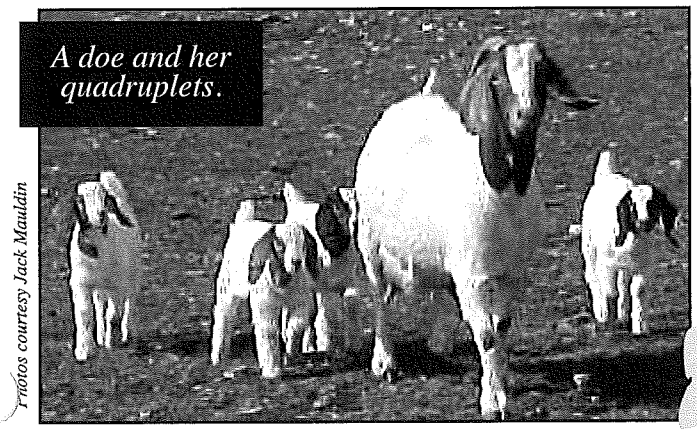
- Why is it important to know about these diseases?
- Why is disease prevention better than treatment?
- Why is it important for you to take responsibility for your animal's health?

Forage for More *(Generalize)*

- How can you show that you take responsibility for your own health?

Wattle You Do Next? *(Apply)*

- How can you use your new knowledge to prevent other diseases of goats?
- How can you share your new knowledge with others?



A doe and her quadruplets.

Photos courtesy Jack Mauldin

Disclosures/disclaimers: *Remember to always consult your veterinarian when you have a question about your animal's health or the diagnosis and treatment of diseases.*

Meat of the Matter

Keys to Preventing Ketosis

Probably the most important disease of late-term pregnant meat goats is *ketosis* (pregnancy toxemia). Meat goats often have triplets and even quadruplets. Toward the end of pregnancy, these kids take up so much room in the doe's abdomen that there is little room for the intestinal tract. Because the doe doesn't have much room for food and because late-term growing kids take many of their doe's nutrients, she can go into negative energy balance. This means that she is expending more energy than she is taking in.

In order to maintain normal blood glucose levels, a doe with this condition must call on her energy reserves (body fat). This helps maintain her proper sugar balance, but some fat breakdown by-products are toxic and reduce the doe's appetite. Without interest in eating, the doe's downward spiral of negative energy balance continues. In severe cases, the only way to save the doe's life is to do a C-section or induce early labor to stop the kids' energy drain on the doe.

Prevention of ketosis is very important. First of all, know your animals' due dates to help with planning. Next, assess their body condition regularly. You want them in good flesh—not too thin, but not fat, either (fat does have much greater problems with ketosis). Most importantly, make sure the does are in a gaining plane of nutrition in the last six weeks of pregnancy. This means that you must gradually start providing more energy to the doe as the kids really start to grow in the last month or so of pregnancy. Hay alone won't do it; you will need to start feeding corn, cottonseed meal, commercial grain mix, or another concentrated source of energy. Ask your vet, Extension Agent, or project helper for help with deciding what to feed. Gradually introduce the new feed and gradually increase the amount fed until the kids arrive. Learn all you can about preventing ketosis because it can be fatal to both the doe and her kids.

shiskaBLURB!

The term C-section is short for Caesarean Section. An unfounded legend has it that the first baby in recorded history who was born by this surgical technique was Julius Caesar of Rome, so the procedure bears his name.

Udder Ideas

1. Watch a vet do a C-section on a goat with pregnancy ketosis, then give a report to your group.
2. Follow a case of *mastitis* through from recognition of signs, collection of a milk sample, laboratory testing, diagnosis, treatment recommendations and recovery.
3. Follow an *abortion* diagnostic workup from collection and examination of the fetus, placenta and blood samples to diagnosis, treatment and prevention.
4. Give a demonstration or create an educational poster about pregnancy ketosis.

