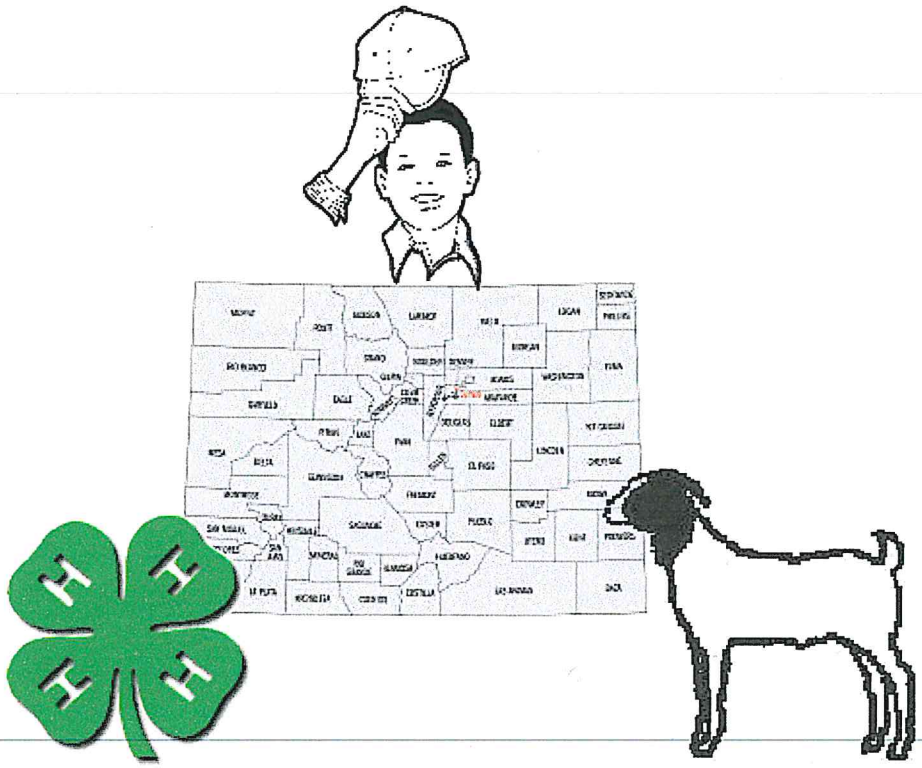
Raising and Showing Meat Goats!



A youth manual for meat goat projects in Colorado!

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Section I - Starting a Meat Goat Project

Introduction

Colorado enrollment in 4-H goat projects has become increasingly popular. Since 1997 the number of 4-H members enrolled in goat projects has risen over 40%. These members participate in one or more different kinds of goat projects. There are three primary classes of goats; dairy, fiber, and meat breeds. As a result there are several variations of projects that a member can complete.

- **Dairy Breeds:** The most commonly known breeds are dairy goats. These goats are typically owned and selected for their ability to produce milk and kids. Dairy goats tend to be larger and gentle with the ability to produce more milk. They are likely to have more kids at one time and are generally excellent mothers. Examples include the Nubian and Saanen.

Baby goats are known as **KIDS**

- **Fiber Breeds:** There are two breeds that are classified as fiber goats. Angora and Cashmere goats are both selected for their ability to produce fiber. Each breed has very different characteristics. However, both have their fleeces harvested and sold for spinning and weaving.

- **Meat Breeds:** All goats can be sold for their meat. However, in recent years producers have begun to place more importance on muscle. As a result, certain breeds have been developed or improved. These animals tend to excel at muscle production, reach their market endpoint quickly and are generally easy to handle. For the purpose of this manual, the meat breeds will be the focus. However, keep in mind that there are several characteristics of the other types of breeds that may be useful in raising and showing high quality meat goats. Specific breeds are discussed later in this manual.

The Decision

As a youth project, meat goats are popular because of the comparably short time, small investment, and minimal facilities that are needed for success. In addition, goats are very adaptable animals that perform well in almost any environment.

Because of their small size, goats are often viewed as fun pets. While this is often true, it is important to realize that goats, like any other project, are a ***full time responsiblity***. **BEFORE** beginning your project, make sure that you are committed to caring for your goat at **least** twice a day, every day (snow, rain or shine). As with any animal, goats not only require feed and water, they also need exercise, sunshine, and companionship. In order to be successful in your project, your goat(s) will require additional time spent training and grooming.

Once you and your family have decided to begin a goat project and are committed to the responsibility of owning an animal, there are several more steps that need to be completed in order to prepare yourselves. The following are suggested steps to help guide you through your project!

Step 1: Develop a Project Plan

Before beginning any project it is important to know as much as possible about the animal that you will be working with and to have a plan for production, management and marketing of the project.

In order to decide what type of project is best suited for you and your situation, there are several questions that you must first find the answer to.

1. What kind of goals do I have for this project?
2. How much time and money do I want to invest?
3. How do I plan to market my goats?
4. What are my facilities suitable for? Do they need improvement?
5. What kind of goats do I want to raise? i.e. type, breeding or market animals.
6. How many animals can I feed at one time?
7. Do I have the resources available to provide proper health care?
8. Am I comfortable with selecting animals to purchase?
9. What classes are available at my local fair?

There are several different resources that can be useful in answering these questions. Most importantly remember that the best way to find out is to ask someone who has been in the industry. Your county extension agent or 4-H leader should have access to all the resources that you need. If not, they can help you figure out where or who to go to for the information that you need.

A great way to gather information is to attend and observe a goat show. During this time, you can see first hand some of the work and commitment that is part of this project. In addition, this is a great chance for you to meet and talk to producers. Most of these people are happy to share their thoughts and suggestions. It is important to develop good relationships with the other producers in your industry in order to form a strong network of people to learn from and share ideas with.

A female goat is a **DOE.**

A male goat is a **BUCK.**

A neutered goat is a **WETHER.**

Step 2: Setting Project Goals

As in life, setting goals is invaluable to your goat project. The goals that you make will determine the direction that your project takes. Evaluate why you are choosing this project. If you are not interested in a long term commitment, a sensible goal could be to compete only at the county fair with your market goat. No matter what goals you decide upon, commit yourself to developing a detailed plan to accomplish your goals. It is helpful to include your goals as part of your record books. This aids in measuring your project's success.

Long Term Goals:

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

Short Term Goals:

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

Step 3: Developing a Time and Money Budget

There are several different phases of the meat goat industry in which a person can become involved. The production sector is rapidly growing. Meat goat production includes the owning, breeding, raising and selling of goats. Producing goats begins with the purchase of several does, getting them bred, caring for them through their pregnancy and caring for their kids until the time of sale. To increase profitability, it is usually necessary to own several animals. Production is a year-round time commitment. It involves greater money and time investments than a market project.

A **BUDGET** is a plan for how and where money will be spent

The market goat show industry is becoming increasingly more popular. A market goat project includes purchasing a young goat after it has been weaned from its mother. The project member then has the responsibility of feeding and caring for that animal until it is ready to be

marketed. An important advantage to this sector of the industry is that a project member can purchase a young goat kid, feed it out and sell it in a matter of months. This shorter time period and lower investment makes this project more appealing to new members.

After deciding the amount of time and money that you are able to invest, it is helpful to develop a budget in order to measure your success and provide a guideline for your project. The following is an example of a very basic budget that you can research and fill in with the costs that apply to your plan.

Table 1 – Sample Budget

Fixed Expenses:		
Facilities (New or Improved)		$
Shelter		$
Fencing		$
Panels		$
Equipment		$
Feeders		$
Water Tanks		$
Miscellaneous		$
	Total Fixed:	$
Annual Expenses:		
Animals		$
Veterinary Allowance		$
Feed		$
Hay		$
Grain		$
Pasture		$
Show Equipment		$
	Total Annual:	$
Estimated Income:		
Number animals sold		No. head:
Price		$/unit
Income from animals		$
Other income		$
	Total Income:	$

Step 4: Designing a Marketing Plan

It is important to remember that a goat project is similar to running a business. Like any good business, a project member must know where the product will be sold. The process of getting a product to the point where it can be sold/used is called marketing. The place where that occurs is referred to as a market.

The type of market you target depends on the type of project you decide to pursue. There are several different marketing plans that can be used. It is important that each

operation design the marketing plan that will be the most effective for that specific operation.

