Skill-A-Thon Study Guide

This packet is to assist you in studying for the skill-a-thon contest at the JABGA Regional shows and the National show. We suggest you familiarize yourself with the Breed Standards and the Rules and Regulations. You should also read the JABGA Bylaws. The questions on the official test will be True or False.

www.abga.org

JABGA Skill-A-Thon Study Guide

1. Name 3 external parasites.
2. Do goats need to be registered with ABGA to show them in ABGA & JABGA sanctioned shows?
3. What is a newborn goat called?
4. What do udders on a Doe produce?
5. What ears should be tattooed?
6. How many regions does JABGA have?
7. What is kidding?
8. How many knees does a Boer goat have?
9. Name one fault according to our Breed Standards.
10. Name one disqualification according to our Breed Standards.
11. Describe a Fish Teat.
12. Describe a correct bite according to our Breed Standards.
13. Name different ways a goat can be bred.
14. What is the standard gestation length?
15. How does a goat get Foot Rot?
16. How do you transfer a goat with ABGA from one owner to another?
17. What is proper etiquette in the show ring?
18. How can you prevent parasites?
19. What is phosphorous and is it toxic for goats?
20. What is required for Ennoblement of a Buck?
21. What is a Live Coverage Service Memo for?
22. What is the traditional color description of a Boer goat?
23. Who can earn a Sire of Merit award?
24. What is a normal heart rate for an adult goat?
25. A quorum, for the transaction of business by the JABGA Board, shall have the presence of how many directors?

Visit our website at www.abga.org

to find our Rules & Regulations, Bylaws, and Breed Standards.

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marketing | education | genetics | commercial | youth | service

- Showmanship

- Goat Guide

4-H Meat Goat Guide

Frank Craddock and Ross Stultz*

Competition in the show arena is increasing every year as 4-H members are discovering that goats are an excellent choice as a club project. Because goats are small, easy to work with and demand a small amount of space, they provide a meaningful livestock experience in a relatively short amount of time.

If you have decided to have a club goat project, your first decision will be to determine which shows to attend. It is your responsibility, as an exhibitor, to read the general rules and regulations as well as special rules governing the shows you will attend. This will tell you the number of goats you may enter, weight limits, ownership dates and entry deadlines. Show schedules, rules and regulations may be obtained from your county Extension agent or directly from the shows.

Show dates are extremely important because they determine the age and size or weight of the goats to be entered, and at what time of year they should be purchased. Most shows require that goats have their milk teeth. Goats usually hold their milk teeth until they are 10 to 12 months of age. After this time, it is probable that a goat will lose its baby teeth and become ineligible for show.

Goat shows also have weight limit requirements that must be met. Under normal conditions, goats will gain approximately 2 to 3 pounds per week. Not all goats can be fed to the same final weight because there are differences in frame size. Large frame goats may be correctly finished at 120 pounds, while small frame goats may be correctly finished at 80 pounds. You must learn to look at indicators of frame size and growth (length of head, neck, cannon bone and body) and determine at what weight a goat will be correctly finished. If you know the approximate weight of a goat at the time of purchase and the length of time until a show, you can calculate feed requirements (light, moderate or heavy) needed to enable that goat to enter the show at its correct weight.

Remember that size does not make a good goat. There are good small goats and good big goats. Your management program is the key.

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Facilities and Equipment

One of the major advantages of a club goat project is that expensive facilities are not needed. A barn or shed where goats can retreat from cold, wet conditions and a pen with outside exposure are essential. Adequate fencing, a feeder and a water container are required, yet other equipment may be considered optional.

Barns/sheds

Goats need a living arrangement that combines access to a shed or barn and an area where they can get outside in the sunshine. The shed area should have at least 15 square feet of space for each goat. The outside pen needs to be as large as possible to permit the goats to exercise. The shed should be well drained and should open to the east or south. Barn temperature is critical. Structures should be well ventilated so goats will remain cool and continue to grow during the summer months. However, when club goats are slick shorn for shows, barns should be altered during the winter to keep goats as warm as possible. This can be done by closing the front with a tarp or plastic sheet and by using heat lamps. The illustration shows the recommended dimensions and layout for a goat feeding facility.

Fences

Fence height should be at least 42 inches to keep goats from attempting to jump. Fences should be predator proof. If using net wire fences, 12-inch mesh should be used rather than 6-inch mesh to keep goats from hanging their heads in the wire. The most desirable pens are constructed from galvanized livestock panels that are 5 feet tall with 4-inch squares.

Feeders

Self-feeders are often used in the feeding of goats. Self-feeders should be blocked at least 6 inches off the ground. If goats are hand fed, use movable troughs that hang on the fence at the appropriate height. Troughs should be hung at the same height as the top of the shoulder of the goat being fed. These movable troughs need to be taken down and cleaned regularly. Likewise, hay and mineral feeders need to be raised off the ground. This will help reduce the spread of disease. It also is important to make sure that goats are unable to stand in their feed troughs because they will urinate or defecate on the feed.