Chapter 6 Marketing and Products

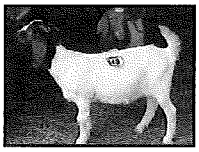
Project skill:	Investigating meat goat marketing channels
Life skill:	Marketable skills
What youth will do:	Interview a goat buyer about marketing options
Success indicator:	Conducts an interview and summarizes the results

My Word!

- **Broker**
- **Dealer**
- **Retailer**
- **Meat packer**
- **Wholesaler**

Getting Market Savvy

Do you think you'll eventually want to raise meat goats as a business or hobby? If so, you'll need to learn how to sell goats. One of the first steps in marketing anything is making market contacts. In this activity, you'll get a chance to meet someone who buys livestock as you learn about meat goat marketing.



Marked for auction. *Photo courtesy Debbie Arnett, © 2002. GoatWorld.com Used with permission.*

Tips on Interviewing

- Call first to arrange an interview. Be sure to introduce yourself, explain the purpose of your interview and how long it will take.
- When you first arrive, "break the ice". For example, thank the interviewee and offer a compliment about their business.
- Listen very carefully to the answers to your questions. Prepare "prompts" (examples of what you are talking about).
- Go with the flow. If the interviewee answers a question before you get to it, avoid asking the question all over again. Don't feel stuck to a rigid order of questions.
- Businesses are busy places and interruptions are likely. If you are interrupted, try not to get flustered. After the interruption, recap what was last said and continue with the interview.
- Write down your notes while the interview is still fresh in your mind (ASAP), and remember to send the interviewer a thank-you note!

Start Capering

Interview in person or by phone someone who buys meat goats. Examples include auction managers, livestock dealers, meat packers, butcher shop owners, or private buyers. Before you contact them, practice asking for the interview with a friend or family member. Then set up an appointment with the buyer to interview them. If there are no meat goat buyers in your area, find another type of meat buyer to interview, or interview a meat goat producer who sells either slaughter goats or breeding stock. Write down five questions about their involvement with the meat goat marketing process. Before the interview, practice asking the questions to a friend who pretends to be the buyer.

Interview Notes

Name of person I interviewed: _____

Job title: _____

Involvement in market channel (i.e. distributor, wholesaler, retailer, etc.): _____

_____

_____

Important questions I asked and answers received:

Q: _____

A: _____

Q: _____

A: _____

What I found most interesting about this market option: _____

_____

_____

Ruminations

Chew Your Cud *(Share)*

- How did you find and choose the person you interviewed?

Gain Ground *(Process)*

- Why was it important to prepare and practice your questions beforehand?
- What did you learn in the interview that changed your perception of meat goat marketing?

Forage for More *(Generalize)*

- Describe another situation where it might help to practice something you want to say with a friend or family member.

Wattle You Do Next? *(Apply)*

- What else can you do to learn more about marketing goats?
- Which market channel do you want to use to sell market goats? Why?

Meat packers slaughter and process animals, then sell to wholesalers or retailers.

Photo courtesy J.P. Muir, Texas Agricultural Experiment Station. Used with permission.

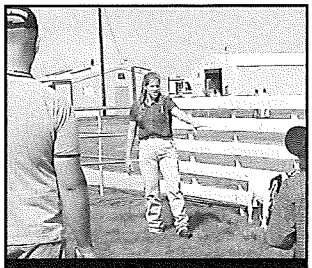
shiskaBLURB!

Did you know that the majority of the world's population relies on goat meat as their main meat and goat milk as their primary source of dairy products?

Meat or the Matter

Marketing Goats

Meat goats can pass through many stages on their way to the consumer. A producer needs to be aware of the functions of each link in the goat marketing chain. Sometimes a producer can accomplish these functions themselves.



Auctions are an easy way to sell your animals but aren't the most profitable.

