National 4-H Curriculum
BU-08354

4-H SKILLS FOR LIFE ANIMAL SERIES

Showing the Way

Level 3

Dairy Goat Project Activities

Name _____

County _____

REVIEWED & RECOMMENDED
National 4-H [illegible]

Note to the Project Helper

If you were a project helper for one or more youth who participated in Dairy Goat 1, *Getting Your Goat* or Dairy Goat 2, *Stepping Out*, you know what a rewarding and important role this is! Helpers are able to help youth grow and develop in positive ways as they learn about goats and themselves. You can nurture and cultivate youth's interest in this project by guiding their planning, helping them complete their project 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 the *Showing the Way* Achievement Program
- Help youth get to know themselves, including their strengths and weaknesses
- Encourage the use of the experiential learning cycle described on this page

About These 4-H Activity Guides

These guides are not textbooks. They are activity guides. Several fact-filled books about goats are listed as resources on page 36 of this guide. 4-H activities are active, hands-on, engaging activities that are guided by the 4-H motto: Learning by Doing. As youth explore a dairy goat project topic of interest to them, they also practice important life skills. Although a few dairy goat project youth will find careers with goats, ALL youth will benefit from the life skills they acquire as they complete the activities in these guides.

Learner Outcomes

Youth who explore this curriculum will develop essential dairy goat project skills such as demonstrating proper goat management and health practices, developing goat fitting and showing skills, selecting a goat that will meet their needs, promoting goat products and the goat industry and comprehending national and international goat-related issues. Youth will also practice the life skills of record keeping, decision making, leadership, communication, planning and organizing and more.

The Dairy Goat Series

1 – *Getting Your Goat*	4-H BU-08352
2 – *Stepping Out*	4-H BU-08353
3 – *Showing the Way*	4-H BU-08354
Helper's Guide	4-H BU-08355
Lamb and Kid Pattern	4-H BU-07514

Guides 1, 2 and 3 are 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 experience.

All activities include a description of the skills to be practiced, discussion questions, suggestions for additional activities ("Udder Ideas") and other helpful information. Vocabulary words are *italicized* and included in each book's glossary ("Bleat Street Talk"). The Success Indicator listed for each activity is an excellent way to evaluate the youth's success. Each of the guides includes an achievement program to encourage youth to learn more about dairy goats while developing important life skills. "My Brain Gain" is a quick and fun way for youth to assess their knowledge before and after they complete the Achievement Program. In the *Helper's Guide* you will find another evaluation piece titled "Evaluating the Impact." Use this before beginning each level and after the youth has completed each level.

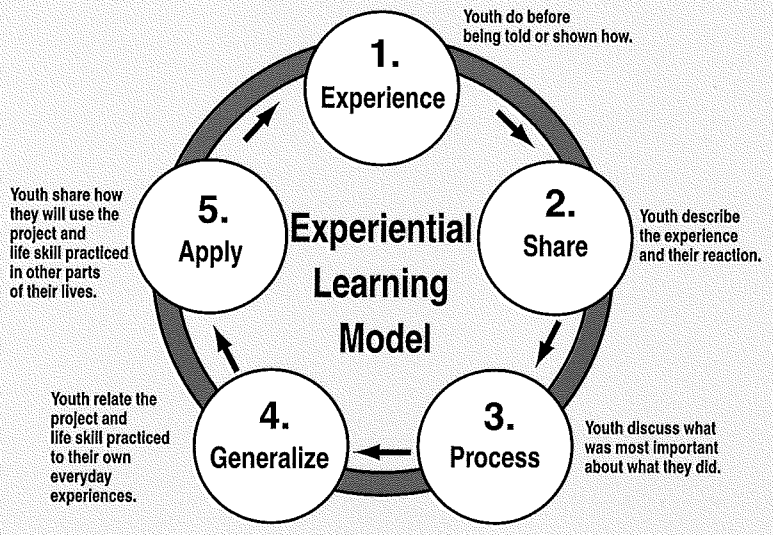
Dairy Goat Helper's Guide

The Dairy Goat *Helper's Guide* provides additional learn-by-doing activities that can be adapted for families, classrooms, after school activities, child care settings, 4-H groups, other youth groups or camps. It also contains information about characteristics of youth, life skill development, teaching experientially, group meeting ideas and answers to many of the activities in the youth guides.

Good luck in your role as Project Helper and thanks for contributing to the positive development of young people!

Experiential Learning Model

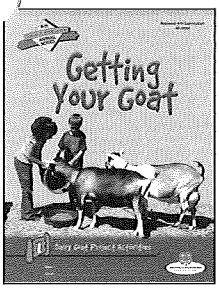
This five-step model is included in each activity in this series.



As you can see, the youth first attempt the activity on their own. After the youth do as much of the activity as they can, you then meet together and discuss: What did they do? What was important? How does what they did relate to their lives? How might they use these life and project skills in the future? Your ability to ask thought-provoking questions and listen to the youth's ideas will add to the educational impact of the experience.

Experiential Learning Model
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.

What's Inside?



4-H BU-08352

Dairy Goat 1
Getting Your Goat

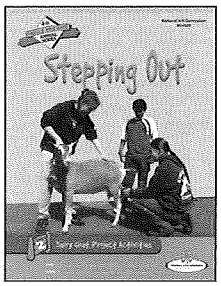
Chapter 1 Selection and Judging
So, You Think a Goat is for You
All Goats Are Not the Same!
Parts from Polls to Pasterns

Chapter 2 Feeds and Nutrition
The Big Switch
Checking the Tag

Chapter 3 Management Skills
Goat Security Check
May I Check Your Goat?
When I Get "A Round Tuit"
For the Record

Chapter 4 Fitting and Showing
Show Time!
Looking Good!
Show Like a Pro
Be a Sport

Chapter 5 The World of Goats
Delightful Dairy Products



4-H BU-08353

Dairy Goat 2
Stepping out

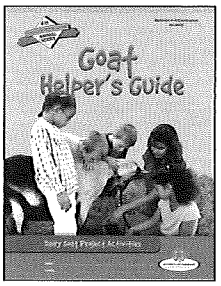
Chapter 1 Health and Management
Horns and Hooves and Worms, Oh My!
Two Words, First Word Sounds Like...
All Stocked Up

Chapter 2 Feeds and Nutrition
Goats Eats Oats and...
Hey, How's That Hay?
Got More Milk?

Chapter 3 Reproduction
The Heat is On!
Here Come the Kids!
Kidding Around

Chapter 4 Milk and Milking
Milk It for all It's Worth
CSI: Mastitis

Chapter 5 Judging
And the Winner Is...
Talk Like a Judge
Ethics: A Good Value



4-H BU-08355

Dairy Goat Helper's Guide

Chapter 1 Games and Activities
G-O-A-T-S Bingo
Demo Time!
Show What You Know!
Goatees and X, Y, Zs
Playing Goat Pyramid
Hit the Road!
Bowling for Answers
Teaching with Triangle Tag

Chapter 2 Dairy Goat Project Skills
Plan Your Project Year
OSHA for Goats?!
The Circle of Life
Record-Setting Fun

Chapter 3 Developing Character
Animal Welfare: Helping Animals
"Fair" Well
Goodbye Old Friend

Showing the Way

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Welcome to Showing the Way

Great Goating!

Congratulations—you've made it! Welcome to Level 3 of the dairy goat project. If you've completed Levels 1 and 2, you should be proud of yourself for accomplishing and learning so much! If you are starting with Level 3, you may need to refer to the Level 1 or 2 activity guides or the *Helper's Guide* for information now and then. Your helper can help you decide if you need to do this.

Because youth development programs help build tomorrow's leaders, leadership is a strong theme in Level 3 activities. You'll be asked to organize events, investigate complicated issues, give presentations, make decisions and teach others because those are some of the skills good leaders have. You'll delve deeper into some topics from Dairy Goat 1 and 2 and meet new topics as well. Here is what you'll do as you work through *Showing the Way*:

- Demonstrate the importance of parasite control
- Explore biosecurity
- Determine body condition scores
- Identify a herd's strengths and weaknesses
- Develop a breeding program
- Read and evaluate pedigrees
- Investigate differences between natural and artificial breeding methods
- Assist with problem births
- Plan a judging contest
- Organize a goat event
- Consider careers with goats
- Research goat associations
- Investigate proper medication use
- Appreciate the international importance of goats in human nutrition

Have fun and enjoy these activities as you learn more about dairy goats!

Showing the Way Project Guidelines

- Set your goals and record project highlights
- Do at least seven activities in the *Showing the Way* Achievement Program each year and complete the program within three years
- Practice and develop the life skills of decision making, leadership, communication, record keeping and planning and organizing
- Increase your knowledge about goats and improve your skills needed to be a good goat caretaker

Showing the Way Achievement Program

As you work through *Showing the Way*, you will see the activities encourage you to practice life skills as well as goat project skills. For example, because this is an activity guide and not a resource manual, you will need to research other sources of information to complete a particular activity. The goat resources on page 35, your project helper and the Internet will be good sources of information.

This is your personal activity guide—use it to record your thoughts and ideas. Most questions will not have a "right" answer. The questions will help you explore the subject and your own ideas in more depth. Additional activities are included in the Dairy Goat *Helper's Guide*. Many of these are fun experiences for you to use with other youth as you develop your leadership skills.

Your Project Helper

Choose your own helper. Your helper might be a project leader or advisor, teacher, family member, neighbor, friend, or anyone who has the interest to work with you to complete *Showing the Way*. Meet with your helper to set goals, plan and complete activities in this guide. Discussing each activity with your helper and having this special person date and initial your achievement program will make this project more interesting and fun. Write the name, phone number and E-mail address of your project helper here:

My project helper: _____

Phone: _____

E-mail: _____

Good Luck and Have Fun with Dairy Goat 3
Showing the Way

My Dairy Goat Project Goals

My name _____

My animal's name or number _____

Breed _____

What I want to do and learn in *Showing the Way:*

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

Dairy Goat Project Highlights

Date and list the exciting things you do and learn.

My Brain Gain

Here's an easy way to tell if you learned something new and developed important project skills. **BEFORE** you do the activities in this guide, circle the number that indicates what you knew before the activity, then circle the number that indicates what you knew **AFTER** you completed the activity. You may be surprised how much you learned! Share the results with your helper.

Begin each statement with the words **"I know how to..."** then circle **1** (not at all), **2** (somewhat) or **3** (a lot).

I know how to...	Before	After
Explain the economic and health impacts of parasites	1 2 3	1 2 3
Describe ways to prevent and control disease outbreaks	1 2 3	1 2 3
Determine body condition scores for goats	1 2 3	1 2 3
Evaluate herd production and type	1 2 3	1 2 3
Select genetic traits to improve through a breeding program	1 2 3	1 2 3
Interpret goat pedigree information to make a decision about breeding	1 2 3	1 2 3
Explain differences between natural and artificial breeding methods	1 2 3	1 2 3
Explain how to assist with problem births	1 2 3	1 2 3
Provide leadership for a judging contest	1 2 3	1 2 3
Organize a Goat Field Day	1 2 3	1 2 3
Keep a career reflection journal for one week	1 2 3	1 2 3
Describe benefits of membership in a goat association	1 2 3	1 2 3
Describe legal uses of medications in goats	1 2 3	1 2 3
Explain the worldwide role of goats in human nutrition	1 2 3	1 2 3

Attach a photo or drawing of you and your goat here.

Showing the Way Achievement Program

Directions

1. Do at least seven of the *Showing the Way* and/or "Udder Ideas" activities each year.
2. Complete at least 21 of the *Showing the Way* and/or "Udder Ideas" activities within three years to complete this achievement program.
3. Have your project helper date and initial the activities as you complete and discuss them.
4. Complete the "My Brain Gain" survey after you do the activities in this book.

Showing the Way Activities

Activity	Date completed	Helper's initials
Chapter 1 **Health and Management Skills**		
Getting Parasites Out of Sight		
One Fish, Two Fish, Red Foot, Blue Foot?!		
What's the Score?		
Two, Four, Six, Eight, Now It's Time to Evaluate!		
Chapter 2 **Genetics and Reproduction**		
Breeding Up		
Hip Hip Hooray for DNA		
Thaw the Straw or Truck the Buck?		
Twist and Shout, Get That Kid Out!		
Chapter 3 **Leadership**		
Goat for the Gold		
Y'all Come!		
Are Goats in Your Future?		
Chapter 4 **National and International Issues**		
Up, Up and Away!		
Putting Your Best Hoof Forward		
Global Greatness of Goats		

Udder Ideas

Select and do any of the "Udder Ideas" activities in *Showing the Way* or create your own. Record the page and number of each one you complete and ask your helper to document your accomplishment with his/her initials.

Page	Number	Date completed	Helper's initials

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_____

Showing the Way

Completion Certificate

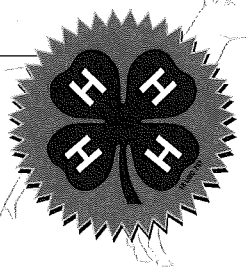
I certify that

_____

has completed all requirements of the
Showing the Way Achievement Program
in the 4-H Dairy Goat Series.

Helper's Signature_____

Date _____



In this space, paste a drawing or photo of you and your goat in Year #1 of *Showing the Way*.

In this space, paste a drawing or photo of you and your goat in Year #2 of *Showing the Way*.