Water containers

Fresh water is the most important ingredient in feeding club goats. Water should be checked daily. Water troughs should be small in size so they can be drained and cleaned on a regular basis. Troughs should be located in the shade to keep water cool. In the hot summer months, some goats tend to drink too much water and appear "full." Water should never be totally removed from the goat. However, rationing water prior

Carbohydrates and fats

The most common limiting nutrients in goat rations are energy-producing carbohydrates and fats. Inadequate energy intake will result in slow growth and weight loss. An adequate supply of energy is necessary for efficient nutrient utilization. Grains and protein supplements are high in energy. However, in goat rations, too much energy intake can be just as detrimental as not enough.

Minerals

The minerals of major concern in goat rations are salt (sodium and chlorine), calcium and phosphorus. Salt can be fed free-choice. However, many rations contain 1/2 to 1 percent salt.

Calcium and phosphorus are necessary for proper growth and development, and should be fed at a ratio of two parts of calcium to one part phosphorus. Rations that contain high levels of phosphorus in relation to calcium may cause urinary calculi. The addition of ammonium chloride at the rate of 10 to 15 pounds per ton of feed will help prevent urinary calculi. Roughages are generally high in calcium and low in phosphorus. Grains are generally low in calcium and intermediate in phosphorus. Most protein supplements are high in phosphorus and intermediate in calcium. A mineral supplement with a 25 to 30 percent protein content can be of benefit in a feeding program when used to top dress the ration. However, this will not work with a pelleted ration. Supplements must be used in the proper amounts because excesses will deplete the muscle mass of the goat.

Vitamins

Vitamins are essential for proper body function and are required by goats in very small amounts. Only vitamin A is ever likely to be deficient. If goats are fed alfalfa hay or dehydrated alfalfa pellets in the ration, then vitamin A deficiency should not be a problem. It is a good practice to occasionally inoculate goats with a B complex vitamin. This promotes their health and helps them eat well.

Health

The key to a healthy goat is the development of a preventive health program. Most goats purchased for club projects are on a health maintenance program and have had a variety of vaccinations. However, as you develop your preventive program, assume that the goat you have purchased has had no treatments. Vaccinations and treatments for certain common problems should be included in your program.

Enterotoxemia

A major cause of death in club goats is enterotoxemia or overeating disease. Afflicted animals seldom exhibit symptoms and rapid death is

usually the result. This disease is caused by a clostridial organism normally present in the intestine of most goats. Goats that have their feeding schedule abruptly changed or consume large amounts of grain are subject to enterotoxemia types C and D. Feeding changes can cause the clostridial organism to grow rapidly and produce a powerful toxin that causes death in a few hours. All club goats should be vaccinated with a combination (types C and D) vaccine immediately after purchase. At least one booster vaccination is recommended.

Internal parasites

Internal parasites are a continual problem. Newly purchased goats should be drenched immediately for internal parasites and a second drenching should follow about 3 weeks later. Few drenches are approved for treating goats for internal parasites. Your veterinarian will have the best information on the most effective drenches. Because internal parasites develop resistance to a drench over time, it may be effective to rotate the use of products.

Urinary calculi

Urinary calculi is a metabolic disease of male goats characterized by the formation of calculi or stones in the urinary tract. The first sign of calculi is a goat's inability to pass urine. The goat will be restless, kick at its belly, stretch and attempt to urinate.

The common cause of calculi formation in wether goats is feed rations with high phosphorus levels and an imbalance of calcium and phosphorus. Because grains are high in phosphorus and low in calcium, high concentrate rations may cause urinary calculi. A successful preventive is to provide a 2:1 calcium:phosphorus ratio in the ration and by adding 10 to 15 pounds of ammonium chloride per ton of feed. Provide plenty of clean, fresh drinking water also.

Coccidiosis

Coccidiosis causes weight loss and continued inefficiency in goats. The disease is characterized by bloody diarrhea, dehydration, weight loss and weakness. Sick goats should be separated and given individual treatment as prescribed by a veterinarian. Most commercial show goat rations are medicated with a coccidiostat that should help control coccidiosis.

Soremouth

Soremouth is a contagious, viral disease that causes the formation of scabs on the lips and around the mouths of goats. This virus can affect humans, so be careful when handling goats with soremouth. Iodine can be rubbed into lesions after the scabs are removed and this will help dry the area and reduce the infection. The Texas Agricultural Experiment Station manufactures an excellent soremouth vaccine. As with all live-virus vaccines, use extreme caution when administering the product.

jabga
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Meat Goat Showmanship

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Introduction

A good showman is a person that has a sense or knack for an effective presentation of an animal. Showmanship is the one area of livestock showing over which the exhibitor has the most control. In showmanship you are judged on your abilities to control and present your goat to bring out its best characteristics. Advanced planning, practice and hard work are the key to becoming a good show person. Meat Goat showmanship not only generates enthusiasm in the show ring, but also teaches many valuable lessons that can be used in day to day life. These lessons include responsibility, learning about work and determination to reach a goal, winning graciously and losing with dignity. This will take practice at home with your goat and having someone act as a judge as if at a show.

Appropriate Dress

Dress neatly. Leather boots should be worn for safety and appearance. If the goat steps on your foot, the goat's foot will slip off a leather boot much easier than a tennis shoe. Wear clean jeans or slacks. Faded blue jeans look less professional and should not be worn.