Due to the fact the meat goat industry is fairly new, the available markets can be hard to find and not clearly defined. Although this can be more difficult for beginners, it also offers more flexibility to producers. Each project member has the choice to participate in developed markets or create a "niche market". Several existing markets are defined below. While making a marketing plan it may be helpful to use these options as general targets. However, it is still necessary to define the specific targeted market. This is done by defining the desired customer, creating a demand calendar, and determining the optimal product. An example marketing plan can be found in Appendix 1.

A market created for a certain need is a **niche market.**

- **Regional Auction Market** – Most auction barns will sell goats for the producer.
  - **Advantages**:
    1. There is no need for the producer to find buyers.
  - **Disadvantages**:
    1. This market is very unpredictable.
    2. The seller has to pay a percentage of the selling price to the auction barn (called a "commission").
    3. Goats may be sold by the pound or on a per animal basis. This makes it difficult to know the most profitable kind of animal to produce.

- **Niche Markets** – These are markets developed by the producer in response to a specific demand.
  - **Advantages**:
    1. The producer is able to capture more value.
    2. The customer base is very specific.
    3. The desired product is well defined
  - **Disadvantages:**
    1. These markets can be very seasonal.
    2. Producers are dependent on the demands of a specific group of customers.
    3. Maintaining the market is the responsibility of the producer and involves hard work to be successful.

- **Seedstock Markets** – This market involves the selling of high quality breeding animals.
  - **Advantages:**
    1. This market allows a producer to capture more value for higher quality replacement animals.
  - **Disadvantages:**
    1. This market is dependant on trends and popular opinions.

The animals used to build a herd are called **seedstock**

2. This is only an outlet for animals that are good enough to be used as seedstock.

- **Show Prospect Markets** – This market targets the show industry.
  - **Advantages:**
    1. Prices are normally fairly stable.
    2. Goats shown in the different shows provide publicity for the producer.
  - **Disadvantages:**
    1. This is only an outlet for those goats that are high enough quality to be competitive in the show ring.
    2. The show ring is subject to trends and cycles. It is necessary to keep up with these in order to keep goats in demand.

- **Youth Livestock Sales** – This is a market for goats that are exhibited in youth shows.
  - **Advantages:**
    1. The market is established.
    2. The seller usually gains a premium over market value.
  - **Disadvantages:**
    1. Buyers can be limited and therefore may be overused.
    2. The seller will have to find buyers.
    3. There is no guarantee that your animal will be accepted into a Junior Livestock Sale (have to "make the sale").

Step 5: Facilities

The main requirements for a goat's comfort are space for resting, exercising, shelter from the elements, clean and fresh feed and water. It is not necessary to build a brand new structure just for your goats. It is okay to use an existing building, as long as it will meet certain needs for the goats. Each goat should have a minimum of 15 square feet of space in the shelter. For example, a 5 foot by 6 foot (30 sq. ft.) shed would be big enough for two goats.

Goats also prefer dry and well bedded floors. The bedding should be changed often enough to keep it relatively clean and dry. The building should also be well-drained so that there is no danger of standing water inside the shelter.

Straw or **sawdust** is used as **bedding** for goats.

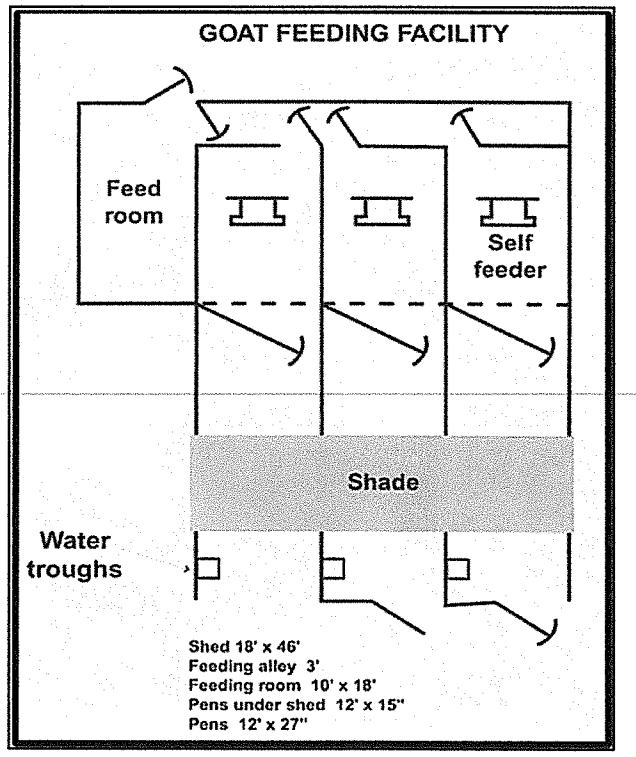
In the harsh Colorado climate it will be necessary for your goats to have some sort of shed or barn that will keep them warm during the severe winters and cool on hot summer days. Remember that the temperature of the goat's environment is critical to its well being. Goats are less likely to eat when it is very hot. Goats are also more likely to get sick when it is very cold or during drastic temperature changes. Make sure that your barn has good air flow. In the summer, some sort of fan (even misting system) may be helpful but is not a necessary expense to keep the goats cool enough that they continue

to grow and stay healthy. For the same reasons, keep the shelter well insulated and warm in the winter. This can often be accomplished by enclosing the shelter with a tarp or plywood and with additional bedding.

There are no specific size requirements for the outside pens, however, the bigger the pen, the better for the goats. It is also a good idea to have something in the pen that goats can climb on. Climbing on trees to forage for food is natural instinct for goats, therefore they will spend a lot of time hunting for something to climb and play on. This is a great source of exercise for goats and it may also save some wear on your fences. See Fig. 1 for an example setup.

Goats are very active and curious animals. It is important that adequate fencing is used to contain them. This is both for the safety of the animal and is important in keeping a good relationship with the neighbors. While building pens and corrals, use panels that are at least 5 feet tall. It is helpful to use panels with 4–inch (or smaller) squares. These panels are tall enough to stop goats from jumping and the 4-inch squares are small enough to keep the goat from getting their heads stuck in the fences. Additionally, the small squares should keep most predators and stray dogs out.

Figure 1: Example Goat Feeding Facility



Source: Texas 4-H Meat Goat Guide

When fencing pastures or extremely large pens, it is generally better to use woven wire. When shopping for woven wire, make sure that the fence will last and is safe for the goats. Do not forget the cost of installing the fence when comparing costs. The wire should be at least 42 inches tall with spaces 4 inches square or smaller or 8 inches and larger. It may also be helpful to top the fence with one or two strands of barb wire and to have a strand at the bottom of the fence. The barb wire may be helpful in keeping predators out and goats in.

Electric fencing may also be an option. This type of fencing is generally lightweight, and easy to move. Whichever fencing is chosen, there are several fencing companies that have information about their product and representatives available to answer questions.

A single file walkway for goats is a **chute**.

For a breeding goat project, it will be necessary to have access to some sort of working facility. There is a certain amount of handling required when keeping goats. If the goat operation consists of larger numbers, there are certain working setups that can be helpful for sorting, doctoring, marking and grooming. It may be helpful to construct a chute approximately 10 feet long, four feet high and 12-14 inches wide.

Hint: Solid panels keep the goats from spooking as much.

By keeping the chute relatively short and narrow, crowding and turning problems can be avoided. At the entrance of the chute, construct a "catch pen" to run the goats into before crowding them into the chute. At the working end of the chute build or purchase a sorting gate that enables the workmen to sort into different pens. For smaller numbers of goats, a small "catch pen" may be all that is needed.

Step 6: Feed and Watering Equipment

Goats require a nutritious diet and fresh water at all times in order to grow and be healthy. Waterers and feeders must be checked daily. This will help to ensure that each are kept clean and working properly. Although a self-waterer may be the answer for keeping water fresh, it still requires cleaning and regular maintenance. A heated self-waterer will be helpful in keeping water from freezing in the winter. If watering by hand, it will be necessary to keep the ice broken so that the animals can get to the water. The water source should be located in the shade to keep water cool in the summer. It should also be raised off the ground high enough to discourage the goats from standing or relieving themselves in it.

Hint: A smaller water container is easier to keep clean and fresh because it requires changing and filling more often.