In this space, paste a drawing or photo of you and your goat in Year #3 of *Showing the Way*.

Getting Parasites out of Sight

Dairy Goat Skill:	Demonstrating the importance of parasite control
Life Skill:	Leadership
Education Standard:	NPH.K-12.3 Physical activity
Success Indicator:	Explains the economic and health impacts of parasites.

As an older and experienced youth goat producer, you've discovered that parasites are a principal health concern of goats. In this activity, you'll share your knowledge with younger children as you lead them through an exercise to help them comprehend the potential impact of parasites on goat health. By helping younger youth learn how important it is to control their goats' parasites, you will be helping to ensure their animals will receive good care for years. Time to get started; remember—the early bird gets the worm!

Goat to it!

Note: read the entire activity before the younger participants arrive.

Optimally, this activity should be conducted outside on a hot day. Youth should either wear waterproof clothing or old clothing and footwear they won't mind getting wet and dirty. You'll need one paper cup per person, one bucket per person, a water supply and various-sized things to poke holes in the bottom of the cup (pins, pencils, thumbtacks, etc.). Put a varying amount of different-sized holes in the bottom of the paper cups before handing them out; make sure some cups have many holes and some have very few; some holes should be large and some should be small. [Alternatively, you could give control to the participants and let them poke holes in the bottoms of their cups.]

Give each participant a cup. Instruct them that their task is to fill up the bucket with water, one cup at a time. Place each person's bucket about two yards away from the water source. Tell the youth this is not a competition so there is no need to race; they are all working together to demonstrate a concept. If the youth become tired or interest wanes, you may stop when the buckets are half full. When finished, lead the youth through the discussion questions on the right and record their answers.

Feeding above the ground helps reduce problems with intestinal parasites.

Record Your Answers

Who finished the task first? _____

Who finished last? _____

How many holes did both of these people have in his/her cup? _____

How many large holes were there? _____

How many small holes were there? _____

If the bucket represents all the meals a goat needs to grow to mature size and each cup represents one meal, which person's goat would have required the fewest meals to reach mature size?

_____

The most meals? _____

Why? _____

Which person's goat would have grown fastest or produced the most milk? _____

Some parasites cause more harm than others; these are like the big holes in the cups. Other parasites do not cause as much trouble; these are like the small holes in the cups. What are some examples of very harmful and less harmful parasites of goats?

_____

_____

_____

Ruminations

Discuss the answers to these questions with your helper.

Say Cheese! (Share what you learned)

- How did the activity go?
- How do you feel when you assume responsibility for leading an activity?

The Buck Stops Here (Process what's important)

- Explain how the holes in the cup are like intestinal parasites.
- How did this activity require you to demonstrate leadership?

Spread It Around (Generalize to your life)

- What other opportunities do you have for leadership at school, home, church or elsewhere?
- What types of parasite problems have you witnessed or heard about in goats?

Browse for More (Apply what you learned)

- As a consequence of what you learned, how will you change your parasite control program?
- How can you measure the effectiveness of a parasite control program?

Bleat Street Talk Anthelmintic

Bits & Butts

Proper grazing management will also help control parasites. Some parasite larvae live in the moisture film on the bottom few inches of plants, so grazing plants too low increases the likelihood that goats will ingest parasite larvae. Grazing this low also damages plants. Divide pastures into smaller sections and rotationally graze goats through each section in sequence. Let each section rest for at least 21 days to give plants time to recover and parasite larvae and eggs time to dehydrate and die.

Written by Susan Kerr.

Whey Cool Facts

Parasites Are a Pain

Parasites are an enormous concern for goat owners. Internal and external parasites cause stress and worry for animals, decrease production and rates of gain, cause animals to injure themselves, increase feed costs and are responsible for various illnesses and even death. Although the development of new *anthelmintics* has made worming safer and more effective, parasites remain a major threat to goats' health.

Here is a list of the major parasites of goats:

INTERNAL	EXTERNAL
Ascarids (roundworms)	Flies
Nasal bots	Lice
Lungworms	Ticks
Coccidia	Keds
Parelaphostrongylus tenuis	Mites
Cryptosporidium parvum	
Nematodes (Haemonchus contortus, Nematodirus, Ostertagia, many others)	
Tapeworms	
Liver flukes	

Parasite control plan action steps:

- Remove manure promptly from goats' environment
- Compost all manure on a solid base with a cover
- Apply composted manure to hayfields, not pastures
- Remove or harrow manure in pastures
- Feed above the ground
- Use above-ground, chest-high waterers
- Use fecal examinations to assess herd parasite status
- Use anthelmintics based on fecal examinations, animal health or the recommendation of your veterinarian
- Use approved fly control products regularly
- Fence off wetlands
- Provide goats with access to sun
- Deworm new goats before introducing them to your property
- Deworm goats before turning them out onto clean pastures
- Rest pastures for as long as possible before re-grazing
- Graze pastures after moisture has evaporated
- Do not graze pastures shorter than three inches

As part of your quality assurance program, remember to use only approved medications on your goat, or other medications with your veterinarian's permission; abide by all meat and milk withholding times. Work with your veterinarian to develop an effective parasite control plan for your farm.

Udder Ideas

1. Create an educational poster on parasite life cycles and display it at your county fair or other exhibition.
2. Work with your veterinarian to develop a preserved collection of various goat parasites.
3. Create educational games to help younger youth learn about other goat diseases like C.A.E., Abscesses, Milk Fever, White Muscle Disease, etc.

One Fish, Two Fish, Red Foot, Blue Foot?!

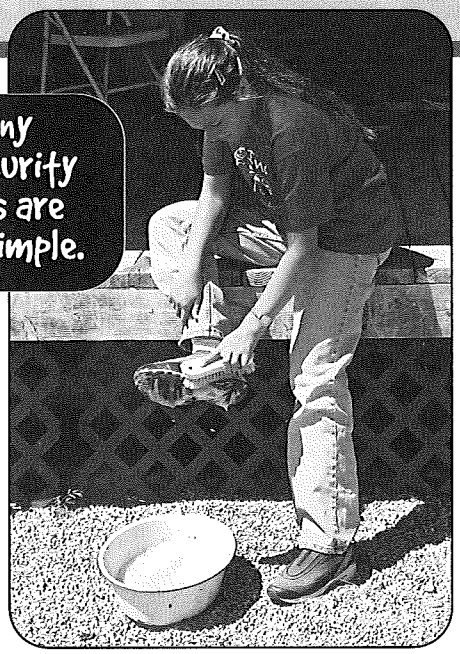
Do you remember hearing about the Foot and Mouth Disease outbreak that made international news in 2001? That really got livestock producers thinking about *biosecurity*. This activity will get **you** thinking about biosecurity as you design a pathogen that causes a fictional disease outbreak.

Dairy Goat Skill:	Exploring biosecurity
Life Skill:	Communication
Education Standard:	NS.9-12.6 Personal and Social Perspectives: Natural and human-induced hazards
Success Indicator:	Describes ways to prevent and control disease outbreaks.

Goat to it!

Depending on your situation, you can just perform this activity on paper or actually take it to the next step and turn it into a disease outbreak simulation.

Design a fictional disease-causing agent and describe it below. Draw its microscopic appearance in the box provided. You may base your answers on what you know about one or more other diseases or develop entirely new characteristics for your pathogen. Be creative and have fun with this activity!



Characteristics of my fictional pathogen

Name of pathogen _____

Type of pathogen _____
(bacteria, virus, fungus, parasite, other)

Means of *transmission* _____

_____

Incubation period _____

Signs of illness _____

_____

_____

Species affected _____

Morbidity and *mortality* rates _____

_____

Treatment or *antidote* _____

_____

_____

Effective prevention measures

_____

_____

_____

_____

_____

Microscopic appearance of my fictional pathogen

Now comes the fun part! With other youth, form two or more teams of two to four members each. Select one of your fictional organisms and create a fictional disease outbreak on the farm of a member of one of the other groups; they will do the same. Use non-toxic, washable paint and make one of the signs of illness blue hooves so it will be obvious which animals are clinically ill. With the goat owner's knowledge and permission, paint one hoof of the first animal and continue to do so based on the nature of the pathogen you created—perhaps only one animal will be affected or perhaps the "disease" will quickly spread throughout the herd regardless of age or group. The same will be done on your goat(s) by members of the other team.

Your challenge is to figure out all the characteristics of the pathogen affecting your herd so you can stop the outbreak as soon as possible.

Warning
Make sure to practice good sanitation measures when you visit each other's farms and only perform this activity with the full knowledge and cooperation of other group members and their parents.

Alternative activity: Work in groups but use plastic model goats or "paper herds" instead.

Ruminations

Discuss the answers to these questions with your helper.

Say cheese! (Share what you learned)

- What are the characteristics of the pathogen you created?
- What are the characteristics of the pathogen that affected your herd?

The Buck Stops Here (Process what's important)

- What is biosecurity?
- How is effective communication an important part of disease control?

Spread It Around (Generalize to your life)

- What *contagious* diseases of humans can you control through good sanitation practices in your home?
- What biosecurity-related information have you received through the media?

Browse for More (Apply what you learned)

- How can you use what you learned to create a biosecurity program for your animals?
- How can you impress upon others about the importance of developing a farm biosecurity program?

Bits & Butts

- The National Institute for Animal Agriculture and the United States Department of Agriculture have created the National Scrapie Education Initiative, which has a goal of eradicating Scrapie from the U.S. by 2010.
- *Zoonotic* diseases are those that can be transmitted from animals to people. Examples include ringworm, soremouth, Salmonellosis, Brucellosis and more.

Bleat Street Talk

Biosecurity Transmission Morbidity Mortality Antidote Contagious Carriers Incubation period Closed herd Quarantine Zoonotic

Written by Susan Kerr.

Whey Cool Facts

Be Secure with Biosecurity

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. Here are some contagious diseases of goats that should concern you and for which you should develop a biosecurity plan.

- Johne's Disease
- Orf (soremouth)
- Caprine Arthritis Encephalitis
- Foot rot
- Scrapie
- Caseous Lymphadenitis
- External parasites
- Internal parasites
- Ringworm
- Foot and Mouth Disease
- Mastitis
- Brucellosis
- Tuberculosis
- Pneumonia
- Venereal diseases
- Salmonella

A good biosecurity plan should have procedures that address these issues:

- Animal and premise identification
- Sources of animals
- Vaccinations
- Isolation and *quarantine* measures
- Protective clothing requirements
- Visitors
- Vermin control
- Facilities
- Disinfectants
- Personal hygiene

Methods of Disease Transmission

Various ways diseases are transmitted include through the air, by direct contact, by swallowing, across the placenta, through milk, by insects and through contaminated needles. Sometimes healthy-looking *carriers* maintain the disease-causing organism in a herd.

Disease Prevention Steps

Prevention measures include keeping a *closed herd*; vaccinating animals against diseases; conducting routine herd laboratory tests; culling or isolating positive animals; using excellent sanitation and hygiene practices; isolating sick animals; quarantining herd additions for at least 30 days; disinfecting facilities and equipment; removing manure; washing hands; using foot baths; discarding or disinfecting needles and syringes.

Udder Ideas

1. Make a scrapbook of current event articles on biosecurity topics.
2. Investigate different types of disinfectants and sanitizers. Share what you learned with your group or helper.
3. Develop "blueprints" for the ultimate biosecure goat facility. Compare your plans with those created by other youth.
4. Investigate which contagious diseases of goats are transmissible to humans.

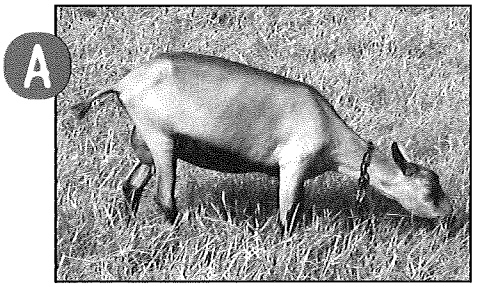
What's the Score?

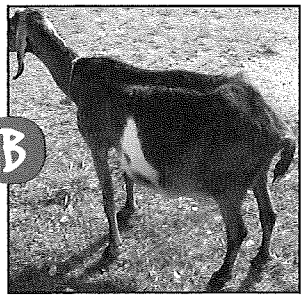
How can you determine if you're feeding your goat properly? An effective way is to assess her *Body Condition Score*. This activity will help you determine a score for your goats and your herd as you continue to sharpen your decision making skills.

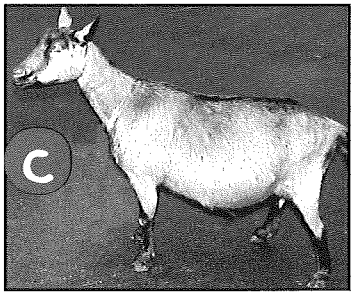
Dairy Goat Skill:	Determining body condition scores
Life Skill:	Decision making
Education Standard:	NS.9-12.1: Science As Inquiry: Abilities necessary to do scientific inquiry
Success Indicator:	Determines body condition scores for goats.

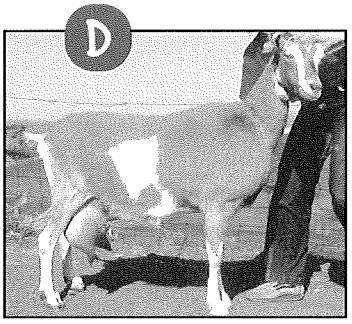
Goat to it!