Wear a neat button-down or polo shirt. No camouflage shirts or T-shirts should be worn. The shirt should be tucked in. Wear a belt for neatness. Leave hats and grooming equipment back at the grooming area. Hats, may distract the judge's concentration. Your planning and neat appearance will help make a positive impression on the judge.

Showtime

Before the show, walk over the show ring to find the high and low spots of the show ring surface. This will help make sure the goat is set up going uphill and not in a hole.

Be sure to enter the show ring promptly and that the goat is led from the left hand side. Small exhibitors may use a collar, chain or halter. However, more advanced exhibitors should lead the goat with their left hand under the goat's chin and the right hand behind the ears and or/ with a chain or collar.

Quickly yet smoothly, set the goat up so that all four feet are at the corners of it's body and the goat's weight is distributed evenly over its legs (Figure 1). When setting up the goat, do not get down on your knees because you will have less control of your goat. One way to move the back feet is to press back on the opposite shoulder of the foot you want to move. Small show persons may stand and use the halter and their feet to set the goat's legs. Use the halter to indicate the direction you want the feet to go while using your foot to move the goat's leg. Larger exhibitors may use their hands to set up the goat. Set the rear legs first. Then set the front legs.

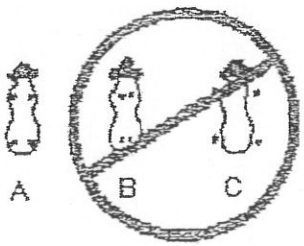

Figure 1. Figure A shows the feet squarely placed beneath the goat. Figures B and C are incorrect.

Once the goat is set up, be sure the head is held up. Then locate the judge. Remain standing in front of your goat when the judge is viewing the goats from the rear (Figure 2.A). Never place your hand on the goat's back or the base of the neck; this will obstruct the judge's view of the goat's top. As the judge moves around to the right side (Figure 2.B) and around in front of the goat, move to the left side of the goat, so it is between you and the judge (Figure 2-C). When the judge is in front of the goat, remain on the goat's left side, so the judge can see the front view. Be sure to keep the head high and in line with the goat's body. You may hold the head up with the collar, halter or with your left hand under the goat's jaw. As the judge moves to the left of the goat, move back to the front of the goat to give the judge a full view of the entire animal. Do not move to the right side of the goat (Figure 2.D). When in front of the goat, you have more control and this position will provide the side view that the judge seeks.

Handling the goat

Be ready for the judge to handle your meat goat. Train the goat to stand to be handled by the judge. Ideally, you should hold the goat by the head, collar, chain, or halter while standing away from the goat. If the goat does not stand still be prepared to restrain it.

To restrain the goat, hold it by one or a combination of ways as described above. Use one of two methods. One method is to stand in from and place your knees in front of the goat's shoulder (Figure 3). Another method to restrain your goat is to grab a front leg below the knee and raise the leg up toward you while leaving the other three legs on the ground (Figure 3). While restraining your goat, never pick the goat up so that both front feet are off the ground. This does not give you an advantage. It is an example of poor showmanship. After the judge finishes handling the goat, set it up in line with the other exhibitors.

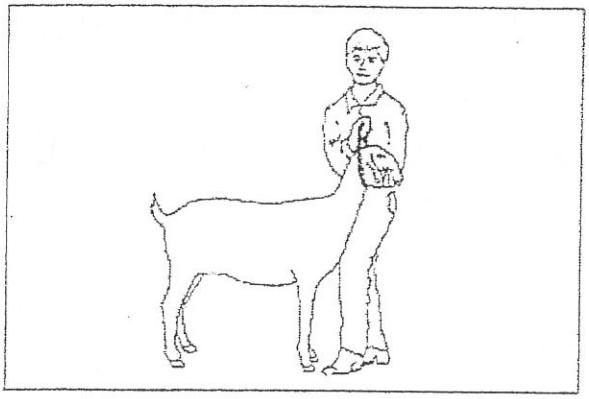

Figure 3. Restrain your goat by placing your knee in front of the shoulders or by picking up a front leg.

The preferred way to show meat goats is NOT to brace the animal. However, some judges will allow you to brace. Observe the first class and listen to the judge to determine if bracing will be allowed. You should be prepared to brace your goat if bracing is allowed by the judge and you want to be at the same advantage as the other exhibitors.

Moving the goat

After handling the goats, the judge will indicate what is to be done next. Most likely the judge will want you to walk the goat. Be sure that the goat is under control and is between you and the judge. If your goat does not lead, gently reach back and lift up on the goat's tail. If an exhibitor ahead is having problems, help that person. Never whip the goat with the halter rope or grab the goat by the skin. This will result in a bruise and a soft area will remain for sometime.

Once the judge requests that you stop for the side view, set your goat up as discussed earlier. Small exhibitors should stand in front or on the goat's left side to keep control. Older, larger exhibitors may squat or stand on the goat's left side. Standing is preferred. Do not put your knees on the ground; squat so you may get up quickly and maintain control of your goat. Stay alert; the judge may handle the goat again or motion to move to

another line. Once you are pulled to the placing line, remember the class is not over. Be sure the goat is set up and looks its best.