Many goats are sold to livestock *dealers* at small county auctions or right off the farm. You can also sell your animals directly through a *broker*. Unlike dealers, brokers do not take ownership of livestock; instead they take a commission to sell them for you. Dealers often resell livestock at regional auctions or to slaughterhouses called *meat packers*. Meat packers buy live animals and then slaughter and process them to resell as carcasses and meat cuts to *wholesalers* or *retailers*. Wholesalers operate as brokers or distributors. They generally buy whole carcasses and break them down to distribute to hotels, restaurants, supermarkets, retailers, and institutions. Retailers sell directly to the end consumer. A good example of a retailer is a city meat shop. Some retailers and wholesalers will buy livestock directly from producers. All retail cuts must be processed at a USDA-inspected slaughter plant.

A producer commits to different responsibilities depending on whom they sell to. When you sell to a livestock auction you expend no energy finding a buyer, you know you'll get paid, but you have no control over the price received. When you sell directly to packers, dealers or wholesalers, you need to: 1) contact them yourself, 2) accurately describe your animals, 3) know what your animals are worth and politely but firmly negotiate for this price, and 4) assume risk of nonpayment. Your responsibilities become even greater when you sell to a retailer or to private customers. They may include soliciting customers, receiving orders, arranging processing and shipment, and taking major risks of nonpayment. When dealing with any buyer it is important to know which responsibilities each of you is assuming, what sort of animal the buyer requires, where they usually obtain animals, what sort of price they pay, and what sort of legal protections you have if they fail to pay you.

Resources:
Phone book yellow pages may list local meat shops or livestock auction markets. You can also ask at the meat counter of larger grocery stores. Local auctions and slaughterhouses may be able to provide you with buyer contacts to interview even if they do not buy goats themselves.

Udder Ideas

1. Design a business card or marketing brochure for your farm or an imaginary farm. Advertise either goat meat or breeding stock for sale.
2. Design a business plan to market goat meat directly to retailers, restaurants or private customers. Try to obtain realistic estimates of the costs, labor and responsibilities involved. What sort of prices could you expect to receive?

Project skill: Learning about goat products and marketing
Life skill: Marketable skills
What youth will do: Research three different goat products and learn how they are marketed
Success indicator: Names and discusses three different goat products

Meat, Milk and More

My Word!
- **Marbling**
- **Embryo transfer**

How many goat products can you name? You might be surprised by some of the products that come from goats. In this activity, you'll learn about goat products and how they are marketed. You'll also use your imagination to create a goat product and a marketing plan to promote it.

Your goal: a delicious, nutritious, and healthy product for the consumer.

Start Capering

Grab a pen and note pad and do some market research. Locate at least three goat products for sale in stores or on the Internet. Next, fill out the following table for one of the products you found:

My Product Research		
Product name _____		
Country or state of origin:		
Did a display sign, promotional material, or label accompany it?	Yes	No
If yes, what was the main message it conveyed to you?		
Circle how well you think the product was displayed: 1 (poorly) 2 3 4 5 6 7 (excellently)		
Would you buy this product?	Yes	No
Give two reasons for your decision:		
If the product was imported, is it also produced in the U.S.?	Yes	No
Is there an expiration date?	Yes	No
Is there a USDA stamp or label on the product?	Yes	No
Is there information about the producer? If so, what?		
Is there information about whom to contact for more product information?	Yes	No
Are recipes attached or included?	Yes	No
Are cooking instructions attached?	Yes	No

What other products did you find and where did you find them?

_____

_____

Develop your own idea for a new or improved goat product. On a computer or piece of paper, create a marketing promotion to advertise your new product to potential customers. You can either:

1) Outline and describe a promotional event you could sponsor, or
2) Write a TV or radio commercial script, or
3) Make a mock newspaper advertisement or comic strip.

To begin, answer the following questions to help with your design:

1) Describe your product.
2) What is the target audience you want to reach with your product?
3) Why do you think this audience would be interested in your product?
4) What aspect(s) of your product do you want to emphasize in your promotion?

shiska BLURB!