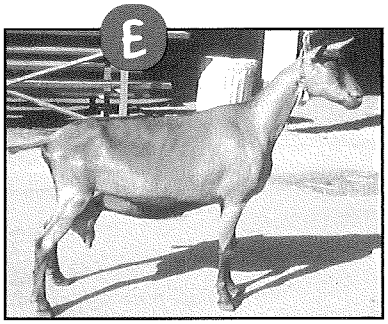
Perform this activity with a friend or your helper, working independently at first. Assign a Body Condition Score (BCS) to the goats pictured and your justification for assigning each score; record these scores and your reasons in the space provided below.











Body Condition Score Card

Goat A Body Condition Score: _____

My Reasons: _____

_____

Goat B Body Condition Score: _____

My Reasons: _____

_____

_____

Goat C Body Condition Score: _____

My Reasons: _____

_____

Goat D Body Condition Score: _____

My Reasons: _____

_____

Goat E Body Condition Score: _____

My Reasons: _____

_____

Next, select five live goats and assign them Body Condition Scores; record your scores in the space provided. After you and the other person score each animal, discuss your decisions with each other. Arrive at a final score on which you both agree.

Body Condition Scoring Live Goats

	My Scores	Friend's Scores	Our Final Score
Goat 1			
Goat 2			
Goat 3			
Goat 4			
Goat 5			

Ruminations

Discuss the answers to these questions with your helper.

Say Cheese! (Share what you learned)

- How did you decide what scores to assign each goat?
- Which scores were the easiest to determine? The most difficult?

The Buck Stops Here (Process what's important)

- Why is body condition scoring a valuable management tool?
- What are the consequences of extremely high or low body condition scores?

Spread It Around (Generalize to your life)

- How have you usually determined your goat's ration?
- How do you measure your own Body Condition Score?

Browse for More (Apply what you learned)

- How will you use body condition scoring to help you make feeding decisions about your herd?
- How can you use body condition scoring to identify a feeding problem?

Body Condition Score
Palpate

Bits & Butts

You need more than your eyes to body condition score an animal properly. You must *palpate* the animal to get an accurate score.

Revised by Gary Fredricks and Susan Kerr.

Whey Cool Facts

Body Condition Scoring

BCS evaluates the energy reserves of your goat. The conditioning scale is based on a score of one to five. ONE denotes an emaciated goat and FIVE denotes an obese animal. A score of three is optimal for most goats, although during heavy lactation some goats may drop to a two.

As a doe progresses through an entire lactation, her Body Condition Score changes as fat reserves are mobilized for milk production. If she is fed properly, fat stores are restored during late lactation and the dry period. If animals are too thin, they won't produce up to their potential and are less resistant to diseases. If animals are too fat, they are more susceptible to conditions such as ketosis and dystocia.

Determine scores by assessing the amount of fat cover on the body landmarks described below. Use your herd's average score to evaluate your feeding program. Consider the herd's average score; don't base ration changes on a few individual animals. Alternatively, animals can be put into groups according to their scores and feeding programs can be customized for each group. In small herds, it's possible to supplement individuals whose scores are too low or restrict feed on those that need to lose weight.

Score 1 (Body condition is very poor)

- Skin drawn tight over pelvis with no tissue detectable between skin and bones.
- Pins, hips and short ribs can be seen. Edges feel sharp and distinct.
- Backbone is a sharp and pronounced raised ridge.

Score 2 (Body condition is poor)

- No fatty tissue felt between skin and pelvis, but skin is supple.
- Ends of short ribs are sharp to the touch, but individual ribs are not. Although bones are less prominent, they are still angular and can be easily distinguished by touch.

Score 3 (Body condition is good)

- Area between pins is smoothed out.
- Ends of short ribs can be felt with moderate pressure.
- Slight depression visible in loin area.
- Hips and pins can be felt but have some covering of flesh.
- Back has lost angularity and appears smooth.

Score 4 (Body condition is fat)

- Patches of fat are apparent under skin. Pelvis felt only with firm pressure.
- Short ribs cannot be felt even with firm pressure.
- No depression visible in line between backbone and hipbones.
- Back and area between hips and pins appear flat.

Score 5 (Body condition is grossly fat)

- Tail head buried in fatty tissue.
- Bulging fat evident.
- Area between pins and tailbone is rounded and skin is distended.
- No part of pelvis felt, even with firm pressure.

Udder Ideas

1. Body condition score a friend's herd. Discuss how the feeding program and the scores fit each goat in relation to its stage of lactation.
2. Take pictures of several goats and develop an educational game to help youth learn how to score goats based on body condition.

Two, Four, Six, Eight, Now It's Time to Evaluate!

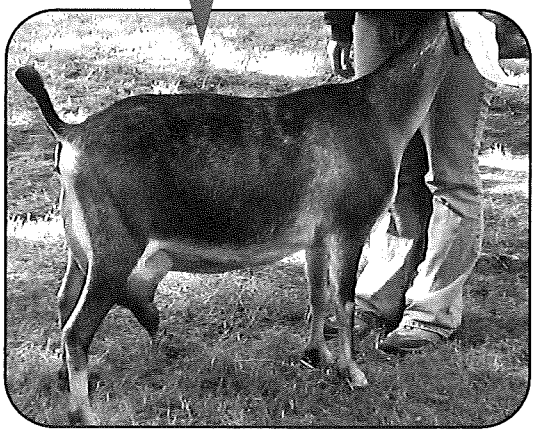
Dairy Goat Skill:	Identifying a herd's strengths and weaknesses
Life Skill:	Decision making
Education Standard:	NL-ENG.K-12.7: Evaluating data
Success Indicator:	Evaluates herd production and type.

A breeding program is fundamentally important to your herd because it determines your herd's future. To create a successful breeding program, you must know your goat's strengths and weaknesses and what you can do to improve weak traits through selective breeding. You'll know your breeding program is working if your kids are looking more *correct* each year.

Goat to it!

Select four goats from your herd to evaluate. Use animals from another herd if you do not have four goats. Use the chart below to record your evaluation results. If you are raising a non-dairy goat, disregard the first two columns.

This doeling excels in femininity, attractiveness and dairy character.



My Herd Production and *Type* Evaluation

Name	Milk production for 305 days	*Linear appraisal*	Strongest trait	Second strongest trait	Weakest trait	Second weakest trait
Example: Daisy	1,750 lbs	3-05 86 (+VVV)	Fore udder attachment	Rear udder height	Loose shoulder assembly	Swayed back

Ruminations

Discuss the answers to these questions with your helper.

Say Cheese! (Share what you learned)

- Which animals did you evaluate?
- What were their strongest and weakest traits?

The Buck Stops Here (Process what's important)

- What did you learn about your herd?
- Why is evaluating your herd an essential skill for you to master?

Spread It Around (Generalize to your life)

- When have you had to evaluate something before?
- With what other scoring systems are you familiar?

Browse for More (Apply what you learned)

- How will you be able to use your evaluation skills in the future?
- How will your results help you make better decisions in your breeding program?

Bits & Butts

- Because no goat is perfect, no linear appraisal score of 100 is ever given.
- If you are interested in dairy goat linear appraisal, contact the American Dairy Goat Association at P.O. Box 865, Spindale, NC 28160.

Revised by Amber Conway.

Whey Cool Facts

Type Cast

Linear Appraisal

When you go to a show, your goat is judged against the other goats in the class, but when you participate in linear appraisal, your goat is judged against the ideal standard for that breed. Does are judged in four areas: general appearance, dairy character, body capacity and mammary system. Young stock and bucks are appraised in the first three areas.

Appraised Traits

An appraiser scores 13 primary traits and one secondary trait to evaluate a doe's *conformation*. Primary traits include form traits (stature, strength and dairyness), structure traits (rump angle, rump width and rear legs—side view) and mammary traits (fore udder attachment, rear udder height, rear udder arch, medial suspensory ligament, udder depth, teat diameter and teat placement—rear view). The secondary trait is the side view of the rear udder.

Young stock may be appraised but they are given a letter score instead of a number score. They must be at least two months but no more than two years old, never freshened and must be tattooed. Bucks are appraised as young stock until they are considered one year old, which would be on the first day of their birth month. Linear appraisal of bucks and young stock is optional.

Linear appraisal is very helpful in your breeding program. For example, say your herd has poor rear udder height. You find a buck in a buck catalog that claims to improve rear udder height. You can then look at his offspring's appraisal scores to see if he does actually improve rear udder height before you select him to use as a herd sire.

Linear Appraisal Scores

90–99 = E = Excellent or near ideal
85–89 = V = Very good
80–84 = + = Good plus
70–79 = A = Acceptable
60–69 = F = Fair
59 and below = P = Poor

Adapted from **Linear Appraisal System for Dairy Goats** by the American Dairy Goat Association.

Udder Ideas

1. Explain to your helper or a friend what each piece of the information means in the following description of a dairy doe:

   GCH Decision Maker 3*M, 6-04 91(EVGEE) with production record of 6.0-305-2850-120-3.8% and show record for 2004 5xGCH, 1xRCH, 5xBOB, 4xBIS, 6x1st and first of 24 at Nationals.

2. Observe a linear appraiser at work and/or take a linear appraisal class. Share what you learned with your group or helper.

CHAPTER 2

Genetics and Reproduction

Breeding Up

How does a herd become better? Well, improving nutrition, health management and facilities can help. However, if a herd's genetics fail to keep up with management improvements, herd performance will still suffer. The first step to improving genetics is to develop a herd breeding program. How do you know what sires to select? How do you know which does and doelings to keep? This activity will encourage you to become a decision maker as you develop a breeding program for your herd.

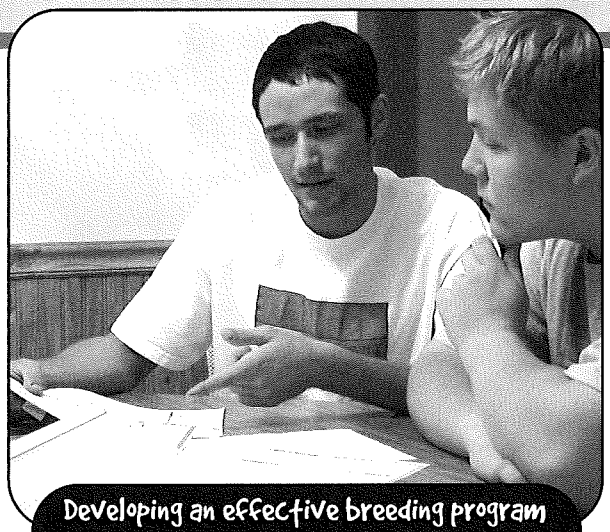
Dairy Goat Skill:	Developing a breeding program
Life Skill:	Decision making
Education Standard:	NS.9-12.3: Life Science: Molecular basis of heredity
Success Indicator:	Selects genetic traits to improve through a breeding program.

Goat to it!

Develop a breeding program for your herd or an imaginary herd. First, determine what genetic traits are important to you. Consider what sort of problems made you decide to *cull* certain animals—did they have a genetic basis? Consider what traits are most important to the productivity of your herd. In the chart below, list one to three genetic traits for which you want to select. You could express them as a *selection index* if you prefer.

Next, develop your selection standards based on the traits you've decided to emphasize.

Last, identify what other factors might influence these traits and make suggestions on how to account for these factors when measuring how well goats meet your standards.



Developing an effective breeding program requires you to make a lot of decisions!

Traits for which to select:

Standards for selecting doelings to keep in herd:

Standards for selecting mature does to cull:

Standards for selecting herd sires or semen:

Non-genetic factors influencing each trait:

How could you adjust for these non-genetic factors?

Bleat Street Talk

Tandem Selection, Nonassortative Mating, Independent Culling, Levels, Mature Equivalent Milk Record, Selection Index, Inbreeding, Heritability, Line Breeding, Cull, Deviation, Phenotype, Crossbreeding

Ruminations

Discuss the answers to these questions with your helper.

Say Cheese! (Share what you learned)

- For which traits did you decide to select?
- How and why did you choose these traits?

The Buck Stops Here (Process what's important)

- What are the goals of breeding programs?
- What kinds of decisions do you have to make when creating a breeding program?

Spread It Around (Generalize to your life)

- What are some genetic traits that members of your family share?
- What are some non-genetic traits that members of your family share?

Browse For More (Apply what you learned)

- What records will you keep to help you decide which animals to keep and which to cull?
- How will you change your herd's breeding program?

Bits & Butts

DHIA milk records are adjusted to what a doe would have milked if she were three years old and kidded in January through March. An average three-year-old doe will milk about 38% more in a 305-day lactation as the same doe if she kidded at 12 months of age, so we multiply the 305-day record of a 12 month old doe by 1.38 to get her *mature equivalent* milk record.

Written by Tatiana Luisa Stanton.

Whey Cool Facts

Please Make a Selection

Breeding or selection programs identify the traits a herd manager finds important and wants to emphasize. He/she defines the standards by which to select herd sires and replacement doelings and decide which does to cull.