The judge may decide to place the goats differently after one last look while all goats are lined up side by side. If you are asked to move in the line, Figure 4 shows what should be done for different situations. Be sure to line your goat up in a straight line from the first goat set up, as illustrated in Figure 4.

Once the judge starts giving reasons, the class is over, but exhibitors should continue to work hard and display good sportsmanship. Congratulate the class winners and those who stood ahead of you. Ask if you can handle the goats that placed above you. This will allow you to learn what to look for in your next goat project.

Finally, remember this is a learning experience. Leave the ring with your head held high, knowing that you have given this project your best effort. Learn from your mistakes, watch other show persons, and improve your skills for the next show.

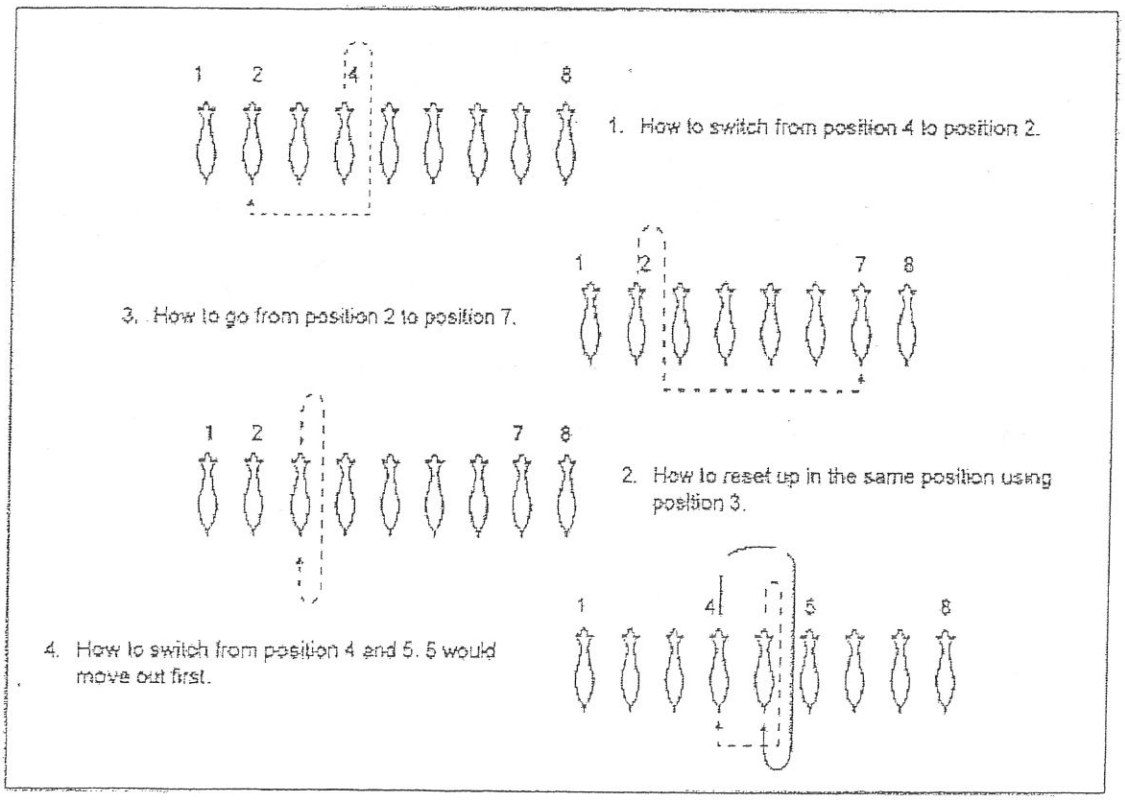

Figure 4. Proper Procedures for Changing Positions

ANIMAL SCIENCE FACTS

PUBLICATION NUMBER
ANS 00-606MG

Extension Animal Husbandry
Department of Animal Science

BASIC MEAT GOAT FACTS

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Reproductive Aspects

Female

Age of puberty	7-10 months
○ Breeding weight	60-75% of adult weight
Estrous cycle	
- Length	18-22 days
- Duration	12-36 hours
- Signs	Tail wagging, mounting, bleating
Ovulation	12 to 36 hrs from onset of standing heat
○ Gestation length	146-155 days
○ Breeding season	August-January
○ Seasonal anestrous	February-July
○ Buck effect on estrous	Positive

Male

○ Age of puberty	4-8 months
○ Breeding age	8-10 months
○ Breeding season	All year
○ Breeding ratio	1 buck : 20 to 30 does

Physiological Data

○ Temperature	101.7-104.5 F
○ Heart rate	70-80/minute
○ Respiration rate	12-15/minute
○ Ruminal movements	1-1.5 /minute

Rules for Goat Health

- Provide proper housing
- Practice good sanitation
- Provide adequate nutrition
- Provide clean water
- Observe how much feed (hay, minerals, concentrate) is left over
- Observe your animals daily
- Observe the feces of your animals

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North Carolina
Cooperative Extension Service
NORTH CAROLINA STATE UNIVERSITY
COLLEGE OF AGRICULTURE & LIFE SCIENCES