Angora comes from Angora rabbits. Angora goats produce mohair.

Resources:
American Dairy Goat Association, Cashmere Producers of America, the Dairy Goat Journal, Cashmirror Magazine, the United States Department of Agriculture's (USDA) Livestock and Seed Program, and the USDA *National Goat Handbook*.

Acknowledgements:
Robert Melchior for help with the tanning information.

Ruminations

Chew Your Cud *(Share)*

- What products come from goats?
- What goat product did you create?

Gain Ground *(Process)*

- How should you introduce people to a new product?
- What misconceptions do you think people have about goat products?

Forage for More *(Generalize)*

- How do you experience marketing every day?
- What aspects of a commercial make you interested in purchasing the advertised product?

Wattle You Do Next? *(Apply)*

- What careers involve marketing products?
- What sort of goat products would you like to buy in the future?

Udder Ideas

1. Conduct a market survey to see if there is demand for the product you created. Find out where you can go for funding to help you develop and promote your product. Call newspapers and radio stations to find out the costs of advertisement. Develop a prototype of your product and make business cards and brochures to promote it. Contact your county fair board to see if you can display your product at your county fair. Research the laws that deal with selling your product.
2. Collect labels from various goat products and compare their marketability. If there is something you don't like about one of them, redesign it.

Meat of the Matter

Meat Goat Products

Meat goats produce meat and so much more! Here's a sample of some products:

Fresh and processed meat

Goat meat is popular in traditional ethnic dishes and as a healthy red meat choice. Goats are lean compared to other meat animals and rarely "marble" (deposit their fat as flecks within the meat). Goat fat is mostly deposited around the internal organs where it provides energy and protection against starvation. During processing, the internal fat is removed with the internal organs. Goat fat is low in saturated fats (the "bad" fats), which makes goat meat a healthy choice for consumers.

Goat milk & cheese

Goat milk is used for fresh bottled milk, canned milk, yogurt, ice cream, cheeses, pet food or foster mother milk for orphaned animals, soaps and body lotions. Meat goats generally produce rich, good quality milk.

Goat hides

Goatskins are used for top quality leather and drumheads. Goat leather in the U.S. is manufactured into fancy white kid gloves and work gloves, high quality shoes, wallets, purses, and clothing. Most goatskins are imported from Africa. Drumheads for African and Indian style drums commonly come from goat hides.

Goat fiber

Many goats produce a fine fuzzy undercoat (cashmere) as well as their regular coat of smooth, shiny hair (guard hairs). Cashmere is harvested by combing out the fleece or shearing it. The guard hairs are removed. Cashmere is known for its warmth, softness, and light weight.

Meat goats with some angora genetics may produce cashgora rather than cashmere. Cashgora is coarser and longer than cashmere. The wool from Angora goats is called mohair, not angora.

Skulls

Goat skulls—especially those with large, curved horns—are beautiful and used as decorations in some homes, ranches, hotels, restaurants, etc. They need to have all meat, brain, and other tissue removed, then dried and bleached by the sun or chemical means.

Goat manure

Droppings can be composted and packaged to make garden fertilizer. The average mature goat produces almost 2500 lb. of manure (including bedding material) per year!

Breeding stock, semen, and embryos. This is a very competitive market so customers need to have a reason to buy from one herd versus another. Excellent record keeping, registered animals, stringent quality control and lots of show exposure are required. Embryo transfers require an experienced veterinarian and major capital investments. In contrast, the raising of breeding stock and collection and processing of frozen semen is less complex. Semen collection services are available for goats and some collectors will assist with marketing. With some basic equipment, producers can collect and market semen from their herd sires.

Goats for hire

Goats can be used to control brush and weeds on fire breaks, roads, public lands, parks, medians, orchards and woodlots. Brush goats create pastures with fewer noxious weeds for improved cattle, sheep and horse grazing. They can also be used to create and maintain firebreaks, reduce fire loads in forested areas, reduce herbicide use on public lands, and clean roadside ditches for improved run-off.