Types of Selection Programs

A variety of different breeding programs can be used to improve a herd's genetics. *Tandem selection* is when you focus on one trait (such as milk production, teat placement or rear udder height) until you've accomplished your goal, then you focus on another trait. *Nonassortative mating* is a selection program where you breed "opposites" to each other. You might breed a doe with weak legs to a buck with great legs. Neither of these breeding programs is very effective on a long term basis. You'll usually make more lasting progress if you select for important traits at the same time. However, trying to select for too many traits at the same time slows genetic improvement.

Better Methods

Two recommended breeding programs are selecting on *independent culling levels* or using a selection index. With independent culling levels, you only use sires, does and doelings that meet certain standards for each trait. For example, you may decide to keep only doelings whose dams have nice udders and produce at least three quarts of milk daily. Under a selection index program, important traits are combined into one index. Each trait is assigned a relative value and then all the values are added together to get an overall score. Only animals with scores above a certain value are used for breeding. Selection indices usually result in the fastest genetic progress.

We evaluate animals based on their *phenotype*. Some phenotypes can be influenced by environmental factors (nutrition, management, housing, etc.) as well as genetics. Environment and genetics have a strong effect on production and conformation traits. For example, age, season of kidding and herd management have a strong influence on milk yield. To compare animals fairly, we have to account for these environmental factors.

Within a herd, variations from the herd average can help compare animals of different ages, sexes or environments fairly to determine their genetic abilities. We can adjust for differences in herd management by expressing production records such as a kid's weaning weight as a negative or positive *deviation* from the average weaning weight in a particular herd in a particular year.

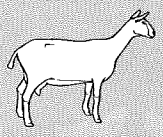
Heritabilities for Type Traits

Trait	Heritability
Final score	.27
Stature	.52
Strength	.29
Dairyness	.24
Rump angle	.32
Rump width	.27
Rear legs (side view)	.21
Fore udder attachment	.25
Rear udder height	.25
Rear udder arch	.19
Medial suspensory ligament	.33
Udder depth	.25
Teat placement (rear view)	.36
Teat diameter	.38

Table source: "Genetic Evaluation of Dairy Goats for Yield and Type" by G. R. Wiggans, S. M. Hubbard, and J. R. Wright, Animal Improvement Programs Laboratory, Agricultural Research Service, USDA, Beltsville, MD 20705-2350

Udder Ideas

1. Investigate *inbreeding, line breeding* and *crossbreeding* programs. What are the advantages and disadvantages of each and when might you use them?
2. Select a breed that interests you and research inherited diseases or defects that are common in this breed.



Hip Hip Hooray for DNA

Is your breeding program based on chance or is it the result of careful decision making using pedigree information? If you are a teen who is involved in the dairy goat project, you are probably a pretty serious and dedicated young goat producer. As such, it's essential for you to recognize the value of using pedigrees and performance records to make breeding decisions. When it comes to a breeding program, the buck stops with YOU!

Dairy Goat Skill:	Read and evaluate pedigrees
Life Skill:	Decision making
Education Standard:	NM-NUM.9-12.3: Compute fluently and make reasonable estimates
Success Indicator:	Interprets goat pedigree information to make a breeding decision.

Goat to it!

Use the dairy goat pedigree information here to determine whether breeding "3W Acres Regal" and "3W Acres Sadie" to each other is a good decision.

1 First, determine the *inbreeding coefficient* of this mating. Find "Top Dairy Penny" on the sire's side of the pedigree and count how many arrows you pass through to get to the new kid. Now find "Top Dairy Penny" on the dam's side and count the arrows back to the new kid. Add these two numbers together. Multiply $(0.5)^N$ where N equals the total number of arrows minus one (see the Help Box below). This multiplication product will equal the inbreeding coefficient for any kid born to "Regal" and "Sadie" based on this one *common ancestor* alone. Show your work below.

Help Box

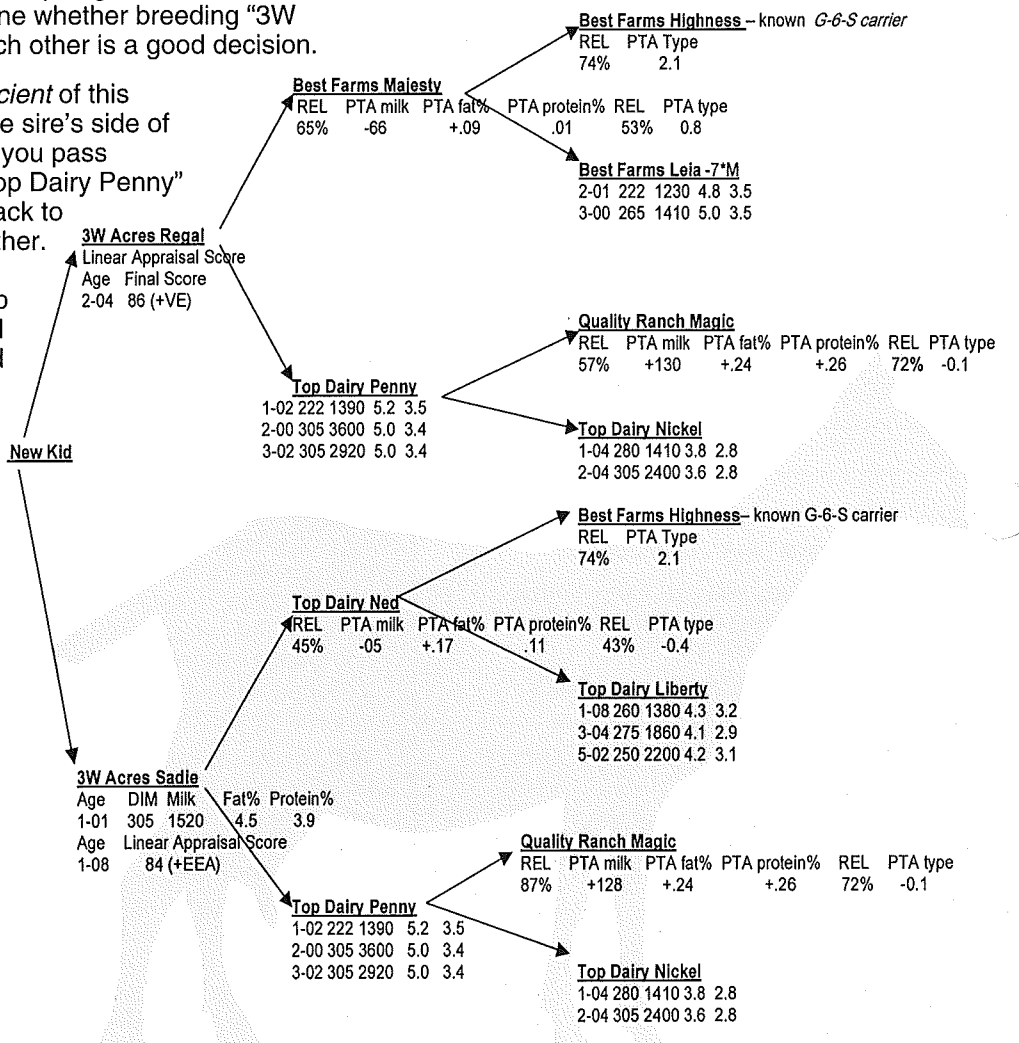
N = (Total number of arrows —1)

$(0.5)^N$ = _____ = Inbreeding coefficient due to Top Dairy Penny = 0._____ = _____ %

2 Next, determine if there are any known carriers of important genetic defects on either the dam or sire side of the pedigree.

3 Third, identify the performance level and reliability of genetic evaluations, lactation records and linear appraisal scores for close ancestors.

4 Finally, identify and explain at least three concerns about this planned mating of Regal and Sadie.



Pedigree-based concerns about mating Regal and Sadie

1.

2.

3.

Bleat Street Talk

Trait Genes Common ancestor Inbreeding Coefficient G-6-S Carrier Homozygosity Dominant Recessive

Ruminations

Discuss the answers to these questions with your helper.

Say Cheese! (Share what you learned)

- What was the first thing that caught your eye about this pedigree?
- Which ancestor's records were the most impressive?

The Buck Stops Here (Process what's important)

- Why is it essential to review pedigrees before you select animals for breeding?
- What should you look for when reviewing a goat's pedigree?

Spread It Around (Generalize to your life)

- When have good records helped you make an important decision?
- What other decisions can you make about your goats based on various records?

Browse for More (Apply what you learned)

- How will you change how you make breeding decisions about your goats?
- How is the skill of making wise breeding decisions part of being an ethical and responsible goat owner?

A good breeding program will reap benefits in the show ring.

Bits & Butts

The all-time, all-breed milk production record holder is a Toggenburg doe, 4*M GCH Western Acres Zephyr Rosemary, who gave 7,965 pounds in a 305-day lactation. How many quarts does that average a day?

Written by Tatiana Luisa Stanton.

Whey Cool Facts

Those Hard-Working Genes

A goat's pedigree is a diagram of the goat's closest ancestors and their relationships and often performance information as well. A dairy goat pedigree may include DHIA lactation records and milk tests, linear appraisal scores and genetic evaluations. A pedigree with information about close ancestors can help you make an educated guess about how well a goat is likely to perform when mature.

Many of an individual's *traits* are inherited from its parents. Some traits like coat color or ear type only involve one or a few pairs of *genes*. Production traits like milk yield and mature height involve many pairs. One gene of each pair is inherited from the goat's dam and one from the sire. You never know which gene a goat will inherit from a parent since each parent's genes also come in pairs and your goat has a 50/50 chance of getting either gene of their parent's pair.

Many genetic defects involve one pair of genes. These defects are each caused by simple *recessive* genes. This means there is a normal, *dominant* gene for the trait and a defect-causing recessive gene. A kid who inherits two normal copies of the gene will be normal. A kid inheriting one normal gene and one defective gene will also be normal because the normal gene is dominant over the recessive gene, but this kid will be a carrier of the defect-causing gene. If two carriers are bred to each other, one in four of their offspring will inherit a complete pair of the defective gene (one from each parent) and have the defect. When examining pedigrees, make sure known carriers are not found on both sides of the pedigree because this would mean the recessive gene for the genetic defect could be passed to the kid from both its dam and sire.

Inbreeding increases the likelihood of *homozygosity*, or the inheritance of identical genes from both parents. These genes could control a recessive genetic defect or a desirable trait. Inbreeding coefficients calculate how closely related a kid's parents are. Avoid breedings with inbreeding coefficients of 12.5% or more, not only because of the increased chance of inheriting a genetic defect, but because production traits such as milk yield, body weight and fleece weight are also depressed with this much inbreeding.

Udder Ideas

1. Go to the American Dairy Goat Association Web site and choose an elite buck and doe from the most recent USDA elite buck and doe lists under the "Sire Development" heading. Then go to the menu for "ADGA Genetics" and click on "planned pedigree" to see what sort of pedigree you get from a pretend breeding between this buck and doe.

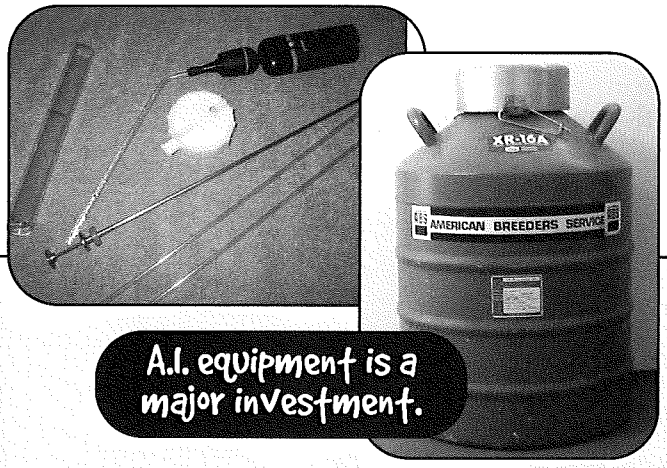
Thaw the Straw or Truck the Buck?

When the days grow shorter, it's time to think about breeding most does. If you have a buck, he'll be busy thinking about it too! Natural service is the most common way to get a doe to conceive, but have you considered *artificial insemination* (A.I.)? This activity will guide you through an exploration of the topic of A.I. and help you make a decision about whether it is right for your herd.

Dairy Goat Skill:	Investigating differences between natural and artificial breeding methods
Life Skill:	Decision making
Education Standard:	NL-ENG.K012.8: Developing research skills
Success Indicator:	Explains differences between natural and artificial breeding methods.

Goat to it!

Using the method and sources of your choice, investigate breeding does using both natural mating and artificial insemination techniques. After you have become familiar with both processes, complete the chart below to list the advantages and disadvantages of each. Finally, list examples of when you would choose to use each method on your doe(s).



A.I. equipment is a major investment.

Advantages and Disadvantages of Natural Service and Artificial Insemination

Natural Service		Artificial Insemination	
Advantages	**Disadvantages**	**Advantages**	**Disadvantages**

Examples of when I would use natural service for my doe(s):

_____

_____

_____

_____

Examples of when I would use artificial insemination for my doe(s):

_____

_____

_____

_____

Ruminations

Discuss the answers to these questions with your helper.

Say Cheese! (Share what you learned)

- What sources of information and research methods did you use?
- What new aspect of natural or artificial breeding did you discover?

The Buck Stops Here (Process what's important)

- What are the major advantages and disadvantages of natural service and A.I.?
- How does creating a list of advantages and disadvantages help you make a decision?