The feeder should be raised at least 6 inches off of the ground. This is to assist in keeping the feed cleaner. By not placing feed on the ground the spread of parasites and diseases is lessened. If hand feeding your goat project, use small portable troughs that can be placed at shoulder height to the goat. This again, discourages them from standing and defecating in the feed.

Step 7: Record Keeping

The best way to measure progress in your project is with record keeping. As discussed earlier, all livestock projects are similar to a business. The ultimate goal for each of them is to produce some sort of product. This product may be milk, or fiber, or meat. The best way to make sure that the business is producing the highest quality products with the lowest costs is through record keeping.

Records will help you to keep track of expenses and income and assist you in measuring the genetic and physical progress of each animal. Each individual tends to keep records with their own method. Whichever method works best for you, make sure to include all useful information.

Record keeping can be made easier with a computer. It may be helpful to look for existing computer programs or develop your own spreadsheet. The following checklist is the type of information that you need to maintain for your project.

Hint: Make your record keeping method easy to use and simple to understand.

Record Keeping Information Checklist:

_____ Expenses

_____ Income

_____ Animal Inventory

_____ Feeding Records (i.e. amount and kind needed)

_____ Animal Health Records

_____ Breeding Records

_____ Birthing Records

_____ Weaning Rates

_____ Weight Gain

_____ Goals

Section II - Breeding and Raising Meat Goats

Step 1: Selection of Goats

The way to produce a quality product is to start with the right ingredients. The ability to select a good goat is something that is perfected through years of experience. This is why it is so important to learn the fundamentals early. More importantly, do not hesitate to ask questions and the opinions of the producers you are buying from.

Breeds

Although all goats can be harvested for their meat, there are certain breeds that are better suited for this purpose. This publication will focus mostly on the breeds that excel in meat production. For a more complete list and description of all goat breeds, visit the Oklahoma State University website, http://www.ansi.okstate.edu.

A **BREED** is a group of related animals with similar traits.

Boer

The modern day Boer is a horned breed that originated in South Africa and is most often characterized by short white hair with red markings on the head and neck and long floppy ears. Through genetic selection, this breed has proven to excel in meat production, conformation, fertility and a high growth rate. The Boer goat breed has demonstrated weaning rates equal to and higher than 160% and a kidding rate of 200% is not unusual. Performance records also indicate an average daily gain of 0.3 – 0.4 lbs/day and some outstanding individuals can gain over 0.5 lbs/day. In addition to their advantages in growth, Boers also tend to reach puberty at an earlier age, 6 months for males and 10-12 months for the females. They also have an extended breeding season.

Spanish

The Spanish meat goat is made up of a wide range of colors and body types. The Spanish goat can be traced back to European sailing ships and Spanish explorers. For several generations, these goats could be found running wild in the Southern part of the United States. During this time, they developed certain common traits through natural selection. The majority of these goats have the ability to breed out of season, and have small udders and teats. Additionally, these animals tend to be very hardy, easy to manage and do well in tough environments. In recent years, certain producers have begun to place more emphasis on increasing meat production. As a result, these animals have become more suited to meat goat production.

New Zealand Kiko Goat

Much like the Spanish Goat, the Kiko is also the result of crossbreeding. Developed in New Zealand by crossing the heavier muscled wild does with Saanen and Nubian bucks. As a result, this breed tends to be larger framed, early maturing, and is often white.

Tennessee Fainting Goat

Also known as Wooden Leg goats or Myotonic goats, this is the only breed that was developed in the United States. These animals tend to be very muscular, will breed out of season and will often kid twice a year. The Tennessee Fainting Goat also suffers from a condition called myotonia. If frightened, these goats experience "extreme muscle stiffness". This causes their legs and neck to "lock up" and will last 10-20 seconds. If unbalanced during these attacks, the goat will topple over, thus the name fainting goat.

Remember, there are more breeds of goats. These are the most suited to excelling in meat production. It is not necessary to purchase a purebred meat goat in order to meet your goals. There are several crossbreeds between these meat goats and certain dairy goats that are very good at meat production. The best way to decide which will work for you is to observe other goats and talk to other producers to find out what will work for your situation.

Age

The age of the goats purchased for a project depends on what your goals are and the breed of goat purchased. In order to have a kid crop, the goats purchased must be old enough to breed. Males tend to reach puberty at 4-8 months. Most females reach puberty in 7-10 months. This age varies between breeds, although most does may kid at one year of age. Despite this, some producers choose to let them grow out instead of breeding them the first year. This is to allow the goat time to mature without the tougher demands of pregnancy on its body. It is best if the doe has achieved at least 60-75% of its adult weight before breeding.

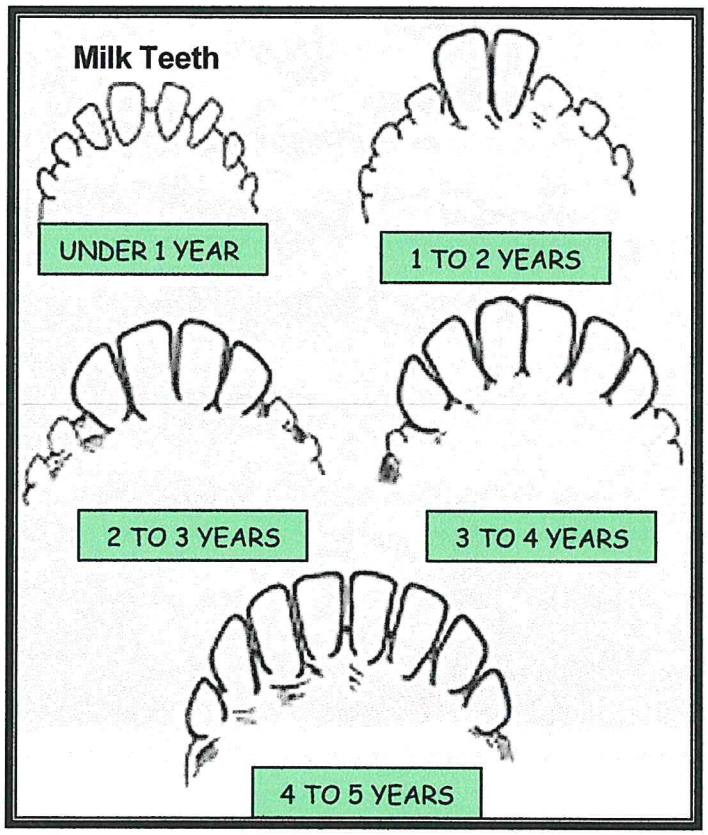
Puberty is the age which animals can be bred to produce offspring.

When a kid goat is removed from its mother's milk, it is **WEANED.**

Market goats can be purchased after they are weaned from their mothers and are usually kept until they are ready to market. If you are looking for a show wether, make sure he will be within age limits that may exist at the target show. For example, several shows require that a market wether or doe still have their milk teeth.

Most goats lose their milk teeth at 10 to 12 months of age.