- Clean pastures and exercise lots
- Become familiar with the common diseases
- Investigate the source of strange smells
- Use your veterinarian for diagnosis

A Healthy Goat

- Eats well
- Chews its cud
- Has a shiny coat
- Has strong legs and feet
- Is sociable
- Has bright and clear eyes

Signs of Illness

- Off feed, off water
- No sign of cud chewing
- Standing apart from group
- Rough hair coat
- Abnormal temperature
- Heavy mucous in nose and mouth

Diarrhea
Runny eyes
Limping
Hair falling out
Swelling on any part of body
Pale mucosa of eyes and mouth

Purchased Animals

Upon arrival on farm

- ***Isolate animals for a month***
  - Vaccinate
  - Deworm
  - Test for certain diseases (check with your veterinarian)
  - Coccidiosis control program
  - Identification tag
  - Other

Herd Health Practices

Vaccination program

If possible always weigh animals prior to vaccination to 1) calculate and inject the correct dosage of the vaccine and 2) assess body condition

Enterotoxemia and tetanus - *Clostridium perfringens* types C, D + Tetanus Toxoid in one vaccine

- Adult males - Once a year
- Breeding females - Once a year (4 to 6 weeks before kidding) or twice a year:
  - 4 to 6 wk before breeding, then 4 to 6 wk before kidding

Kids - Week 8, then booster on week 12

Deworming program

If possible, always weigh animals prior to deworming to **1)** calculate and inject or drench the correct dosage of the dewormer and **2)** assess body condition. Underdosing of goats because of failure to weigh the animals or because of underestimating their live weight is a very common but costly mistake because this may lead to faster parasite resistance to dewormers. Therefore, determine the dose according to the heaviest animal in the group. On the other hand, overdosing of certain dewormers can cause health problems. If deworming animals before kidding, make sure that the dewormer used is safe for pregnant does.

Adults -2 to 3 weeks prior to breeding
-Avoid early pregnancy (first 20 to 60 days)
-2 to 3 weeks prior to kidding or at kidding
-According to climate and worm loads
-***Strategic deworming***: aimed at worms that are dormant in the goat during the winter. Deworm with **fenbendazole** (Panacur or Safeguard), **albendazole** (Valbazen), **oxfendazole** (Synanthic) or **ivermectin** (Ivomec). Winter deworming prior to the spring grass flush has proven effective in controlling worm burdens during the warm weather transmission season. **Oxfendazole** should **NOT** be used in pregnant goats.

Kids -Day 30
-Day 60
-According to climate and worm loads
-***Strategic deworming***

During periods of warm and wet weather, it is advisable to take fecal samples **immediately prior to deworming, and again 10 days after deworming,** to determine fecal egg counts **and the effectiveness of the dewormer**

Coccidiosis control
Coccidiosis usually strikes young animals during periods of stress such as weaning. Level of control depends on the level of infestation

- **At weaning**
  - Coccidiostat drench and/or
  - Coccidiostat in water tank (4 ounces in 25 gallons of water)
- **At other times** *(if necessary)*
  - Mineral with Bovatec
  - Decoquinate in feed

<u>Kid Health Practice</u>

- At birth
  - Dip navel in iodine
  - Kids should ingest 10% of their live weight in colostrum during first 12 to 24 hours of life.
  - Colostrum should be ingested or bottle-fed (in case of weak kids) as soon as kids have a suckling reflex. In cases of extremely weak kids, they should be tube-fed. It is very important to make sure that the tube is inserted into the esophagus (you should be able to see the tube go down as it is inserted).The producer must be certain that all newborn kids get colostrum soon after birth (within the first hour after birth, and certainly within the first 6 hours) because the percentage of antibodies found in colostrum decreases rapidly after parturition.

Castration

- Elastrator (method of choice: bloodless, less pain)
  The question is: why castrate if you will sell your buck kids for meat at 4 to 5 months of age? However, if not castrated, buck kids should be separated from doe kids at weaning, otherwise some unplanned breeding may occur.

<u>Flushing</u>

Feeding strategy to increase ovulation rate

- Starting **3-4 weeks before the breeding season, and throughout the breeding season**, increase the plane of nutrition of does to be bred. Overly conditioned and fat does will not respond to flushing.
  - Switch does to high quality pasture or

- Supplement does with1/2 lb cracked corn or 1/2 lb whole cottonseed/head/day

After Breeding

To insure proper embryo development

- During the **first month of pregnancy**
  - Keep the plane of nutrition similar to that of flushing period

Important Production Traits

- Adaptability
  - Ability to survive in given environment
  - Ability to reproduce in given environment
  - Is a lowly heritable trait
- Growth rate
  - Pre-weaning gain
  - Post-weaning gain

Reproduction
- Conception rate
- Kidding or prolificacy rate
- Non-seasonality

Carcass characteristics
- Dressing percent
- Lean:fat:bone
- Muscle distribution

Body Condition Score

- To monitor and fine tune nutrition program
- To "head off" parasite problem
- Visual evaluation is not adequate, has to touch and feel animal
- Areas to be monitored
  - Tail head
  - Pins
  - Edge of loin
  - Back bone
  - Ribs
  - Hocks
  - Shoulder
  - Longissimus dorsi
- Scale