Spread It Around (Generalize to your life)

- Previously, how have you decided how to breed your does?
- What noteworthy decisions have you made recently?

Browse for More (Apply what you learned)

- How will you decide which breeding method to use in the future?
- If you wanted a career as an A.I. technician, what other skills would you need?

Bleat Street Talk

cervical insemination
Laparoscopic insemination
Transcervical insemination
Artificial insemination
vaginal insemination
conception rate

Written by Amber Conway and Susan Kerr.

Whey Cool Facts

A.I, A.I, Oh!

Not every doe is a good candidate for A.I., so it's essential for you to be able to make the best choice when it's breeding time.

Some advantages of A.I. include:

- Ability to breed your does to many outstanding sires with exceptional bloodlines
- You can breed your does to sires that are out of your region or even deceased
- You do not have to keep a buck on your farm or drive to another farm
- Reduction in the risk of transmission of most diseases
- It encourages good record keeping (breeding dates, heat dates, due dates, etc.)
- It allows the goat producer to control kidding dates
- It enables many does to be bred on one day
- It increases the rate of genetic improvement in a herd
- It reduces the risk of breeding to an infertile, unproven or inferior buck

Some disadvantages of A.I. include:

- Many supplies are needed and some are expensive and need maintenance
- Close attention must be paid to heat detection
- *Conception rates* are lower than natural service
- Training is needed to learn the technique
- Semen quality can be affected by handling and preparation

Here are various A.I. methods and their success rates:

- *Vaginal insemination* 15 to 30% conception rate
- *Cervical insemination* 50 to 70% conception rate
- *Transcervical insemination* 50 to 85% conception rate
- *Laparoscopic insemination* 50 to 85% conception rate

When semen is collected, it is carefully processed and immediately placed in small plastic straws and frozen in liquid nitrogen. Semen can be kept for years, though with decreasing fertility. To unthaw a straw of semen, remove it from the liquid nitrogen tank and immediately place it in 95°–98.5°F water for 40–60 seconds. Inseminate the doe as quickly as possibly after the semen is thawed. Take an A.I. educational workshop and work with experienced A.I. breeders before you try A.I. on your own.

Natural service

Live breeding is more common than A.I., but timing is still crucial. Select the buck you want to use before your doe comes into heat so you can transport her to that buck. Obtain a breeding slip from the buck's owner if you want to register the kids.

For both A.I. and natural service, breed your doe two or three times during estrus, using the same buck or semen, so she is more likely to conceive.

Udder Ideas

1. Interview a local goat breeder about which breeding method he/she uses and why/when they make this decision.
2. Attend a workshop to learn how to perform A.I.
3. Ask a veterinarian to save you a reproductive tract from a deceased doe so you can study the anatomy involved with A.I.

Twist and Shout, Get That Kid out!

Dairy Goat Skill:	Assisting with problem births
Life Skill:	Problem solving
Education Standard:	NS.9-12.1: Science as Inquiry: Abilities necessary to do scientific inquiry
Success Indicator:	Explains how to assist with problem births.

Well, has it happened yet—have you seen a goat with dystocia? Did you know what to do? If goats are in your future, it is essential you are able to recognize dystocia and know what to do when one happens. Here is a fun activity that will help you develop the problem-solving skills you'll need to assist with problem births.

Goat to it!

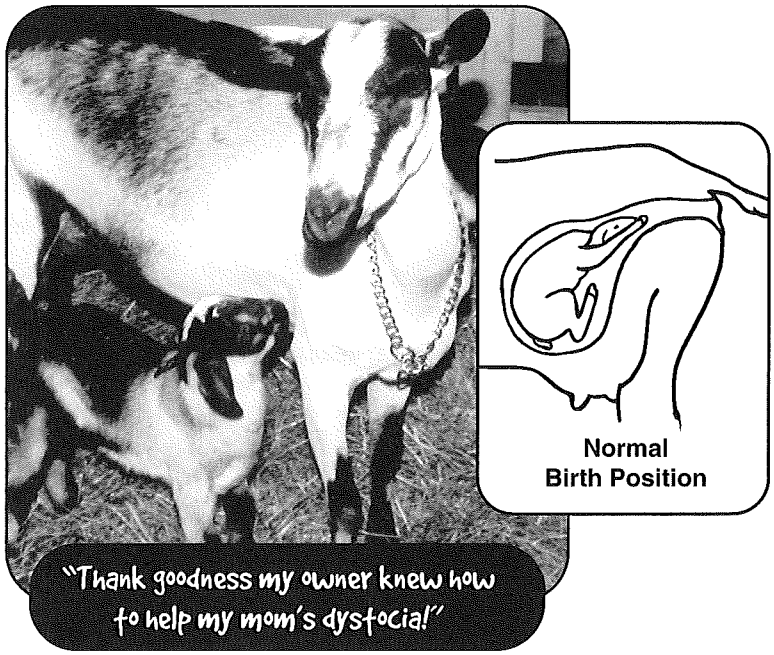
Find a stuffed animal about the size of a newborn kid. It should have four long legs like a real kid does. The best source of such a model is the 4-H Lamb and Kid Pattern.

Now get a large (34.5 ounce) coffee can and a small (13 ounce) coffee can. Remove both ends so you have empty steel cylinders. Use pliers to bend down the edges of the ends so they won't lacerate you.

Here comes the fun part: Create a variety of *abnormal presentations* and try to correct them so the stuffed animal can be delivered through the large coffee can. You'll have the most fun if you create abnormal presentations for a friend to figure out and they do the same for you. To be more realistic, cover up the coffee can with a cloth so you can't see the problem and have to diagnose and correct the problem only using your hands.

Finally, repeat the above using the small coffee can.

In the space provided, draw or describe the abnormal presentations you created as well as how you corrected them to deliver the kid. Attach more paper to this page if you need additional writing space.



Abnormal Presentations Investigated

Name of problem	Drawing or description of problem	How I corrected the problem

Bleat Street Talk Abnormal presentation Malpresentation

Ruminations

Discuss the answers to these questions with your helper.

Say Cheese! (Share what you learned)

- What abnormal birth presentations did you create?
- How did you correct each *malpresentation* to "deliver" the kid?

The Buck Stops Here (Process what's important)

- How are problem solving skills required for correcting dystocias?
- Why do goat producers need to know how to recognize and deal with dystocia?

Spread It Around (Generalize to your life)

- What kidding problems have you seen?
- What other problems do you have to address using logic and problem-solving skills?

Browse for More (Apply what you learned)

- How can you make sure your does' and doelings' birth canals are more like large coffee cans than small coffee cans?
- What recommendations can you make for other goat producers dealing with dystocia?

Bits & Butts

- If the toes point up, the kid is probably coming head first. If the toes point down, the kid is probably coming backwards.
- Carefully monitor the temperature and appetite of does with dystocia after they give birth. They may require antibiotics or other medications.
- Lessen the chance of dystocias from fetal-maternal size mismatch by not breeding doelings too young. Wait until they are at least 70% of anticipated mature size before you breed them and continue to feed them for growth and maintenance while pregnant.

Written by Susan Kerr.

Whey Cool Facts — Can You Lend a Hand?

Offer or call for help if a doe hasn't made progress after 30 minutes of active labor (pushing) or a doeling hasn't made progress within 60 minutes. Also intervene if there is an obvious problem such as rear hooves presented, two feet with no nose, etc. If there is a problem, it usually gets worse as time progresses.

Common Reasons for Dystocia

- Lack of dilation of cervix—due to hypocalcemia, not enough time or cervix abnormalities
- Uterine inertia—due to lack of calcium, abnormal uterus or maternal exhaustion from prolonged labor
- Dead and emphysematous kid—dead fetus distends with gas and enlarges greatly
- Fetal-maternal size mismatch—kid is too big for doe's pelvis
- Fetal giant or monster—abnormally large or deformed kid
- Head back—head and neck are bent backwards
- One leg back—either front leg bent back at shoulder; only head and one leg presented
- Both legs back—both front legs bent back at shoulder; only head presented
- Breech birth—rump is presented
- Posterior presentation—both hind feet are presented; backwards birth
- Transverse presentation—body is crosswise to birth canal
- Two kids coming together—many combinations of head and legs are possible
- Elbow, shoulder or hip lock—kid stuck at elbows, shoulders or hips; can be temporary or very serious
- Miscellaneous—leg over head, leg bent at knee, etc.

Assisting with Difficult Births

- Trim your fingernails
- Be clean, be gentle and use plenty of lubricant
- Cleanse the doe's vulva and anal area many times with disinfectant soap. Rinse well
- Wash your hands and arms with soap and water. Put on gloves or arm-length disposable sleeves
- Apply a sterile lubricant to your hands and the doe's vulva
- Insert your hand into the doe's vulva and vagina. Go slowly and be gentle, but keep making forward progress if you can
- Gently feel around and try to identify structures so you can figure out what is wrong and help the doe. Feel for recognizable landmarks like teeth, eyes, tails, etc. Feel each leg carefully to determine if it is a front or rear leg; bending each joint will help you determine if this is a front or hind leg. Remember—there could be twins!
- When manipulating legs to correct malpresentations, cover the hoof with your hand to keep the hoof from injuring the uterus
- Never use a machine to pull a kid out. An average adult is strong enough to pull a kid

Call your veterinarian for advice at the first sign of trouble!

Some tips provided by Joe Camarillo, Lee Hecimovich and Becky Settlage from the 4-H Sheep Curriculum

Udder Ideas

1. Create an educational poster about normal and abnormal birth positions and enter it in your county fair.
2. Travel with a veterinarian or visit a goat farm during kidding season so you can observe dystocias and normal kiddings. Keep a journal to record what you see and share it with your helper or group.
3. Repeat the activity using two stuffed animals to simulate twins.

CHAPTER 3

Leadership

Goat for the Gold

As you've probably discovered, judging activities are challenging and effective ways to improve your observation skills, make decisions and defend your opinion in a convincing manner. Judging also affords you the opportunity to develop your leadership and organizational skills. In this activity, you'll have fun planning a judging activity. Make sure everyone has the opportunity to develop important life skills as well as learn to judge. Good luck on your contest!

Dairy Goat Skill:	Planning a judging contest
Life Skill:	Leadership
Education Standard:	NL-ENG.K-12.4: Communication skills
Success Indicator:	Provides leadership for a judging contest.

Goat to it!

Work with a committee to organize and conduct a judging contest with at least three classes of four items each and at least one set of oral reasons. The classes in your contest can be whatever you choose—goats, pencils, production records, sneakers or anything else that can be judged. As you plan the event, check off the items in the list of preparation steps shown here and add more as needed. During your event, be sure to give inexperienced judges sufficient time to prepare their oral reasons.

Planning a judging event will help you develop your leadership skills.

Judging Event Planning Steps

Item	Done?
Organize planning committee	
Develop contest agenda	
Select classes and items to be judged	
Select a judge	
Invite participants	
Select an announcer	
Get supplies and equipment (PA system, pencils, judging cards, refreshments, etc.	
Transport animals or other items to be judged	
Care for animals	
Set up contest	
Distribute judging cards and pencils	
Organize classes	
Orient oral reason listeners	
Provide recognition to participants	
Clean up	
Follow up (news releases, thank you notes)	
Other:	
Other:	
Other:	

Ruminations

Discuss the answers to these questions with your helper.

Say Cheese! (Share what you learned)

- How did the judging contest go?
- What items were judged during your event?

The Buck Stops Here (Process what's important)

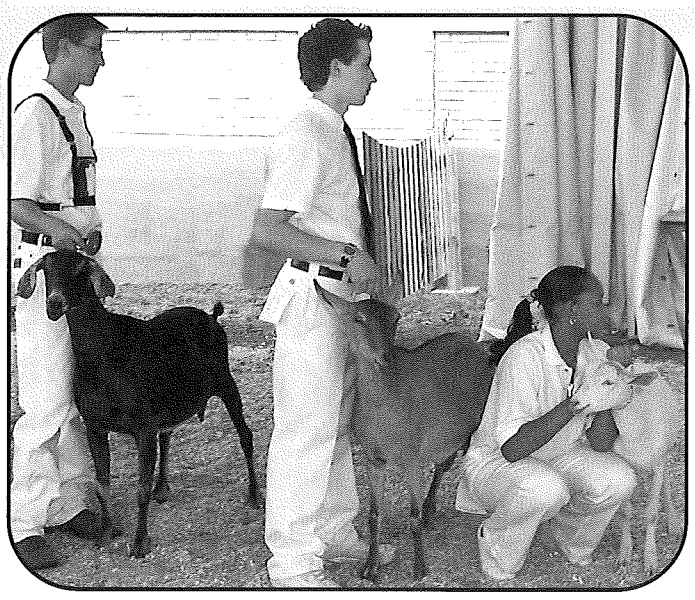
- How did you select classes so participants had to make decisions instead of guesses?
- How did you provide leadership to the planning committee?

Spread It Around (Generalize to your life)

- What other events have you organized?
- How do you use judging skills routinely?

Browse for More (Apply what you learned)

- What would you do differently next time to improve this event?
- In what ways do you foresee using your leadership skills in the future?



Adapted by Gary Fredricks from judging activity written by Clint Rusk for Animal Science "Skills for Life" Series.

Acknowledgement
Sample reasons contributed by Pete Snyder.