Figure 2



Source: Extension Goat Handbook

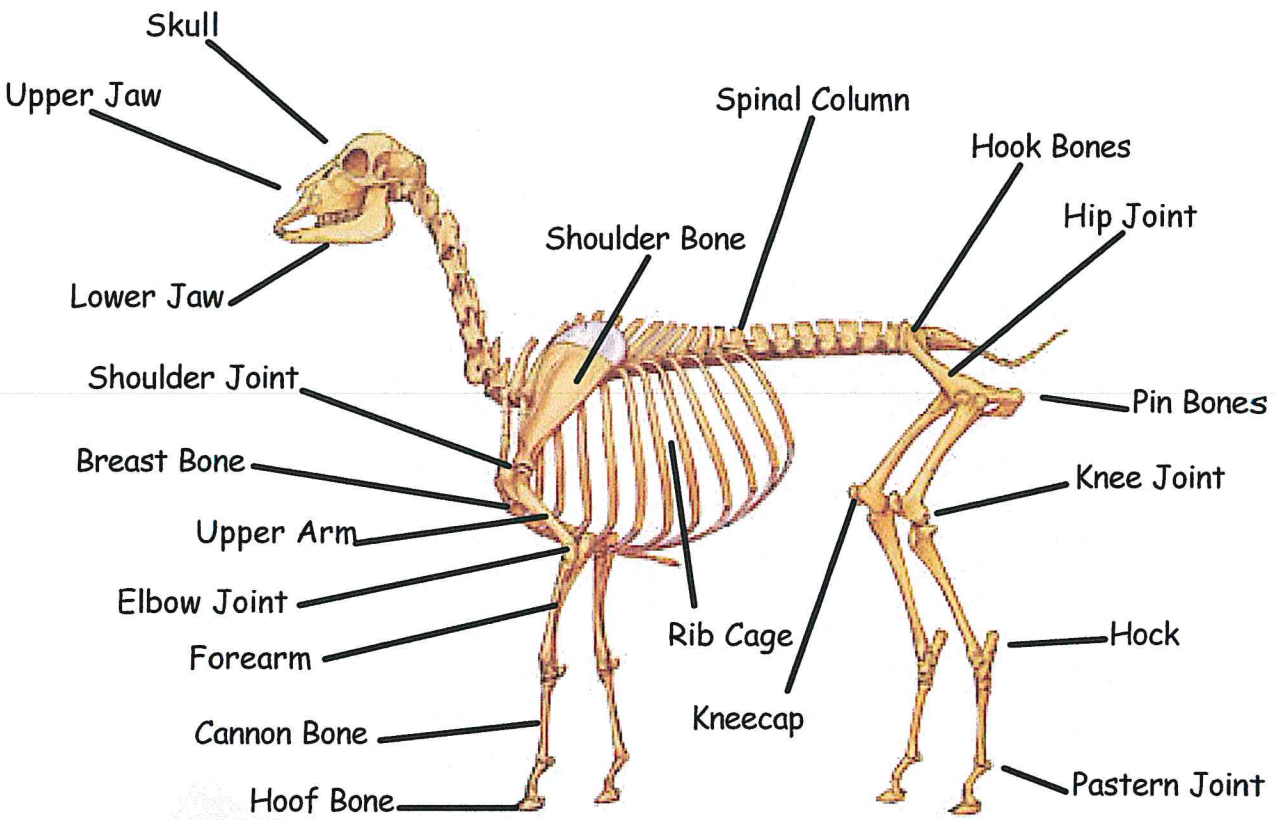
The "Look"

The type of goats that you select for your project will have a direct effect on the results. Although a good management plan can do a lot to help the quality of a project, it always helps to start out with good livestock.

The ability to evaluate livestock is a skill developed through practice and experience. Therefore, do not hesitate to ask for assistance from older and more knowledgeable goat producers. These people have had practice at selection and are generally willing to help a newcomer.

In order to evaluate an animal it is essential to understand the parts that make up the entire animal. Each part serves a function. That function can directly or indirectly impact your operation.

Figure 3: Skeleton of a Goat



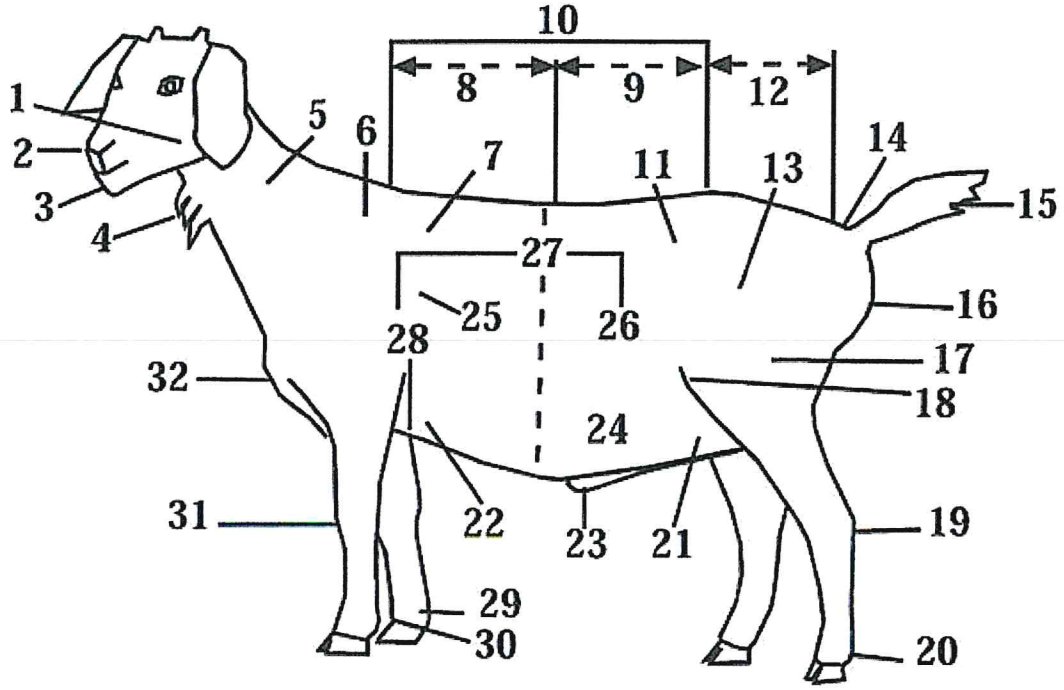
A goat's structure is a direct result of its skeletal design. Structural correctness is essential for any operation because it affects the animal's ability to perform basic daily functions. For example, if a goat has a severe overbite its ability to graze may be affected. If the angle of a shoulder, hip or pastern joint is too straight the animal may not be able to travel distances to reach feed or water.

The bone structure of a goat should be similar to that pictured in figure 3. The most obvious indications of structural problems are in the shoulder, hip and pasterns. If any of the angles in each of these joints are too straight or too excessive, that animal may have problems moving. It is important to remember that skeletal problems cannot be fixed or changed and will only worsen with age.

Helpful Hints for evaluating structure:

1. Make sure the top and bottom jaws align. Over bites and under bites are NOT desirable.
2. The shoulder should have approximately a 45 degree angle.
3. The top line should be fairly level.
4. The angle from hooks to pins should be gently sloping.
5. The hock should have enough angle to allow for ease of movement.
6. All four pasterns should have about a 45 degree angle.

Figure 4 – Meat Goat Parts



1. Jaw
2. Muzzle
3. Throat
4. Wattle
5. Neck
6. Withers
7. Crop
8. Chine
9. Loin
10. Topline
11. Hipbone
12. Rump
13. Thurl
14. Tail Head
15. Tail
16. Pin Bone
17. Thigh
18. Stifle
19. Hock
20. Dew Claw
21. Rear Flank
22. Fore Flank
23. Sheath
24. Belly
25. Fore Rib
26. Rear Ribs
27. Barrel
28. Heart Girth
29. Pastern
30. Hoof
31. Knee
32. Chest

Source: Mississippi Club Goat Guide

Animals that will be efficient converters of feed into meat are the ultimate goal of a meat goat project. Consequently, it is necessary to select animals that are heavily muscled and production oriented.

The most important muscle indicators are the parts of the goat that provide the most meat if the animal were to be harvested. These areas are the shoulder, loin and leg. The forearm and shoulder should exhibit shape and muscle expression. A heavy muscled goat has a thick muscular top from chine to hook bones. This thickness extends out to the pin bones and the muscle is carried down to the hocks. When viewed from behind there should be shape and width from stifle to stifle.

When an animal is killed for meat it is **HARVESTED**

Hint: Goats that tend to stand and walk wider are generally heavier muscled.

The most obvious physical indicators of production traits are ***volume*** and ***capacity***. These terms refer to the size of the animal along with the length and depth of body in that specific animal. A longer, deeper bodied goat generally maintains good body condition easier. In breeding animals, this makes for a healthier pregnancy in females and bucks that finish the breeding season in better condition. High volumed market goats are generally more efficient at converting feed to gain.

The ***condition*** or ***finish*** of an animal refers to the amount of fat cover over the spine and ribs. In breeding animals it is desirable to have a thin layer of fat cover. This layer acts as an energy reserve for the animal. This helps them to handle the stress of breeding and pregnancy better. Market animals are expected to maintain a trimmer layer of fat. A thin layer of fat is necessary to produce a fresher, tenderer carcass. However, too much fat will translate to a carcass unappealing to consumers. Please note, lambs and goats will put on finish differently. Goats will not deposit as much finish over the loin, as compared with lambs.