- Thin	1 to 3
- Moderate	4 to 6
- Fat	7 to 9

- Recommendations

- End of pregnancy	5 to 6
- Start of breeding season	5 to 6

  - Animals should never have a body condition score of 1 to 3
  - Pregnant does should not have a body condition score of 7 or above toward the end of pregnancy because of the risk of pregnancy toxemia
  - A body condition score of 5 to 6 at kidding should not drop off too quickly during early lactation

Fencing

Perimeter Fence

- **Smooth electrified wire**
  - At least 42 inches tall
    - 6 to 8 inches near the ground
    - 8 to 12 inches at the top strands
    - Example (inches from the ground): 6 - 14 - 22 - 32 - 42 - (52)

Perimeter Fence

- **Woven wire (6" X 6")**

American Boer Goat Association

BOER DIRECTIONS

History

The Boer Goat as found in the Country today consists of a mixture of blood, principally imported from the east and India.The Milk goat breeds also have an influence on the development of the Boer goat, as can still be seen today in certain characteristics, for example, polled in certain types, and high milk production.

Kinds

It is very difficult to classify various types of Boer goats, since there is a great variation in type through crossbreeding and degeneration. The various types can more or less be classified as follows:

1. The ordinary Boer goat is a shorthair goat mostly found among European farmers. This is a goat with fairly good conformation and fairly good characteristics. Colors commonly found are "briekwa, gray, dark brown, and white with occasional brown heads or necks. This type of goat can still be improved upon with regard to conformation, quick growth and uniformity.

2. The long-hair goat which is a less desirable type is a bigger, heavier goat which is only ready for market as slaughter stock when matured. The meat is coarser and the skin is worthless, due to the long hair.

3. The polled Boer goat is a short-hair goat without horns and with less desired conformation. This goat originated fromcrossbreeding with the ordinary Boer goat and milk goats.

4. The native goat is high and the legs are weak in conformation and its color varies according to the choice of the tribe.

5. The improved or ennobled Boer Goat featured by its very deserving characteristics such as good conformation, fast growing kids, high fertility, uniformity with regard to color and type, hardiness and adaptability. It is to the credit of a number of farsighted Boer goat breeders in the Eastern Cape, Somerset East and vicinity, that this desired type of Boer goat got its origin.

About 50 years ago a few breeders started with a definite breeding policy and with strict selection tried to breed a better type of Boer goat. Their efforts succeeded and they have bred a Boer goat very near to the ideal. The late Mr. TB Jordaan wrote as follows: "In approximately 1918 my father, the late WG Jordaan bought fifteen ewes from Mrs. Van De Venter of the farm, Slot in the Somerset East district. These were white smooth coated ewes with light red heads. He then bought a ram from late the late Mr. IB Van Heerden of Kaajplaas, Cradock. This was an outstanding big red dappled goat, with a strong constitution. This ram and these ewes were the foundation for the present Buffelsfontein Boer goat stud.

Distributions

The Boer goat population of the Republic of South Africa and the independent black states remained fairly constant in the region of 5 million for the past 20 years. Of this number, approximately 1.2 million belong to whites.

The Boer Goat is fairly well spread throughout the four provinces of the Republic, though certain parts are more suitable for goat farming where bushes grow higher and thicker in rough mountainous parts to which other small stock is not well adapted.

The Cape Province lodges more than half of the Boer goat population of the Republic, due to veld types and topography which lends itself very favorably to goat farming. In high rainfall areas in grassveld districts, such as the Orange Free State, the goat numbers are small.

The forming of the Boer Goat Breeders' Association of South Africa at Somerset East on the 4th July, 1959, was undoubtedly a climax in the history of the Association. This step provided in the long felt need to have an authorized body to improve and protect the interests of the Boer goat breeder in South Africa.

Now that the breeders were united into one organized body, they were as an association capable of following a uniform breeding policy and selection program. In particular, they could advise breeders with less knowledge in the use of desired types of breeding animals, and therefore help improve the Boer goat as a breed. At the inaugural meeting a Committee was appointed to be responsible for the drafting of a Constitution and Breed Standards.

American Boer Goat Association

BOER DIRECTIONS

Health

Goat Health Tips

Goat temperature?

102°-103°F

A goat's normal temperature is 102°F to 103°F. If you have a sick goat, the first thing you should do is take its temperature. If the temperature is above normal, there's probably an infection. Antibiotics might help. Below normal temperature could mean a critically ill animal. If the temperature is normal, that's important information too.

Be sure you take your goat's temperature before calling the veterinarian for advice about a sick goat. Your vet will probably ask what the goat's temperature is.

"Off feed" and grinding teeth

Eating should be the primary interest in any goat's life. If the goat stops eating normally, the animal is probably sick. Going "off feed" is one of the few ways a goat can tell you it does not feel well.

Teeth grinding is also a sign of illness in goats. You can easily hear this unpleasant noise and can tell that the goat is uncomfortable and needs your attention.