Meat Goat Talk 3

A

Abortion - miscarriage or premature delivery of a kid that does not survive

Amino acids - the building blocks in the formation of proteins

Anthelmentic - deworming medication

Average daily gain - how much an animal grew per day over a specified period of time; weight gain divided by number of days fed

B

Biosecurity - protecting living things against diseases

Broker - someone who acts as an agent for someone else and represents them while buying or selling for a fee

C

Crossbreeding - mating animals from different breeds

D

Dealer - buys animals directly from producers or from livestock markets to resell

Deciduous - plants that shed their leaves in winter

Defoliate - removal of a plant's leaves

Delegate - to assign a particular resource to a specific portion of a project, or assign a task to a certain person to accomplish

Disinfect - to clean something so disease-causing organisms are killed and/or their growth is prevented

Dry lot - animals are raised in pens or lots where harvested feeds are brought to them

E

Embryo transfer - removing fertilized eggs from one female and placing them in another female's uterus

Estimated progeny difference (EPD) - the difference in expected performance of future offspring of a sire compared with that expected by offspring of an average sire from the same genetic evaluation

Ethics - the moral principles that identify actions as acceptable or unacceptable as generally observed by society

F

Fats - adipose tissue and its precursors in the diet

Feed efficiency - a measurement of the pounds of feed an animal must eat in order to gain a pound of weight

G

Girdle - to remove the bark from a tree trunk, eventually killing it

Grass tetany - a disease of grazing animals marked by staggering, convulsions, coma and death, caused by low magnesium in lush pastures

Grazing interval - length of time between the beginning of one pasture rotation and the next

Grazing intensity - how many animals are grazed on a unit of land

Growth - the net increase in protein in the animal body. Growth occurs by increases in cell numbers and/or size

H

Heritable - a trait able to be passed down from parents to offspring

Heritability - the amount of variance observed in a trait due to genetics rather than environment

I

Inbreeding - mating closely related individuals

K

Ketosis - condition that results from an animal expending more energy than it takes in, and the illness caused by the by-products of fat breakdown

L

Lactation - the production and secretion of milk

Line breeding - breeding animals together that are not closely related but who share common ancestor(s)

M

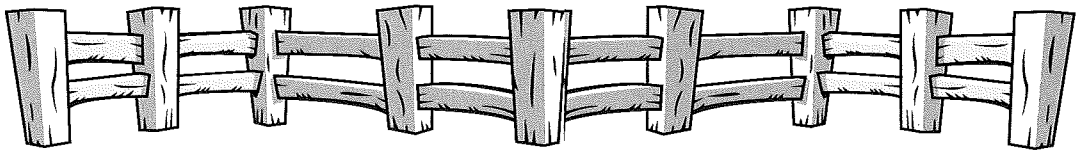
Maintenance - a condition in which the body is sustained without an increase or decrease in body weight and with no production or work being done

Marbling - fat deposited within muscles

Mastitis - inflammation of the mammary gland (udder)

Meat packer - someone who buys live animals from producers, dealers, brokers or auctions, then slaughters and processes the animals and sells the meat to wholesalers and/or retailers

Milking ability - estimate of the amount of milk a doe produces based on the weight gains of her kids from birth to weaning



N

Non-assortative mating - breeding an animal that is weak in a trait to one that is strong in that trait

Non-protein nitrogen - nitrogen in feeds from substances such as urea and amino acids, but not from pre-formed proteins

O

Out crossing - breeding unrelated animals of the same breed

P

Performance test - an evaluation of a group of animals based on their short-term performance in the same environment and feeding system

Progeny test - an evaluation of an animal based on the performance of its offspring

Protein - a substance made up of amino acids that contains approximately 16% nitrogen

Q

Quantitative - precisely measured

Quarantine - to isolate an animal to prevent it from spreading diseases to other animals

R

Rear leg circumference (hind leg circumference) - the distance around the thickest part of the hind leg in inches

Recovery period - how long a section of pasture is rested before it is grazed again

Reproduction - the production of live, normal offspring

Resources - anything that is used in planning or implementing a project, including people, time, money, buildings, paper, animals, written materials, volunteers, etc.