Goats are commonly sold by the pound, it is generally better to have goats with more ***growth potential***. Goats that are growthier will be heavier which will translate into more pounds to be sold and more income. The most obvious indicators of a goat with more growth potential are a long head, neck, cannon bone and body.

The final category of selection is the hardest to define. ***Style*** and ***balance*** are not related to growth, production, or muscle. However, both are useful when marketing your animals. A stylish, correctly balanced animal is more likely to catch a buyer's attention. Style refers to the eye appeal of an animal. A doe should appear feminine with a long, thin neck, smooth shoulders and more refined bone structure than a male. A buck should be rugged and masculine with a heavy bone structure and expressive muscle pattern. Balance is a measure of how well all parts of an animal blend together. When evaluating balance an animal should be viewed from every direction. An animal should have a smooth shoulder that blends smoothly into a deep ribcage. A goat should exhibit a long, level top line that extends into a gently sloping hip. When viewed from behind the goat should be fairly thick between pin bones and this thickness should be proportional to the thickness from stifle to stifle. A superior goat should also stand straight and square on all four feet and legs.

Hint: When visually evaluating an animal, remember that fat is smooth and flat, while muscle creates shape.

Step 2: The Health Plan

The key to a good health program is prevention. By being observant, one can notice illnesses before they become serious. Fortunately, goats tend to be hardy, so an effective health plan can be fairly basic. By having some knowledge of goats and the diseases common to them most problems can be prevented.

Table 2: Normal Goat Physiological Data:

Temperature:	104 ± 1°F, 40°C
Heart Rate:	70 to 80 beats per minute, faster for kids
Respiration Rate:	12 to 15 breaths per minute, faster for kids
Rumen Movements:	1 to 1.5 contractions per minute

All animals should be checked at least daily for signs of illness. Obvious signs include: moving slower than other animals, poor appetite, diarrhea, limping, breathing hard or fast, grunting, grinding teeth, or other unusual behavior. If an individual shows any of these signs, it will need further examination. In order to decide how to treat the animal, it will be necessary to identify the symptoms. To help with a complete examination, use a checklist. The following is a list from The Goat Health Handbook; it may also be helpful to check with your veterinarian for common diseases in your area.

1. Look at the undisturbed animal from a distance. Note the general condition and age of the goat. Can it stand? Does it walk normally? Can it see? Is it bumping into objects? Does it exhibit signs of pain? Is it bloated? Are there swollen areas? Count respirations per minute (one count equals a complete in-and-out movement of air).

2. Approach the goat. It should be held by an assistant by the neck and body. Do not run the goat or fight it as this will cause a false temperature, pulse and respiration reading.

3. To take the goat's temperature, insert the thermometer into the goat's rectum, and leave it for 3 minutes.

4. Place your fist, palm, or fingertips on the left flank and feel for rumen movements. Note if the goat reacts as if in pain. If the rumen feels slushy or water-filled, this should also be noted.

5. Place fingertips on both sides of the lower rib cage and feel for the heart rate. Count heartbeats for 1 minute. The pulse may also be taken by feeling the big artery on the inside of the upper rear leg.

A goat has a stomach with four compartments, the largest is known as the **RUMEN**.

6. Roll back the eyelids and lips of the mouth to observe color of mucous membranes. Pink is normal except when dark skin colors extend into the mouth.

7. Feel over the goat's body to locate swellings and/or signs of pain.

8. Check for blindness. Move a hand toward the eye, but do not fan the air because a blind goat will blink if it feels air movement. If the hand is moved straight toward the eye, blinking will occur only when the goat can see.

9. Note any unusual sounds. Wheezing or coughing could indicate general body pain, either in the chest or abdomen.

10. Check all body fluids to see if the goat has diarrhea, excessive salivation, a runny nose (note whether the discharge is clear or cloudy), and crusty or runny eyes.

11. When examining a lactating doe, always check the udder. Look for clots or bloody milk. Feel for hard knots, heat, or signs of a painful udder.

12. To detect abnormal sounds of the abdomen and chest areas of a goat, a stethoscope should be used. If one is unavailable, place your ear against the goat's chest or abdomen and listen.

As you progress through the checklist, take notes about the animal. By making detailed notes you will have a list of symptoms to help you identify the animal's illness. It will also be easier to monitor the animal's progress if all the information is compiled in an easy to read manner. Design a form for recording this information and keep the forms close to the animals so that they are easy to use. Form 1 is an example of a health form that can be used by project members.

After determining the symptoms, use the following disease descriptions and chart to determine which disease is affecting the animal and the proper treatment. Remember to consult with your veterinarian before administering treatments. Always follow the label instructions on any drug treatment before using.

Disease Descriptions:

Acidosis occurs when goats eat too much feed with high levels of starch or sugar. This includes grains, grain by-products and vegetable parts. This makes the rumen more acidic and gives the goat a stomach ache.

Enterotoxemia is caused by an organism that is normally present in the intestine of goats. When a goats feeding schedule is changed suddenly or large amounts of grain are consumed the organism will grow rapidly and produce a toxin that causes death in a few hours.

Caprine arthritis-encephalitis (CAE) is caused by a virus. This disease spreads from older infected goats to kids, perhaps by contact or through the milk from an infected doe to her kid. Only a small percentage of goats show signs of the disease. This is despite the fact that a high percentage of tests for the virus are positive.

Caseous lymphadenitis (CL) can be contracted when goats eat contaminated feeds or through breaks in the skin. There is even some proof that the bacteria can enter unbroken skin. The disease is caused by a fairly common bacteria found in the soil.

Coccidiosis is caused by a tiny parasite which lives in the cells of the goat's intestine. The severity of the disease depends on the number of parasites living in the intestines. If the diseased goat becomes stressed the symptoms become worse and other diseases may be contracted.

Internal parasites include various types of worms that can be contracted through grazing in pastures. Each type of worm has a different life cycle and can be found at different times of the year. The presence of worms is normally indicated by a decrease in body condition and loss of appetite.

Pinkeye is identified by watering of the eye, redness in the whites of the eye, eyelid swelling and clouding over of the pupil. Several different organisms can be the cause of pinkeye. It is usually transmitted through contact with an infected goat or by insects, traveling from goat to goat.

The ability to resist infection is **immunity.**

Ringworm is a skin fungus. Many fungi can live in the soil for long periods of time. When an animal is infected, rough, scaly circular areas develop. Infection is most commonly found on the head, ears, neck and sometimes the body and udder. Consult a vet to find a safe treatment, as humans can contract ringworm.

Soremouth is a viral disease found in sheep and goats. The virus can live for long periods of time in the soil and equipment in a barn or corral. The symptoms are thick, scabby sores that can be found on the lips and gums of an animal. In severe cases the sores can be found on the udders of does. These sores are painful and make nursing impossible. Adult goats will develop immunity to a disease if they are continually exposed to the virus. A vaccine can be given to kid goats within a month of age. Once an animal has developed the disease, treatment is of little help. Softening ointment on the sores may be helpful. Most importantly make sure that the animal is still eating and drinking water.

Urinary Calculi is found only in male animals. Similar to kidney stones in humans, this disease is the formation of stones in the urinary tract. Calculi results from high phosphorus levels and an imbalance of phosphorus and calcium levels in the feed ration. Make sure that feed rations have a 2:1 calcium:phosphorus ratio, and 10 to 15 pounds of ammonium chloride per ton of feed. This, along with plenty of fresh drinking water will help to prevent calculi from forming.