Whey Cool Facts

Sample Oral Reasons

"In placing this class of Saanen two-year-old milkers, I have placed one over two for the advantage she has in GENERAL APPEARANCE. She is more level in the topline, especially in the rump from hips to pins and is stronger on both the front and rear pasterns. She also has an advantage in BODY CAPACITY by having more spring of rib as well as carrying more depth into the rear barrel.

Two places over three for her advantage in MAMMARY SYSTEM. She has a stronger medial suspensory ligament, which holds the udder closer against the body wall as well as having a more pleasing balance and capacity to the MAMMARY SYSTEM. She also is stronger in DAIRY CHARACTER by showing more refinement with a longer, leaner neck as well as being sharper in the withers.

Three is placing over four with an advantage in GENERAL APPEARANCE because she is more smoothly blended in the front-end assembly as well as having a more proper angulation in the rear leg, which allows for more ease in movement. She also excels in BODY CAPACITY by having a deeper heart girth and more length of body.

The fourth-place doe, while standing in last, should be commended for her strength of MAMMARY SYSTEM particularly the overall capacity as well as having a very desirable size and shape of teat, which allows for more ease of milking."

What are your comments about this four-year-old, third lactation Nubian doe?

Udder Ideas

1. Identify someone who was on a high school or college livestock judging team and ask him/her for advice on livestock judging. Share what you learned with your group or helper.
2. Go to a large county or regional livestock show and observe livestock judging competitions. Judge the animals yourself and compare your decisions with those of the judge and contestants.

Y'all Come!

Dairy Goat Skill:	Organizing a goat event
Life Skill:	Leadership
Education Standard:	NL-ENG.K-12.5: Communication
Success Indicator:	Organizes a Goat Field Day.

A goat field day is an excellent opportunity to help others learn more about raising and showing goats. In this activity, your challenge will be to provide leadership for as many "learn by doing" opportunities as space, time and resources allow. Your Goat Field Day may concentrate on fitting, showing, kidding-time skills, health practices, selection, judging or another topic of your choosing.

Goat to it!

Gather a committee of other youth and create a plan for your Goat Field Day. Complete the outline below for the field day or farm tour your committee plans to conduct.

Goat Field Day Plan

Date _____

Location _____

Audience _____

Purpose of the event _____

_____

Members of planning committee _____

_____

_____

Learning activities planned _____

_____

Fun activities planned _____

_____

Advertising plan _____

_____

Evaluation plan _____

_____

Biosecurity plan _____

_____

Refreshments _____

_____

Responsibilities of each committee member _____

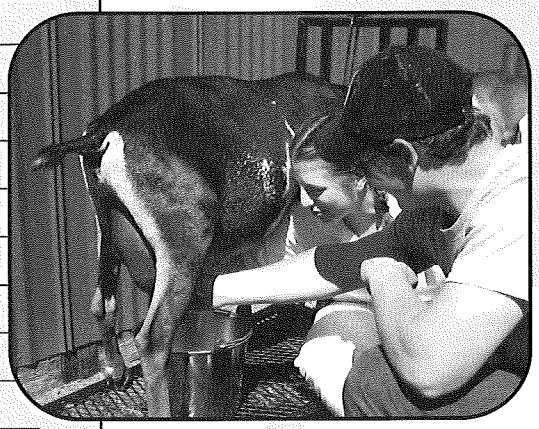
_____

_____

_____

_____

It's rewarding to share what you know with others.



Ruminations

Discuss the answers to these questions with your helper.

Say Cheese! (Share what you learned)

- What happened at your Goat Field Day?
- How did you feel before and after the event?

The Buck Stops Here (Process what's important)

- How did you involve everyone on the planning committee?
- How are planning and organizing part of providing leadership for an event?

Spread It Around (Generalize to your life)

- For what other events have you provided leadership?
- Besides planning an event, what other aspects of leadership have you shown?

Browse for More (Apply what you learned)

- What will you do differently the next time you provide leadership for an event?
- How could you improve your leadership skills?

Hoof trimming is an essential management skill to master.

Revised by Gary Fredricks and Susan Kerr.

Whey Cool Facts

Goat Field Day Activities

As with other skills, your leadership skills will improve with practice. Sponsoring a Goat Field Day will give you valuable opportunities to demonstrate many facets of leadership. You and your committee may decide to conduct several of these activities at your Goat Field Day.

Selecting and Judging

- Identifying parts of goats
- Judging goats
- Judging hay
- Presenting oral reasons
- Selecting a great goat

Goat Management Practices

- Trimming hooves
- Castrating
- Disbudding
- Tattooing
- Kidding
- Caring for newborns
- Tube feeding
- Milking
- Drenching
- Giving injections
- Using a CMT paddle

Fitting and Showing

- Practicing showmanship techniques
- Clipping
- Bathing

Sanction a Show!

Your Goat Field Day could include a sanctioned goat show. A sanctioned show gives defined guidelines for judging and for showmanship. This show could be a sanctioned limited show only for youth in a specific region. It could be a sanctioned show open to all youth or even a sanctioned show open to everyone. A show can be sanctioned separately for each breed, or some breeds can be combined as All Other Purebreds (AOP). A show could have only two classes — AOP and Recorded Grades — with as many lots as you desire.

Dairy goats with unknown pedigrees can be recorded for a low fee using the procedures outlined in the American Dairy Goat Association guide book. Consider sponsoring a grade dairy goat recordation workshop for youth in your area.

Remember to record all your leadership activities in your record book to document your growth as a youth leader.

Udder Ideas

1. Sharpen your leadership skills even more by volunteering to work on a planning committee for another purpose.
2. Participate in a goat-related event in your area sponsored by another club or breed association.

Are Goats In Your Future?

You've probably already started thinking about what kind of job or career you want to have. Is there a place for goats in your future, either full time or part time? Could you make a living with goats? This activity will help you begin to answer some of those questions.

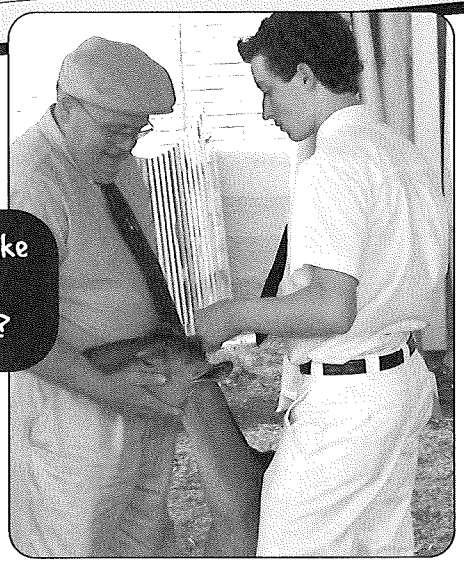
Dairy Goat Skill:	Considering careers with goats
Life Skill:	Decision making
Education Standard:	NL-ENG.K-12.5: Communication strategies
Success Indicator:	Keeps a career reflection journal for one week.

Goat to it!

Keep a journal of all your activities for one week. Include things you do at home, with your goat, at school, in your community, etc. Also reflect on and record how you felt when you did these activities. When did you feel the happiest? What gave you the most satisfaction? When were you the most stressed? What was most challenging for you? Be specific when it comes to your goat project. Do you most enjoy calculating your goat's ration? Fitting and showing? Reading pedigrees and planning breeding programs? Keeping your expense and income records? Delivering kids? At the end of the week, review your journal and write down your five favorite activities.

My Favorite Activities

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



Would you like a career as a judge?

Now reflect on what your favorite things were to do. Is it possible to turn one into a career? Answer the questions below to find out.

Possible Career?

Possible career for me _____

Education and/or experience required _____

_____

_____

Yearly income _____

Working conditions _____

_____

_____

_____

_____

Opportunities for advancement _____

_____

_____

_____

_____

Advantages and disadvantages of this work _____

_____

_____

_____

What is a typical day like? _____

_____

_____

_____

_____

Other thoughts _____

_____

_____

_____

_____

Ruminations

Discuss the answers to these questions with your helper.

Say Cheese! (Share what you learned)

- What activity did you enjoy the most?
- How did keeping a journal make you feel?

The Buck Stops Here (Process what's important)

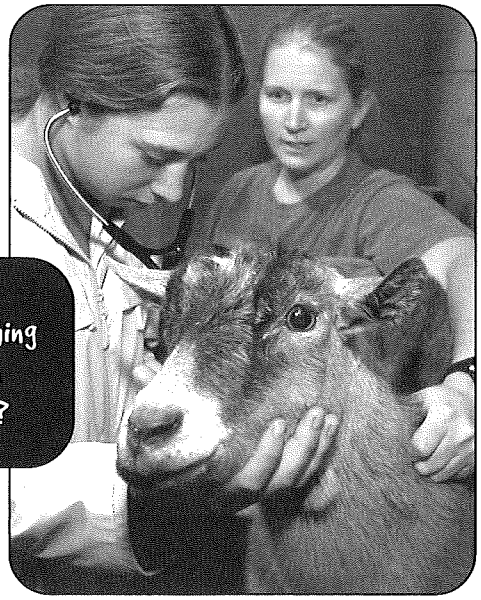
- Why should you start thinking about and preparing for a career now?
- What would help you make a decision about what career to pursue?

Spread It Around (Generalize to your life)

- Besides goat-related careers, what other careers are you considering?
- What other significant decisions will you have to make in the next few years?

Browse for More (Apply what you learned)

- How can you prepare for a future career?
- What careers involve the ability to make decisions often or quickly?



Have you ever considered becoming a veterinarian or nutritionist?

Revised by Susan Kerr.

Whey Cool Facts

What's in Your Future?

Goats could be in your future, either as a hobby or full-time career. They could be your primary or secondary source of income. It is difficult but possible to make a good living with goats. Make sure to investigate all possible careers thoroughly before you make any type of commitment toward that career path.

A good way to learn more about a career that interests you is to shadow someone who has that job already. You can see if you might like the day-to-day aspects of the work. Ask as many questions as possible to make it a valuable and interesting learning experience.

Don't think that you have to commit to just one career decision for life, either. More and more people change careers after several years. The key is to find a career that interests you, allows you to contribute positively to society and enables you to afford the lifestyle of your choice.

Goat-Related Careers

- Nutritionist
- Goat equipment designer
- Professional fitter
- Breeder
- Producer
- Veterinarian
- Milk producer
- Herdsperson
- Teacher or professor
- Weed or brush control agent
- Artist
- Photographer
- 4-H agent
- Feed store manager
- Animal trainer
- Professional showman
- Judge
- Supply dealer
- Veterinary technician
- Researcher
- Artificial insemination technician
- Producer or retailer of goat products
- Meat goat producer, processor, buyer or packer
- Goat meat retailer
- Extension educator
- Agricultural educator
- Goat breed association employee

Udder Ideas

1. Create a notebook about one of the goat-related careers you are considering. Investigate as many aspects of this career or job as you can. Share what you discovered with a parent or helper or give a public presentation on the topic.
2. Interview someone who has a full time or part time career with goats. Ask him/her about the advantages and disadvantages of this career, why he/she selected it and other questions you want answered. Present your findings to a group.

CHAPTER 4

National and International Issues

Up, Up and Away!

Are you a member of a goat association? If you are serious about goats, you have a lot to gain by joining an association. Educational programs, scholarships, high level competition, national recognition…all this and more awaits you if you take advantage of membership in an association.

Dairy Goat Skill:	Researching goat associations
Life Skill:	Acquiring and evaluating information
Education Standard:	NL-ENG.K-12.8: Developing research skills
Success Indicator:	Describes benefits of membership in a goat association.

Goat to it!

Select a goat association to investigate in depth. You could get ideas from goat producers, your helper, your 4-H educator, an Internet search or page 36 of this guide. After you have chosen an association to investigate, record the answers to the questions in the chart below.

My Goat Association Research

Name of organization	
Contact information for headquarters	
Level of organization (local, county, state, regional, national, international)	
Membership requirements	
Dues or other fees	
Purpose of organization	
Activities sponsored by organization	
Opportunities for youth involvement	
Benefits for youth members	
How organization conducts business	
Why I should join or not join this organization	

Ruminations

Discuss the answers to these questions with your helper.

Say Cheese! (Share what you learned)

- What association did you investigate?
- How did you make contacts?

The Buck Stops Here (Process what's important)

- What did you learn that would make you want to join or avoid this association?
- What are the benefits of joining an association with others who share your interests?

Spread It Around (Generalize to your life)

- To what other groups do you belong?
- What are your expectations when you join a group?

Browse for More (Apply what you learned)

- How will investigating this association help you make judgments about other associations in the future?
- What new goat association(s) could you create for your area?

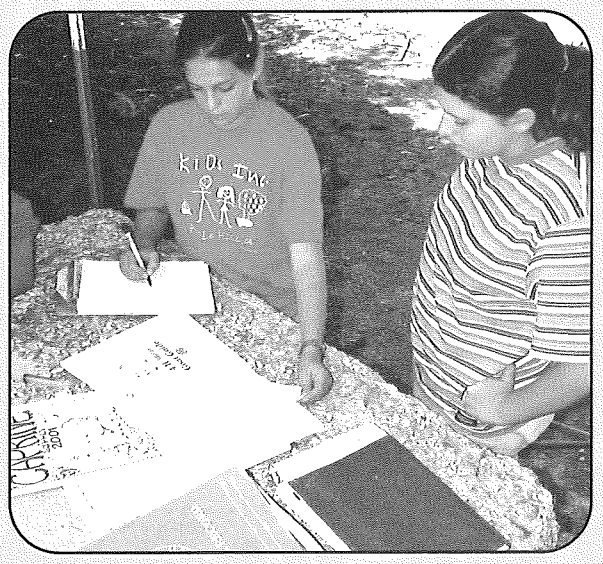
Revised by Susan Kerr.