Retailer - sells products directly to the final consumer

Rib-eye area - the cross-sectional area of the loin muscle (rib-eye) at the 12th rib; used in carcass evaluation to determine the meatiness of a carcass; same as loin eye area

S

Selection index - ranking animals based on performance in several traits. Individual performance scores for each trait are weighted by their relative importance; the scores are then combined to come up with an overall index score

T

Tandem selection - breeding program that focuses on improving one trait at a time

Timeline - a written plan of when each project task is to be started and completed

Total digestible nutrients (TDN) - includes total digestible protein, nitrogen-free extract, fiber, and fat in the diet

U

Urban - associated with a city

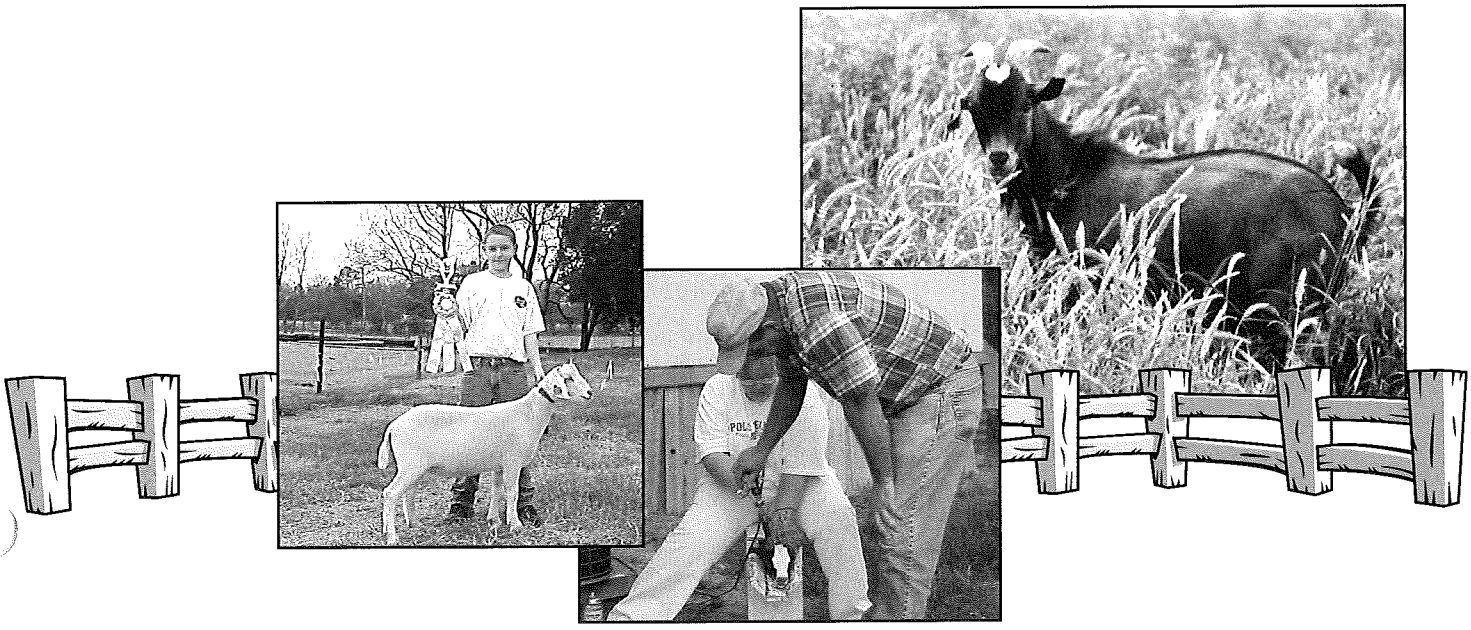
Urbanization - the gradual change of a rural area to a more populated area or city