Table 3: Quick Reference Disease Guide

Disease	Symptoms	Treatment/Prevention
Acidosis	Bloat, Dehydration, Weak Pulse, Increased Respiration, No rumen movement, Full, watery stomach, Very Weak	Administer mineral oil via stomach tube this will help to breakup the excess gas
Enterotoxemia	Full stomach, Fever, Star gazing, Convulsions and tooth grinding, Sudden death is common	Administer Antitoxin immediately Prevention: Two doses of vaccine
(CAE) Caprine Arthritis Encephalitis Syndrome	Young are weak in rear legs, Progressive weakness until death, Swollen joints in adults	No corrective procedures Prevention through testing and culling positives
Caseous Lymphadenitis (CL)	Large knots and abscesses located on body at lymph nodes, Fever, May start losing body condition	Lance abscesses, Rinse with 7% Iodine, Inject antibiotics
Coccidiosis	Diarrhea (may be bloody), Some loss of appetite, Loss of weight, Possible sudden death	Sulfa drug, Good sanitation, Isolate sick animal
Internal Parasites	Swelling under chin, Increased pulse, Increased respiration, Paleness, Severe weakness	Consult Vet to find the most effective de-wormer All animals should be de-wormed upon purchase and when put on pasture.
Pinkeye	Watering eyes, Redness of whites of eyes, Swelling eyelids, Squinting, Cornea becomes cloudy	Inject Antibiotics Apply eye ointment
Ringworm	Rough circular areas over body	Consult your vet to find a safe treatment
Soremouth	Scabby sores on lips and gums (may occur on udders)	Vaccine for kids, Softening ointments may help existing sores, Use caution around eyes
Urinary Calculi	Unable to pass urine, Restless, Kicking at belly, Stretching while attempting to urinate	2:1 Calcium:phosphorus ratio in feed ration, Ammonium Chloride in ration, Plenty of clean drinking water

Step 3: The Nutrition Plan

There is no such thing as one plan suits all when it comes to feeding. Each producer needs to design the program that works best for them.

A goat's diet has the same basic five requirements as all livestock. These are water, protein, energy (provided by carbohydrates, fats and even protein), minerals and vitamins. Each of these are needed by the goat for: maintenance, growth, gestation, lactation, and fattening.

Water composes 70% of lean tissue and is essential to replenishing body fluids. Water also assists in regulating the amount of feed a goat eats.

Water is one of the MOST IMPORTANT nutrients for your goat. Make sure they have a clean, fresh water supply at all times.

Dietary protein is an important ingredient of products such as meat, milk, and fiber. As a result, it is essential that a goat receive enough protein to maintain body tissue and stay healthy. Goats have a daily protein requirement that varies according to their size, age and condition. Protein is generally obtained through oilseed meals: cottonseed, soybean, peanut, and sunflower meals.

As with humans, animals need energy not only to grow but to carry out normal daily functions. In order for a goat's body to utilize nutrients it needs energy. Grains or hay are generally the most economical source of energy. Protein supplements can also provide energy for an animal but are more expensive.

Minerals needed by goats are not well defined scientifically, because each environment and ration is different, thus requiring different supplementation. For this reason, soil testing and assistance from your extension agent may be appropriate. Furthermore, mineral requirements are dependent upon age, sex, stage and level of production of your goats. The minerals to be most concerned about for goats are salt, calcium, and phosphorus. It is possible to feed salt free-choice, however many premixed rations already include up to 1 percent salt. Calcium and phosphorus should be fed at a ratio of 2 to 1. Hay and roughages are generally high in calcium and low in phosphorus. Grains are mostly low in calcium and intermediate in phosphorus. Feed and hay tests are available through most extension offices.

While it is important to monitor the contents of the ration fed, most commercially mixed feeds will meet goat nutritional needs. Buying feed becomes a question of which kind to buy to suit the immediate needs of the goats. As a goat grows and matures its nutritional needs will change with its body's demands. These needs are affected by body weight, stage of production (i.e. maintenance, growth, gestation, and lactation), age, body condition, climate, physical activity, diseases and parasites. A doe's highest nutritional demand is at the time of kidding. This is because late pregnancy and early lactation are critical times for the kid and the doe. By planning your breeding dates so that your does kid when more forages are available you can minimize feed costs.

Caution: Underfeeding during critical times is not profitable in the long run. Feeding large amounts of purchased feed will also hurt profit. By planning your production cycle around forage availability you can avoid these pitfalls.

Although most pasture or browse will meet dietary requirements for goats, it may be necessary to supplement during pregnancy or lactation. It is also easier to monitor and train your market projects if they are hand fed.

Table 4: Dietary Protein and Energy Requirements of Goats.

Class of Goat	Avg. feed intake/day, lb*	% Crude Protein[1]	%TDN[2]
Growing doe, 45 lb[a]	2.4	8.8	56
Growing male kid, 66 lb[b]	2.9	9.0	57
Yearling doe, 90 lb[c]	4.6	10.0	56
3 yr. Old doe, 110 lb[d]	5.0	11.7	69
Mature buck, 220 lb[e]	5.3	9.0	55
Dairy doe, 150 lb[f]	7.5	11.6	71

*Approximations; based on dry matter in the feed
[1]Calculated on basis of the dry matter in the feedn
[2]TDN = Total Digestible Nutrients
[a]Growing at the rate of .25lb/day
[b]Growing at the rate of .33lb/day
[c]Yearling female, last trimester of pregnancy and growing
[d]Milking 2 qt/day – enough for twins
[e]Not gaining weight, moderate activity
[f]Nubian, milking 1 gallon/day of 4.0% butterfat
Source: Pinkerton and Pinkerton, 2000

When shopping for feed there are several factors that you need to consider. These Although price is important, you must also consider dietary needs and goat eating behavior.

Average Daily Gain (ADG) = total pounds gained ÷ number of days it took to gain that weight.

In order to feed properly, it is important to understand the nutritional needs of goats. Use Table 1 as a reference for deciding which feed would work best for the goals that you are trying to accomplish. It is important to monitor your animal's average daily gain, as faster gaining animals will require more nutrients. If you goat is gaining over 0.33 lbs/day, then you will have to supply them with more protein and energy (TDN) as compared to lower gaining animals.

A goat's eating behavior is another factor in deciding what to feed. As goats are capable of picking though feed and eating only what appeals to them, the type of feed you

choose is important. Several producers will attest to the fact that a pelleted ration is often the best option. By feeding a pellet, the goat is unable to pick and choose what part of the feed it will eat.

It is also important to establish a feeding routine for your goat. By feeding your animals at the same time(s) everyday, there is less risk of upsetting the rumen. If changes need to be made in the amount or type of feed, make them slowly and gradually.

Caution: Sudden changes in feed or feeding can upset the rumen.

Use Table 5 as a quick reference guide when deciding which feed is needed. Because each geographic area and type of forage offers different dietary requirements, consult local producers, feed representatives, and extension agents for special feeding needs.

Table 5: Practical Dietary Recommendations for Feeding Goats.

Class of Goat	% Protein	%TDN
Growing kids, dry does, and bucks	9-10	54-58
Pregnant goats	10-11	56-60
Lactating goats	12-13	62-68

Source: Pinkerton and Pinkerton, 2000

Step 4: The Production Plan

After developing a plan to keep your goats healthy you need to make a plan to keep them productive. This plan will differ according to the type of project that you decide upon. If the focus is a market project, your plan will begin at the purchase of the market animal and end at the time of harvest. However, if you choose to begin a breeding project, your plan will be much more complex. Organizing your plans in the form of a calendar may assist in keeping your project on track. An example can be found in Appendix II.

When developing a production plan for your project, keep in mind your production goals. A main goal in a market project is to produce a healthy, market-ready goat for harvest. As a result, it will be necessary to include knowledge about facilities, health, nutrition, and fitness. (See Section III for information on fitness.)

The breeding production plan should combine all of the information that you have gathered so far with some basic facts about reproduction in goats.

Table 6: Physiological Data for Goats:

Female		Male	
Age of puberty (months):	7-10	Age of puberty (months):	4-8
Breeding weight:	60-75% of adult weight	Breeding age (months):	8-10 months
Length of heat (days):	17-23 (average 21)	Breeding season:	All year
Duration of heat cycle (hours):	12 to 48 (average 24)	Breeding ratio (buck:does):	1:20 or 30
Signs of heat:	Tail wagging, mounting, bleating		
Length of gestation (days):	148 to 156 (average 150)		
Breeding season:	August – January		

By combining this information with your marketing goals and forage availability you should be able to decide the best time to put the buck with your does. Remember to include required feeding changes in your calendar along with marketing dates, different facilities requirements and relevant health measures.

There are several additional practices that will be necessary in a breeding project. Consult with other producers and your veterinarian to get a better idea of what to expect and the best system for kidding with your available facilities.

It is essential that a kid goat gets colostrum from its mother immediately after birth. This milk includes important nutrients and antibodies that must be ingested within the first 12 to 24 hours of life. For this reason, it is important that you keep a close eye on the new kid to make sure that it gets up and nurses soon after birth.

Colostrum is the first milk a mother produces for her offspring. It is rich in antibodies to help aid immunity in the young.

Small pens used for kidding are called **jails** or **jugs**.