Skin problems

Roundish hairless patches on a goat's body are often caused by a ringworm fungus. Clean the skin with a mild antiseptic soap and then apply Fungisan Liquid, a mixture of equal parts of glycerin and tincture of iodine, or household bleach diluted 1 part in 10 parts water daily.

Abscesses

Contagious abscesses caused by Corynebacterium ovis are spread by contact with pus from a draining "lump." If the bacteria gets into lymph nodes, the goat may develop new abscesses for months or years to come. Abscesses can also grow on internal organs and kill the goat. External abscesses are ugly, but the goat may stay in good health otherwise. Occasional abscesses will develop inside the udder; milk should not be used for humans.

There is no cure. A good program of cleaning the ripe abscess and isolating the goat can reduce the incidence of abscesses in the herd. Autogenous vaccines have worked well for some breeders, but may perform best if the animals are vaccinated three or four times a year.

Abscesses may also be caused by imbedded foreign particles or small cuts infected with Staphlococcyus, C. pyogenes, etc. These abscesses are not a contagious herd problem.

Worms are common

Worms cause many problems in goat herds. Regular worming is usually necessary. A veterinarian can check fecal samples to tell you exactly what kinds of worms your goats have and what wormers you should be using. You may need to use a different wormer each time you worm to keep these parasites under control.

Coccidiosis kills kids

Coccidiosis is much more common in goat herds than many breeders or their veterinarians may realize. Coccidiosis often causes persistent scours in kids. Adult goats may also carry heavy coccidia infestations. Have your vet check a fecal sample microscopically to find out if your goats have "cocci." We sell Corid Amprolium which can be used both to treat and help prevent coccidiosis.

Routine "shots" for goats

Vaccinations against tetanus and enterotoxemia are widely used by goat breeders. Selenium (Bo-Se), available from your vet, may be given in herds where this mineral is deficient. Injections of Vitamins A & D are often used If the goats have problems with contagious abscesses, an autogenous vaccine can be prepared from material collected from your herd. It can help control the abscess problems and seems to work best if the animals are vaccinated every four months. Chlamydia has caused abortions, arthritis, and pneumonia in goat herds. Some breeders are using an experimental chlamydia vaccine from Fort Dodge Labs with good results. Some East Coast breeders use a corynebacterium pasteurella vaccine to stop respiratory and diarrhea problems in their kids.

Your veterinarian may suggest other vaccinations (such as lepto) which you should use because of specific problems with goats or other livestock in your area.

Causes of abortion

Abortions are common in some goat herds. They are usually caused by an infectious organism such as chlamydia that causes many first-freshening does to abort

American Boer Goat Association
BOER DIRECTIONS
Health
page 2

or give birth prematurely, while older does are immune. Salmonella, toxoplasmosis, vibriosis, and other organisms have also been suspected in goat abortions. Severe butting, which may happen when a new doe is introduced into a herd, can also cause abortions.

Pneumonia problems

Goats are very susceptible to pneumonia and respiratory problems.

They need shelter from rain and protection from drafts, but the wrong kind of shelter can be bad. Barns that are poorly ventilated, with a strong ammonia odor in the air and damp bedding, are unhealthy for goats. The viruses that cause pneumonia spread rapidly in such a setting.

Brucellosis and tuberculosis

The U.S. Animal Health Association has recommended that it is no longer necessary to test goats for brucellosis in the United States. They feel the U.S. is free from B. melitensis, which infects goats. There have been no cases of brucellosis in goats for many years, although the disease is known in cattle, hogs, and even dogs.

Tuberculosis is all but unknown in goats, also. Testing is still recommended in areas which are not TB-free, but this disease is not usually a goat health problem.

Just to be safe, most goat owners test for TB and brucellosis regularly, especially if the milk is to be used for human consumption.

Soremouth

This highly contagious disease causes ugly sores on the mouth area of goats. Make sure goats keep eating. When they recover, they will have lifetime immunity. Vaccination is not recommended unless you actually have the disease in your herd because the vaccine is "live" (it will infect your premises). Vaccination program (when followed rigorously) has helped clean up herds with soremouth.

If the virus gets into a cut on your hand, you too will probably get sore-mouth, so protect yourself. Also, don't let infected kids nurse does; the udders may get infected, with painful results.

Provided By the South Carolina Meat Goat Association

SIMPLE GOAT DUE-DATE ESTIMATOR

To determine the due date, take breeding date and subtract the number indicated in the table. For example, if bred July 4, the doe will kid December 1. If bred November 10, the doe will be due April 9. Does bred February 18? Look for "Bred in February" and then look across to when she is due "July" and subtract the minus number "0" from the date number "18" when she was bred. So, doe is due July 18. This is based on 150 days.