W

Wholesaler - someone who resells meat cuts or carcasses to restaurants, hotels, supermarkets, institutions and retailers

Z

Zoning - a locally enacted law that regulates the use of private property



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

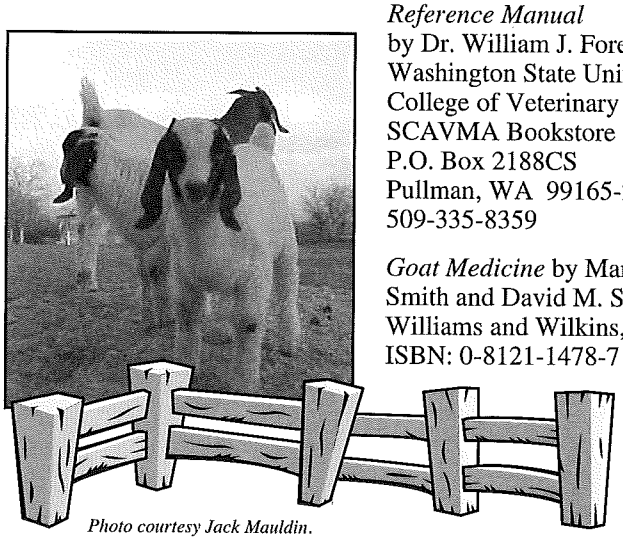


Photo courtesy Jack Mauldin. Used with permission.

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

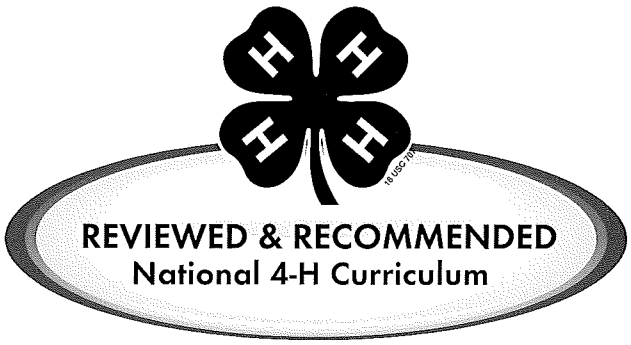
Videotapes

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



Discover over 180 National 4-H Curriculum titles in mission areas of Science, Engineering and Technology; Healthy Living; and Citizenship. Youth activity guides are filled with fun, engaging experiences that cultivate abilities youth need for everyday living as they progressively gain knowledge about subjects that interest them.

All titles have been reviewed and recommended by the National 4-H Curriculum Jury Review process, signifying their excellence in providing hands-on learning experiences for youth.

Science, Engineering and Technology

Agricultural Science
- Afterschool Agriculture

Animal Science
- Beef
- Cat
- Dairy Cattle
- Dairy Goat
- Dog
- Embryology
- Entomology
- Exploring Farm Animals
- Meat Goat
- Pets
- Poultry
- Rabbit
- Sheep
- Swine
- Veterinary Science
- Horse

Engineering and Technology
- Aerospace Adventures
- Electric Excitement
- Computer
- Exploring 4-H Robotics
- Geospatial
- Sewing Expressions
- Small Engines
- Woodworking Wonders

Environmental Science
- Exploring Your Environment
- Forestry—Forests of Fun
- Fishing for Adventure
- Outdoor Adventures

Plant Science
- Down-to-Earth—Gardening in the Classroom
- Gardening

Science Discovery
- Science Discovery Series

Healthy Living

Health and Fitness
- Bicycle Adventures
- Child Development—Kids on the Grow
- Keeping Fit and Healthy