Whey Cool Facts

Caprine Connections

There are goat association opportunities available to you on the local, county, state, regional, national and/or international level! Associations sponsor goat shows, register purebreds, publish newsletters, certify production records, conduct educational events and promote the goat industry and goat products. Many associations offer junior or youth memberships at reduced rates. Association youth programs focus on education and encourage youth to stay involved in the goat industry. Many associations offer scholarships, breeding stock, leadership opportunities and other outstanding experiences for youth members.

Many goat associations are listed on page 36 of this activity guide. The premier and overarching association for dairy goat producers is the American Dairy Goat Association (ADGA or "ADD-gah"). Each breed has its own association that promotes that breed.



When selecting an association to join, consider these points:

- Cost of membership
- Benefits of membership
- Opportunities for youth involvement
- Compatibility between your values and interests with what the association does
- Convenience of attending association meetings

Udder Ideas

1. Attend a meeting of a local goat association and share what you experienced with your helper.
2. Join a goat or other association that interests you and apply for scholarships for which you are qualified.

Putting Your Best Hoof Forward

Dairy Goat Skill:	Investigating proper medication use
Life Skill:	Interpreting information
Education Standard:	NL-ENG.K-12.8: Developing research skills
Success Indicator:	Describes legal uses of medications in goats.

Despite your best efforts to keep them healthy, eventually one of your goats will get sick and you may need to use medications to help your goat get better. Used in the right way, medications will help your goat. However, if used incorrectly, medications can harm your animal and even humans. In this activity you will investigate proper use of medications so you can help keep our food supply safe!

Goat to it!

Complete the charts below.

** Choose from antibiotic, anthelmentic, anti-inflammatory, hormone, coccidiostat or other*

***Generic* name of medication**	**Purpose ***	**Brand name example**	**Status** (approved, *extra-label*, forbidden)
Penicillin G procaine			
Phenylbutazone			
Gentomycin			
Ivermectin			
Decoquinate			
Chloramphenicol			
Florfenicol			
Flunixin meglumine			
Fluoroquinolone			
Doramectin			
Morantel tartrate			
Aspirin			
Metamizole			
Monensin			
Fendendazole			
Ceftiofur sodium			
Albendazole			
Erythromycin			
Moxidectin			
Diethylstilbestrol			
Nitrofurans			
Clenbuterol			
Tetracycline or Oxytetracycline			
Dexamethasone			
Vancomycin			

Administration Routes

Medications can be administered intravenously, intramuscularly, *subcutaneously*, *intraperitoneally*, *topically* or orally. Discuss with your veterinarian the different ways and places to give medications to a goat. Ask your veterinarian to show you each administration route and practice at least two techniques under his/her supervision. Record your experience below.

My Administration Route Experience

Medication used	**Administration route**	**Notes and observations**
1.		
2.		

Bleat Street Talk Generic Extra label Topically Administration Route Subcutaneously Intraperitoneally

Ruminations

Discuss the answers to these questions with your helper.

Say Cheese! (Share what you learned)

- Where did you find the information you needed?
- What medications are completely forbidden for use in food animals?

The Buck Stops Here (Process what's important)

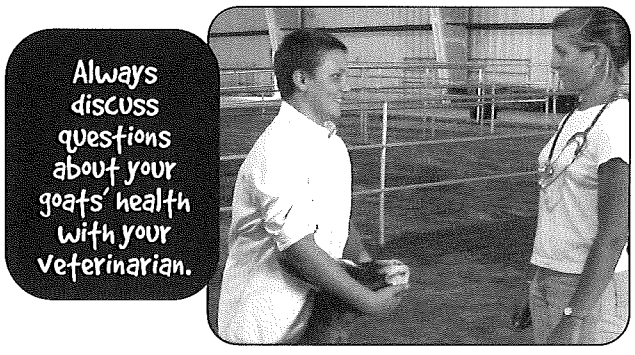
- What information on a medication label do you need to interpret?
- How does improper use of medications put food safety at risk?

Spread It Around (Generalize to your life)

- What things do you do to keep yourself healthy and free from illness?
- What would you do if you had difficulty interpreting information on a medication label?

Browse for More (Apply what you learned)

- How will you change what medications you use in your goats and how you use them?
- How can you help others understand the need to abide by all laws regarding use of medications?



Bits & Butts

- Keep in mind some feeds contain medications and may have withdrawal times.
- In keeping with the recommendations from the National Scrapie Eradication Program, keep all animal identification, treatment and feed records for at least five years.

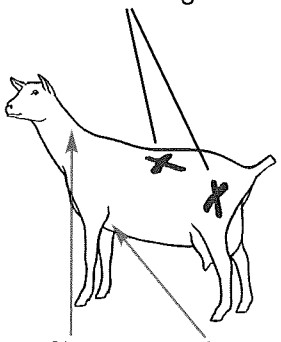
Written by Gary Fredricks and Susan Kerr.

Whey Cool Facts — Quality Assurance

Understandably, the public is very concerned about eating safe and healthy food. Quality assurance describes food animal production steps that ensure the production of safe, wholesome and high quality food products. The following guidelines will help you achieve high quality products from your animals.

1. Maintain health records on all your animals. Include which animals were treated, date treated, disease being treated, how the drug was used, medication lot and serial number, meat and/or milk withdrawal time and veterinary contact information.
2. Have all your animals clearly identified.
3. Be sure everyone on your farm who medicates animals is able to effectively practice quality assurance procedures.
4. Read and abide by all label recommendations on all drugs, feeds and chemicals used on your farm.
5. Have a health plan for your herd that promotes goat health. Know how to assess a goat's health. Your goal should be the prevention of disease so medication use can be minimized.
6. Follow strict guidelines when using any medications on your animals. Be sure instructions from your veterinarian are clear, understood and followed completely.
7. Isolate new animals added to the herd to minimize the likelihood of disease transmission to the rest of the herd.

NEVER inject into the loin or leg area.



Give intramuscular injections in the neck.

Give subcutaneous (SQ) injections in the neck or under loose skin of the armpit or front leg.*

If label indicates a choice, use SQ.

* If there is an injection reaction here, it won't be confused with a C.L. abscess on the neck.

The legal use of extra-label medications requires a valid client-patient-veterinarian relationship. To use a medication other than how it is labeled without your veterinarian's permission violates federal law.

Udder Ideas

1. Develop a management plan for your goats that reduces the need to treat for diseases in your herd. Be sure to include care of newborns, hoof trimming, parasite control, sanitation and protection from environmental conditions.
2. Investigate these terms: over-the-counter, prescription medications, residues, withdrawal time, quality assurance, Hazard Analysis Critical Control Points. Share what you discovered with your helper or group.

Global Greatness of Goats

Did you realize that goats are vital contributors to family nutrition for many small farmers in developing countries? In America, we rely mostly on cattle to supply our red meat and dairy needs, but throughout the rest of the world, goats are the primary source of meat and dairy products. This activity will help you appreciate the impact of goats on human nutrition in many countries.

Dairy Goat Skill:	Appreciating the international importance of goats in human nutrition
Life Skill:	Problem solving
Education Standard:	NM-PROB.PK-12.2: Solve problems that arise in mathematics and in other contexts
Success Indicator:	Explains the worldwide role of goats in human nutrition.

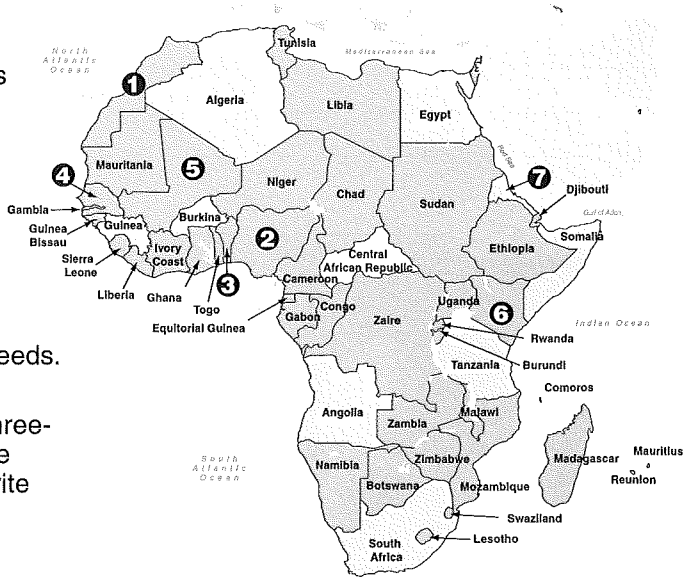
Goat to it!

Using the map and data about goats and human nutrition presented in the chart, decide where each of the following African countries fit in the chart: Benin, Eritrea, Kenya, Mali, Morocco, Nigeria and Senegal.

Country name	Number of goats	People per goat	Proportion of under-nourished people in country	Food availability (*Kcal* per person per day)	*Staple*	Kcal in one cup of staple
1.	5,208,300	5.9	7%	3040	Wheat couscous	176
2.	28,000,000	4.4	9%	2700	Boiled yams	158
3.	1,350,000	5.0	15%	2520	Boiled cassava	180
4.	4,000,000	2.5	24%	2280	Cooked millet	207
5.	12,036,000	1.1	29%	2200	Cooked rice	242
6.	11,000,000	2.9	33%	2110	Cornmeal mush (Ugali)	212
7.	1,700,000	2.4	73%	1520	Teff pancakes (Injera)	245 (230–260)

Next, work through this exercise about daily energy requirements for a teen with and without goat products in his/her diet. Some facts you'll need:

- The daily energy or calorie (Kcal) requirement for healthy teens 15 to 18 years old is about 20 Kcal per pound of body weight for girls and 25.5 Kcal per pound for boys
- A pint of goat's milk has 345 Kcal
- A three-ounce portion of goat meat has 122 Kcal



1. Choose a country above and determine how many cups of that country's staple you would have to eat to meet your daily Kcal needs. Write your answers in the space provided in the chart below.
2. If your family had goats and you drank a pint of milk and ate a three-ounce portion of goat meat per day, how many cups of the staple would you still need to eat to meet your basic energy needs? Write your answers in the space provided.

Country	Your daily Kcal needs	Staple	Kcal per cup of staple	Cups of staple needed to meet your daily Kcal requirement	Kcal provided by goat products	Cups of staple you need per day to meet your Kcal requirements if you consume goat meat and milk

Ruminations

Discuss the answers to these questions with your helper.

Say Cheese! (Share what you learned)

- How did you decide which facts described each country?
- What was your personal impact of reading the data in the chart?

The Buck Stops Here (Process what's important)

- Explain the importance of goat products in the diets of humans in underdeveloped countries.
- Besides mathematics, what academic disciplines require problem-solving skills?

Spread It Around (Generalize to your life)

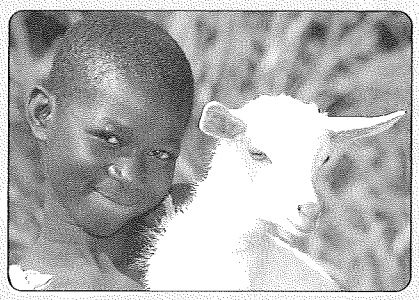
- How do goats contribute to the nutrition of your family?
- What situations bring out your best problem-solving abilities?

Browse for More (Apply what you learned)

- How can you find out more about the reasons for food scarcity in many countries?
- What can you do to help solve the problems of malnutrition and hunger in the United States? How about in other countries?

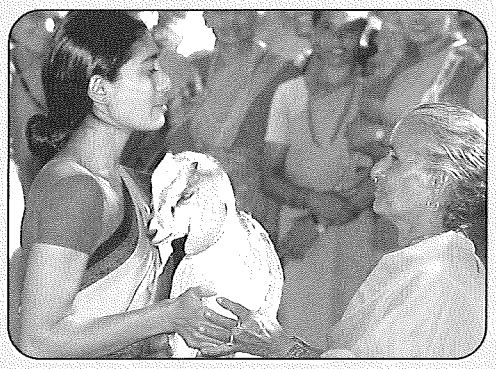
Whey Cool Facts

Let's Hear it for Goats!



Goats were one of the first species of animals domesticated by people. For centuries they were the primary source of milk and red meat for the majority of people in the world. They can live in a wide range of climates and have versatile eating habits that allow them to survive on many different kinds of plants (grass, tree leaves, shrubs, grain, fruit, etc.) that grow in different parts of the world. Goats cost far less to buy and feed than larger animals. They are pregnant for just five months and often give birth to twins or triplets. Larger livestock are expensive to buy and feed, carry their young for many more months and rarely have twins.

Many small farmers use goats as a "savings account." In a drought or other disaster, a farm family can usually salvage at least some of their goats while they might not be able to save any of their cows. After the disaster, goats will multiply rapidly and the herd can become large again. If the family needs money they can sell just a few goats and still have valuable milk, meat and manure for themselves. It would be hard to sell just half a cow and keep her other half to make milk! Also, there are many countries in the world where families do not have refrigerators. A family can easily eat the meat from a goat kid in a day or two. Meat from larger goats is usually reserved for weddings, funerals or large parties where numerous people need to be fed.