This may be made easier by building small pens to keep the kid(s) and its mother in. These pens are generally 4 to 5 foot square and are placed in some sort of shelter to keep the animals warm and dry. Depending on the health of the kids, these goats

are generally kept in these pens for 2 to 5 days. Afterwards, they are released into larger pens with other does and their kids.

Horn development is a trait of goats found in most breeds. For safety purposes, remove the horns while the animals are young, between 3 to 14 days of age. There are several ways to dehorn goats. These methods include dehorning pastes, burning irons, or physically removing the horns. You will need to research the method best suited for your project.

Much like dehorning, there are several methods of castration that can be used. It is smart to consult with your veterinarian or another producer before performing this task.

A male goat is **castrated** when his testicles are removed.

You will also need to decide on an identification system for the goats in your breeding program. The most common method is tagging. With this method you can use both numbers and colors to help identify different individuals, families, or gender groups. Tattooing and ear notching are also options that should be researched. Each has different equipment requirements and advantages. Check with the local livestock supply store and other producers for more information.

Another important aspect of identifying your goats properly is the concern over animal health. For example, there are specific requirements for scrapie identification in sheep and goats. Traveling to any show (even your local county fair) is considered "interstate movement", meaning your goats must have an official scrapie tag. The only exception to this is wethers, they do not require an official tag. For more information call 1-800-USDA-TAG regarding the Eradicate Scrapie program.

NOTES:

Section III - Showing Meat Goats

Showing meat goats can be a great way to market the product you are producing. There are shows for breeding animals and for market animals. Both shows provide excellent learning and promotional opportunities. Shows are a great place for producers to interact and learn from each other. Attending will increase your expenses. As a result, it is important to weigh the possible benefits against the expenses. For example, will award money and public exposure be worth the cost of travel, entry fees and the time spent preparing?

How you present your goat will determine your success while at a show. Therefore, the preparation for a show is very important. Preparation begins the day you start your project! After deciding which animal(s) you are going to show, they must be taught how to act properly. The animals will need to be easy to handle and be comfortable around people. In order to ensure that your goat is well trained, you will need to spend considerable time with it **before** going to the show. You will find each goat will react differently to the steps that you take. Some may be more stubborn than others and some may be gentler than others. However, if you are persistent, most goats can be trained.

Step 1: Deciding which animals to show.

There is not one breed or crossbreed that is best suited for the show ring. Instead it is more important to analyze the goat's conformation and potential.

When selecting which goats to take to the show, look for the goat that is the most complete. Evaluate the goat's structure, muscle, growth potential, balance, and style. Although it is very unlikely you will find the perfect animal, by looking for the goat with the least problems you will be more successful in the show ring.

It will be necessary to prepare all paperwork which will be needed at the show. For example, health papers, brand papers, and registration papers may be required.

Step 2: Obtaining the Proper Paperwork

Depending on the breed and type of goat that you are raising, it may be beneficial to register the animals with a breed association. These associations can help monitor the genetics of a herd. They provide opportunities for publicity and marketing that are not available to unregistered stock. Most shows require breeding animals be registered in order to show. Therefore, if planning to show, make sure the animals are registered **in your name**. This means you will need to contact the breed association in plenty of time to get the papers put in your name. For more information contact your breed association.

Veterinary health inspection papers and brand papers may be required. Check with the show management to make sure you have the right paperwork before you leave for the show.

Step 3: Training Show Animals

It is important your goats are well behaved and easy to handle at the shows. If your animal misbehaves or is easily spooked, it will be difficult for you to present it successfully.

Caution: Never leave a tied animal alone.

- Halter breaking is a convenient way to begin the gentling process. It is best to teach your animal to lead by a chain. Halters are acceptable for small children. However, a chain is thought to maintain more control of the animal. Furthermore, it is more effective at showing off the animal. It is necessary for the animal to be comfortable with its chain. The goat must be caught and tied up with the halter or chain. Make sure to tie the goat where he/she can not get hurt. This should be repeated until the goat is calm and comfortable with the collar on.

- Once the goat is comfortable with the halter or collar, it is time to teach it to lead. Use the collar to hold the goat's head high. You will need someone to push the goat from behind. When a goat is leading properly, its shoulders will be even with your leg and its head will be in front of your body. The goat should lead freely without tension on the chain.

- As the goat learns to lead, you can begin training it to set up. This involves teaching the goat to stand properly when not moving in the show ring. While keeping the body and neck straight, set the front legs squarely beneath the chest. Then, place the hind legs so the goat is standing square and naturally. Make sure to keep the head held high and in alignment with the body.

- Proper training will teach the goat to set his/her legs up square each time the goat is stopped

- Goats can be trained to respond to subtle cues for the more experienced showman

- After you have trained your goat, it will be helpful to practice often. Have a partner act like the judge. Your partner can move around the ring and handle the animal in order to give both you and your animal practice.

- By the time you take the goat to the show, the goat should stand squarely each time stopped, always lead freely and be accustomed to people.

Step 4: Fitting and Grooming

As with training, fitting and grooming begins months before the show. Fitting your goat, is making sure the goat is healthy, properly cared for and in desired condition.

Good condition means that the goat has good muscle tone and is not too thin or too fat. Through practice you will learn to evaluate the different degrees of fat cover and muscle tone. Fat feels soft and loose. Muscle feels shapely and firm. Both fat cover and muscle can be monitored and changed through diet and exercise. As discussed earlier, a balanced ration is important. However, as each goat is different it may be necessary to adjust the amount of feed the goat receives. Exercise may be a more effective and healthier method of keeping your goat in good shape.

The purpose of these goats is to produce meat, meat is muscle, and therefore a goat has to build muscle tone. Just like humans, goats build muscle through exercise. If a pen is big enough, a goat can get plenty of exercise on its own. However, it never hurts to provide additional exercise for your animals. Some facilities have the feed trough on one end of the pen and the water source on the other in order to ensure the goat must walk from one end of the pen to the other. Other people build circular tracks and exercise their goats around it.

There is no fool proof plan for an exercise program. It is important to develop a program that fits your situation. The main requirement for an exercise program is safety. It is most effective to exercise the goat intensely for a short amount of time. Therefore, whatever setup you choose to use, make sure that the obstacles are free of harmful edges and wires. It is helpful to make rounded corners in any tracks and to make the sides solid so the animals can only see forward. This will help keep them from trying to jump out and possibly hurting themselves.

Goat grooming can be divided into three different tasks: washing, clipping, and foot care. Each of these tasks need to be done close to show time. However, by brushing your goat's hair on a regular basis in the month prior to the show, you will keep the hair coat healthier.

To wash your goat, you will need:

- A collar for leading and tying the goat.
- A hose and a bucket
- Mild soap
- A scrub brush
- A couple of towels or some other way to dry the goat.

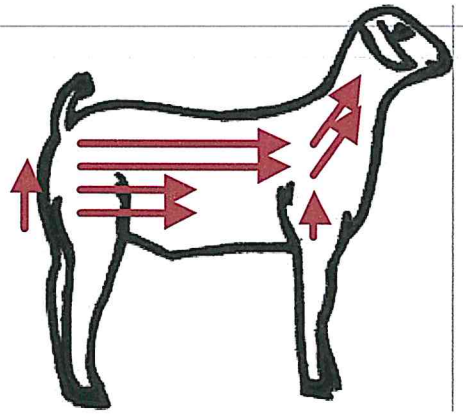
Wash your goat similar to how you wash a dog. Tie the goat to a post or fence. Make sure the goat will not be standing in a puddle and will stay clean while washing. Do not put the soap directly on the goat. Instead mix soapy water in the bucket and pour it on the wet goat. Once the goat is clean, finish your job by drying the animal.

To clip your goat, you will need:

- Livestock clippers and/or sheep shears
- 20 to 23 tooth combs
- Oil for clippers
- Scissors (for hard-to-reach places)
- A spray bottle (for wetting the hair)
- A trimming table
- An extension cord

Wash your goat immediately before clipping. After washing the goat, put it on the trimming table and towel dry. It is best to clip the goat while it is clean and slightly damp. Dirty hair is tough on your clippers. Damp hair is easier to clip smoothly. Clip all of the hair on the body except for the tail and below the hocks and knees. Use long, smooth strokes to clip your goat. Use vertical strokes on the legs and horizontal strokes on the body (see Figure 5).