Nutrition
- Foods
- Microwave Magic

Citizenship

Communication and Expressive Arts
- A Palette of Fun
- Communications—Express Yourself!
- Photography
- ¡Qué Rico! Latino Cultural Arts
- Theatre Arts
- Visual Arts

Community Action
- Citizenship—Public Adventures
- Service Learning

Leadership
- Exploring 4-H
- Step Up To Leadership

Personal Development
- Consumer Savvy
- Financial Champions

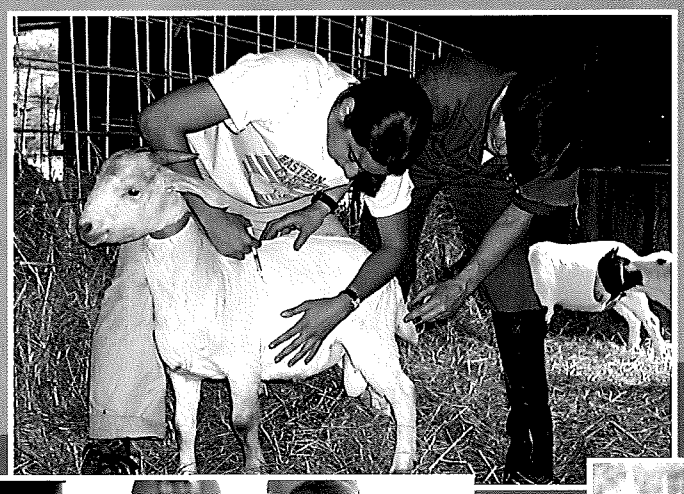
Workforce Preparation
- Be the E—Entrepreneurship
- Get in the Act!

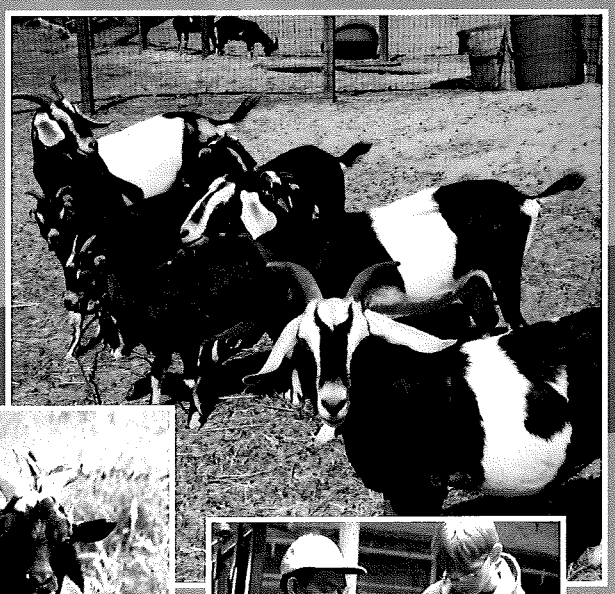
Resources

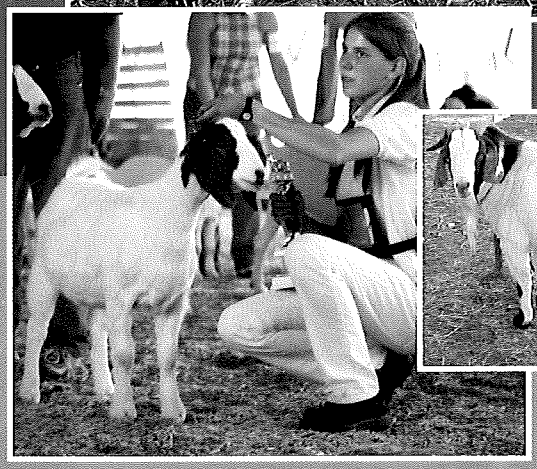
- Experiential Learning Video

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

www.4-hcurriculum.org







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