Goat milk can contribute tremendously to the nutrition and health of a small farm family. Pasteurized goat milk, if supplemented with folic acid and iron, can be used for babies whose mothers can't nurse them for various reasons. Unlike formula, it does not have to be mixed with water in areas where water must be carried long distances and may not be even be *potable.* In poor countries, some of the highest *mortality rates* are in children three months old to five years old. Goat milk can help them make it through this difficult period.

Bits & Butts

A quart of milk provides all the daily protein and calcium a child less than seven years old needs. It also contains about half the protein and almost all the calcium needed by a teen daily.

Bleat Street Talk Staple Mortality rate Potable Kcal

Udder Ideas

1. Investigate how goats are used by people of various cultures within the U.S.
2. Keep track of the calories you receive from goat products and the other foods in your diet for a week.
3. Volunteer at a local food bank, mission or food drive. Write down your thoughts about this experience and share your feelings with a friend, parent or helper.
4. Investigate the work of Heifer International and give a presentation on their approach to solving the world hunger problem.

Written by Tatiana Luisa Stanton.
Map of Africa provided by Dr. Dorothy D. Wills, Professor of Anthropology, Dept. of Geography and Anthropology, California State Polytechnic University Pomona.

Bleat Street Talk 3 Glossary

This is the third of three glossaries to increase your "goat" vocabulary. See how many of these words your family knows.

A

Abnormal presentation - Any fetal delivery position other than head and front feet first.

Administration route - Way a medication is given, including intravenously, intramuscularly, subcutaneously, topically or orally.

Anthelmintic - Medication that kills internal parasites.

Antidote - Specific remedy for an illness, disease or poisoning.

Artificial insemination - Impregnating a doe with fresh or frozen semen collected from a buck.

B

Biosecurity - Protecting living things against disease.

Body Condition Score - Number from one to five that reflects how much fat an individual has, from a low of one to a high of five.

C

Carrier - Individual that shows no sign of illness but is infected with an infectious agent and can transmit it to others; genetically, an individual that has one copy of a recessive trait and does not display the trait.

Cervical insemination - Method of artificial insemination where semen is deposited in the cervix with a pipette.

Closed herd - No animals are brought into the herd; herd growth occurs only through reproduction of animals already present in herd.

Common ancestor - Relative that can be found on both the dam side and the sire side of a goat's pedigree.

Conception rate - Number of animals pregnant divided by the number that were bred, multiplied by 100 and expressed as a percentage.

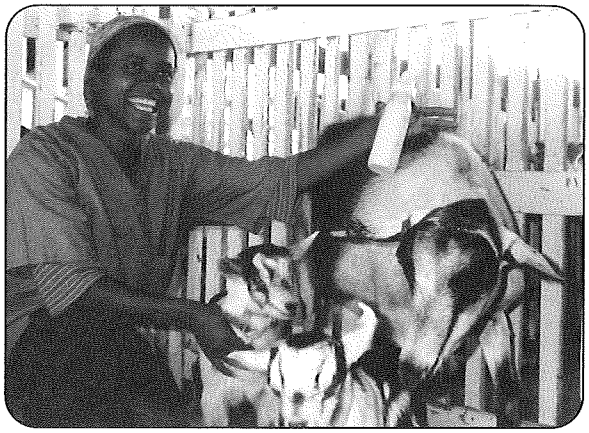
Conformation - How an animal is put together; how well it conforms to the ideal for its breed; also known as type.

Contagious - Disease that can spread between individuals.

Correct - Excellent body conformation as defined by a breed association.

Crossbreeding - Mating animals from different breeds.

Cull - Purposefully remove an animal from a herd for the betterment of the herd, usually by selling for non-reproductive uses.



D

Deviation - Variation or change, in particular when compared to the average for a group.

Dominant - Type of trait that is evident even if an individual inherits one recessive gene from one parent; overrides a recessive gene. An example is the dominant gene for brown eye color: "BB" and "Bb" are brown eyes and only "bb" results in blue eyes.

E

Extra label - Legal classification of medications that can be used in a species, at a dose rate or through an administration route other than that included on the label, but only on the advice of a licensed veterinarian when a valid veterinary-client-patient relationship exists.

G

G-6-S carrier - Animal that carries one defective, mutated gene for mucopolysaccharidosis IIID, or G-6-Sulfase enzyme deficiency, found in about 25% of Nubians and their crosses. Animals that receive one such gene from each parent grow poorly, have poor immune function and die young.

Generic - Basic item or ingredient without a trademarked brand name.

Genes - Units of heredity found on a certain spot on a chromosome and responsible for a certain trait.

H

Heritability - Amount of variance observed in a trait due to genetics rather than environment.

Homozygosity - Genetic situation when an individual inherits two identical forms of the same gene from both parents, such as "bb" for blue eyes or "WW" for white coat. "Bb" or "Ww" would be the heterozygous condition.

I

Inbreeding - Mating closely-related individuals.

Inbreeding coefficient - Degree to which two animals in a real or potential mating are related through a common ancestor.

Incubation period - Amount of time between exposure to a disease and when signs of illness appear.

Independent culling levels - Breeding program that uses only animals that meet certain standards for each trait of concern.

Intraperitoneally - Giving a medication into the free space of the abdomen.

K

Kcal - Kilocalorie or calorie; measure of energy contained in food.

L

Laparoscopic insemination - Method of artificial insemination that uses a lighted, flexible tube to place semen in the uterus through a surgical incision in the body wall.

Linear appraisal - Program that measures a goat against the ideal goat of that breed and generates a score.

Line breeding - Type of inbreeding that continues certain desirable characteristics found in a strain of animals or "family line."

M

Malpresentation - Abnormal birth position.

Mature equivalent milk record - Adjusted milk production record of an immature doe that uses a mathematical model to reflect what the doe would have milked if she were three years old and kidded in January through March. It is not a prediction of what she will milk when mature.

Morbidity - Rate of sickness within a population; number of animals within a population that become ill due to a certain disease.

Mortality - Death or death rate from a certain disease.

Mortality rate - Number of deaths per 1,000 or 100,000 members of the population over a certain period, usually due to a specific disease or condition.

N

Nonassortative mating - Breeding program that improves traits in offspring by breeding females weak in a specific trait to a male strong for that trait.

P

Palpate - Examine with hands; feel.

Phenotype - Trait that can be measured or observed, such as coat color; determined by genetic and environmental factors.

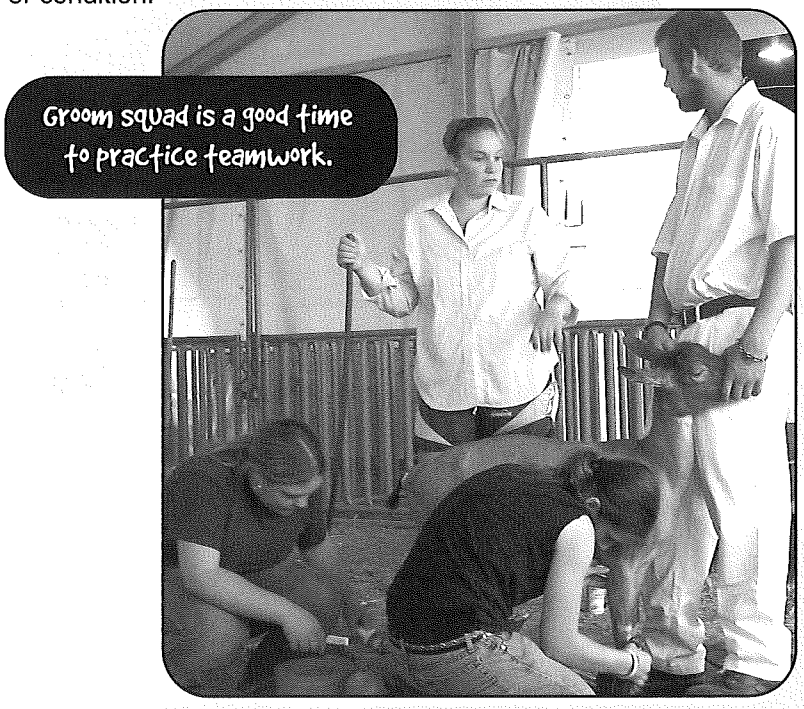
Potable - Water or other liquids safe to drink.

Q

Quarantine - Isolate an animal for disease control purposes.

R

Recessive - Type of trait that is only evident if an individual inherits non-dominant genes from both parents; can be overridden by a dominant gene. An example is the human "O" type of blood: "OA" is type A blood and "OB" is type B blood; only "OO" is type O blood.



S

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

Staple - Food high in carbohydrates that serves as the main source of energy in a person's diet.

Subcutaneously - Administering medication under the skin.

T

Tandem selection - Breeding program that focuses on one trait at a time for genetic improvement.

Topically - Applying medication to the surface of the body such as the eye or skin.

Trait - Any observable feature or characteristic of an animal; influenced by environment and genetics.

Transcervical insemination - Method of artificial insemination where the semen is placed into the uterus through the cervix using a pipette.

Transmission - Spread of disease between individuals.

Type - Conformation traits of a dairy goat as measured by linear appraisal scores.

V

Vaginal insemination - Method of artificial insemination where the semen is deposited deep into the vagina.

Z

Zoonotic - Disease that can be transmitted from animals to people.

Goat Resources

The following are examples of resources to help you complete the activities and learn more about this exciting project. Dairy and non-dairy goat resources are included. The Extension Service does not endorse any non-Extension resources.

Extension Service Resources

4-H BU-08352
Dairy Goat 1 – *Getting Your Goat*

4-H BU-08353
Dairy Goat 2 – *Stepping Out*

4-H BU-08354
Dairy Goat 3 – *Showing the Way*

4-H BU-08355
Dairy Goat *Helper's Guide*

4-H BU-07909 Meat Goat 1– *Just Browsing*

4-H BU-07910 Meat Goat 2 – *Growing with Meat Goats*

4-H BU-07911 Meat Goat 3 – *Meating the Future*

4-H BU-07912
Meat Goat *Helper's Guide*

Dairy Goat Breed Associations

To find current contact information for each association, search for the association name on the Internet.

Alpines International

American Dairy Goat Association

American Harness Goat Association

American LaMancha Club

American Nigerian Dwarf Dairy Association

American Nigerian Dwarf Organization

Cashmere Producers of America

Colored Angora Goat Breeders Association

Golden Guernsey Goat Society

International Goat Association

International Nubian Breeders Association

International Sable Breeders Association

Kinder Goat Breeders Associations

Miniature Dairy Goat Association

Mohair Council of America

National Pygmy Goat Association

National Saanen Breeders Association

National Toggenburg Club

Nigerian Dwarf Goat Association

Oberhasli Breeders of America

Pygora Association

Books

Dairy Goat Judging Techniques
by Harvey Considine
ISBN: 0-93084-802-0

Dairy Goats for Pleasure and Profit
by Harvey Considine
ISBN: 0-93084-800-4

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

Goat Medicine
by Mary C. Smith & David M. Sherman
ISBN: 0-8121-1478-7

Raising Milk Goats Successfully
by Gail Luttmann
ISBN: 0-91358-924-1

Raising Milk Goats the Modern Way
by Jerry Belanger
ISBN: 0-88266-576-6

The Illustrated Standard of the Dairy Goat
by Nancy Lee Owen
ASIN: B0006WROLK

The New Goat Handbook
by Ulrich Jaudas and Matthew M. Vriends
ISBN: 0-81204-090-2

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

Veterinary Parasitology Reference Manual (5th Ed.)
by Dr. William J. Foreyt
ISBN: 0-8138-2419-2

Extension/4-H Publications

4-H 131, 4-H Goat Manual
Ohio State University Extension
Media Distribution
385 Kottman Hall
2021 Coffey Rd.
Columbus, OH 43210-1044

Magazines and Journals

Dairy Goat Journal
145 Industrial Drive
Medford, WI 54451

Goat Tracks Magazine: Journal of the Working Goat
ECPG-GT
Box 755
Estacada, OR 97023

United Caprine News
P.O. Box 328
Crowley, TX 76036

Wild Fibers
P.O. Box 1752
Rockland, ME 04841

Ruminations: The Nigerian Dwarf Goat Magazine
22705 Hwy 36
Cheshire, OR 97419

The GOAT Magazine
9250 New Salem Road
Pleasantville, OH 43148

Miscellaneous Resources

Videotapes/DVDs

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

All available at:
Goodwin Educational Videos
Instructional Materials Service
Texas A&M University
College Station, TX 77843-2588

ADGA educational videotapes

- "Dairy Goat Grooming and Showmanship"
- "Goat Basics"

Contact ADGA for loan or rental information

Goat Learning Kit
The Ohio State University
254 Agricultural Administration Bldg.
2120 Fyffe Road
Columbus, OH 43210-1067

DAS-0002, Goat Breeding & Reproduction (DVD)
Instructional Video Library
Ag Communications Services
Room 19, Scovell Hall
University of Kentucky
Lexington, KY 40546-0064

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www.4-hcurriculum.org

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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.

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projects online at:

www.4-hcurriculum.org

Dairy Goat Level 3

Showing the way