Figure 5: Goat Shearing Diagram



Source: The Wyoming 4-H Meat Goat Manual

Only the top one third of the hair on the tail should be removed. The remaining hair should be blended into the clipped part and cut to about ½ ". The hair on the underside to the tail should then be clipped and blended with the rest.

The hair on the knees and hocks should also be blended with the clipped part of the goat's body. Use the scissors to trim long hairs and make the legs look smooth and well fit.

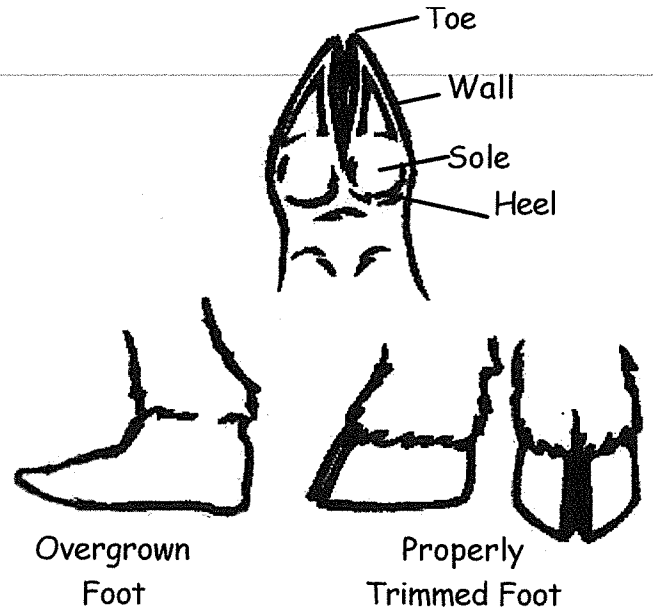
Use your clippers or small animal clippers to remove the hair from around the goat's eyes, ears and face. You can also use the scissors to get hard to reach places and smooth out rough spots.

To trim your goat's feet you will need:

- Foot trimmers
- Foot care medication
- A collar
- Someone to help hold the goat

The wall of the foot should be trimmed so that it is level with the sole of the foot. See figure 6. The feet should be trimmed a couple of times before the final trimming. This is to give both you and the goat practice. The final trimming should be done at least 14 to 21 days before the show. This allows time for any healing.

Figure 6: Diagram for trimming goat's feet



Step 5: Showmanship

After you have trained your goat, fit and groomed your goat, and collected the proper paperwork, it is time to go to the show! Most market shows include market classes which are separated by weight and showmanship classes. These classes are separated by the age of exhibitors showing the animals.

Showmanship is the true test of a show person's knowledge of his or her project. Some believe that this is a competition that is limited just to the showmanship class. However, showmanship skills are something that should be used throughout the show. Good showmanship can either make or break an animal in a competition. The purpose of showmanship is not to showcase the exhibitor. It is to help showcase the animal to its best ability. A good showman can evaluate his/her animal to determine its weaknesses. Once the weaknesses and strengths are determined, the showman can decide the best way to deal with each. For example, if your goat has too much slope to its hip, it may be helpful to set his rear legs further back in order to raise the hook bones.

In order to present your animal during its class at the show, you must know some basic guidelines.

1. It is important to dress appropriately. A neat, unwrinkled shirt, usually with a collar and pants are acceptable with clean and shined leather shoes.

2. Always keep an eye on the judge. This is **very** important in order to keep track of what is going on in the ring. The judge will be moving around to get a better view of the animals. The showman must know where the judge is at all times in order to be in the correct position.

3. Make sure your animal is always between the showman and the judge. This ensures that the judge always has the best view of the animal.

4. At all times, keep your movements at the front of the animal. When the judge switches sides, the showman should move around the front of the animal to the correct position.

5. Keep your movement slow and controlled. Your animal can sense your tension and stress. Therefore, if you are upset the animal will react in the same manner. This causes a lot of frustration which can be avoided by remaining calm.

6. Keep your goats head straight and upright. This helps make the animal more eye appealing to the judge and can also make your animal appear longer bodied.

7. Set the legs of your goat squarely underneath the body. This will help to show off body confirmation and muscling.

8. Make sure that your goat is trained to stand still when the judge handles your animal.

9. Most importantly, SMILE AND HAVE FUN!

Section IV - Conclusion

This manual provides general information and should be used as a tool to **begin** learning about your project. For more information, remember to talk to other project members, producers and your leaders. Also, refer to Appendix III for additional sources of information.

4-H provides a great environment for learning and expanding your experiences. Take advantage of the learning opportunities that your goat project will provide. More importantly, enjoy the chance to try something new and exciting.

NOTES:

Appendix 1 - Example Marketing Plan

Broken Dollar Goat Ranch

Project Mission –

Located southwest of Wellington, Colorado, the Broken Dollar ranch includes 10 acres of Front Range property. The Broken Dollar goat herd consists of 20 Boer Nubian cross nannies. The producer's mission is to maximize profit through the production of a high quality, uniform product.

Marketing Objectives –

1. To build an image of a high quality product that suits the demands of the show wether market.
2. To increase profit through the production of superior show animals.

Target Markets –

1. 4-H and FFA Meat goat project members.
   Characteristics:
   1. Young
   2. Diverse in location, age and product demands.
   3. Loyal to successful results
   4. Tight budget

Distribution –

1. Area Club Goat Sales
   Objective: To increase the scope of exposure while showcasing available show stock.
2. Private Treaty Sales
   Objective: To capture more profit through reduced expenses, and build customer loyalty through personalized service.

Appendix 2 - Animal Health Note Card

Animal Id.#	Pen Location:	Date:
Temperature: Heart Rate: Respiration Rate: Rumen Movements:	Coloring: Sounds: Body Fluids:	
Other Abnormalities:		

Appendix 3 - Example Production Calendar

January	Begin kidding; check teats for milk flow; identify kids, Separate singles from twins; if possible, pen individual does with their kids; feed does to maintain milk production
February	Finish kidding
March	Continue supplement to lactating does
April	Vaccinate kids, Wean kids, Select replacement does and bucks; supplement replacement does and bucks with a high-protein, high-energy feed, Discontinue supplement feeding to lactating does, Evaluate does and bucks; sell unsound and inferior animals Criteria for culling: • Barren female-missed two seasons in a row • Bad teats or udders–too big or too small • Bad mouths-smooth/broken mouth, over/under shot jaw • Structural defects – bad feet and legs or back • Bad testicles – too small or infected • Unthriftiness – due to old age or disease
May	Move mature does and bucks to summer pasture, Monitor internal parasites through fecal samples (2500 eggs/gram would indicate the need for treatment). Your veterinarian can help get fecal counts.
June	Begin looking for replacement bucks with good confirmation, structural correctness, muscling, and a high weight per day of age.

July	Continue selecting replacement bucks, Treat for internal and external parasites as needed, Begin flushing does and bucks; flush with fresh green pasture or ½ of a pound high energy feed/head/day for 2 to 3 weeks before and after buck turnout
August	Turn out bucks with does; breeding ratio: 1 buck per 20 to 25 does depending on pasture size and breeding conditions
September	Remove bucks and feed to regain body condition, Evaluate pasture and forage conditions
October	Determine does' body conditions and plan winter supplemental feeding program, Monitor internal parasites through fecal samples. If heavy, treat after first hard freeze
November	Sort pregnant from open does, Begin feeding pregnant does
December	Monitor body condition of does; increase or decrease, supplementation if necessary, prepare for kidding

Appendix 4 - Suggested Additional Resources

American Meat Goat Association
Website: www.meatgoats.com

American Boer Goat Association
Website: www.abga.org

Website: www.boergoats.com

North Carolina State University – Department of Animal Science
Website: www.cals.ncsu.edu

Oklahoma State University, Department of Animal Science
Website: www.ansi.okstate.edu

Pacific Showcase Magazine
Website: www.pacificshowcase.com

Purple Circle Magazine
Website: www.purplecircle.com

Texas 4-H Meat Goat Guide by Frank Craddock and Ross Stultz
Website: http://texas4-h.tamu.edu/publications/as34060.pdf

The Showbox Magazine
Website: http://www.theshowbox.com/

General List of Resources:
Website: http://livestock.colostate.edu