Bred in July————due December-3
Bred in August——— due January-3
Bred in September— due February-3
Bred in October—— due March-1
Bred in November— due April-1
Bred in December— due May-1

Bred in January———due June-1
Bred in February—— due July-0
Bred in March——— due August-3
Bred in April———— due September-3
Bred in May———— due October-3
Bred in June———— due November-3

American Boer Goat Association
BOER DIRECTIONS
Nutrition

Nutrition of Meat Goats

Introduction

Feeding is an essential aspect of goat raising and may be the highest expense of any meat goat operation. Goats raised for meat need high quality feed in most situations and require an optimum balance of many different nutrients to achieve maximum profit potential. Because of their unique physiology, meat goats do not fatten like cattle or sheep do, and rates of weight gain are smaller. Therefore, profitable meat goat production can only be achieved by optimizing the use of high quality forage and browse and the strategic use of expensive concentrate feeds. This can be achieved by developing a year round forage program allowing for as much grazing as possible throughout the year.

Feeding Requirements

Relative to their body weight, the amount of feed needed by meat goats is approximately twice that of cattle. When the density of high quality forage is low and the stocking rates are low, goats will still perform well because their grazing/browsing behavior allow them to select only the highest quality forage from that on offer. Thus, they are able to perform well in these situations, even though their nutrient requirements exceed those of most domesticated ruminant species.

Nutrient Requirements

Meat goats require nutrients for body maintenance, growth, reproduction, pregnancy, and production of products such as meat, milk and hair. The groups of nutrients that are essential in goat nutrition are water, energy, protein, minerals and vitamins. Weanling goats, followed by does during the last month of gestation and high lactating does, and yearlings, require a higher quality diet than average lactating does, adult bucks and dry does. In order to feed them adequately, animals should be grouped according to their nutritional needs. Therefore, weanling goats, does during the last month of gestation, high lactating does and yearlings should be grouped and fed separately from the rest of the herd having lower nutritional needs. In a grazing situation, animals having the highest nutritional requirements should have access to lush, leafy forage or high quality browse. In a barn feeding situation such as during some winter months, these same animals should be offered the highest quality hay available. Whether grazed or barn fed, goats should be supplemented with a concentrate feed when either the forage that they are grazing or the hay that they are fed do not contain the necessary nutrients to cover their nutritional requirements. To give producers an idea where these requirements fall, low quality forages contain 40-55% TDN, good quality forages contain from 55 to 70% TDN, and concentrate feeds contain from 70 to 90% TDN.

Water

Water is the cheapest feed ingredient. However, production, growth and the general performance of the animal will be affected if insufficient water is available. Water needs vary with the stage of production, being highest for early lactating does, and during times when the weather is warm and forages are dry. In some instances, when consuming lush and leafy forages, or when grazing forages soaked with rain water or a heavy dew, goats can get all the water they need out of the feed. However, water is almost always needed by some members of the herd such as lactating does. Because it is difficult to predict water needs, goats should always have access to sufficient high quality water.

Energy

Energy comes primarily from carbohydrates (sugars, starch and fiber) and fats in the diet. Bacteria that are present in the rumen of goats ferment sugars, starches fats and fibrous carbohydrates into volatile fatty acids. These acids are absorbed and used for energy. Fat is efficiently used for energy, but the amount that can be included in the diet is limited. Usually added fat should not represent more than 5% of a diet because it depresses ruminal fermentation. If the diet consumed by goats contains an excess of energy, that extra energy can be stored in the body as fat, mainly around certain internal organs.

Protein

Protein is usually the most expensive component of the goat diet. Protein is required both as a source of nitrogen for the ruminal bacteria and to supply amino acids for protein synthesis in the animal's body. When the levels of protein are low in the diet, digestion of carbohydrates in the rumen will slow down and intake will decrease. Inadequate levels of protein in the diet can affect growth rate, milk production, reproduction and disease resistance negatively, because insufficient amino acids are getting to the intestines to be absorbed by the body. Unlike energy, excess of protein is not stored in the body of the goat. Therefore, it is important to feed enough protein to cover the nutritional requirements of the animal. Protein nutritional requirements vary with developmental and physiological stages and level of production.

American Boer Goat Association
BOER DIRECTIONS

Nutrition

Minerals

Goats require many minerals for basic body function and optimum production. Providing free choice a complete goat mineral or a 50:50 mix of trace mineralized salt and dicalcium phosphate is advisable under most situations. Major minerals likely to be deficient in the diet are salt (sodium chloride), calcium, phosphorous and magnesium. Most forages are high in calcium, so calcium is low only if high grain diets are fed, which would be unusual for goats. Low quality, weathered forages will be deficient in phosphorous, especially for high and average lactating does. The ratio of calcium to phosphorous in the diet is important and should be kept about 2:1. Grass tetany can occur when goats in early lactation are grazing lush, leafy small grain, annual ryegrass of grass/legume pastures. Under those conditions, It is advisable to provide a mineral mix that contains 5 to 10% magnesium.

Trace minerals likely to be low in diets are copper, zinc and selenium. Selenium is marginal to deficient in all areas of North Carolina and most of the Southeast, and many commercial trace mineralized salts do not contain it. Trace mineralized salts that include selenium should be provided to the goat herd at all times. Producers should make sure that the trace mineralized salts they buy contain selenium. In case selenium is absent, they should encourage their local feed store to include it in the mix or to order trace mineralized salts that contain selenium.

Vitamins Vitamins are needed by the body in very small quantities. The vitamins most likely to be deficient in the diet are vitamin A and D. All B and K vitamins are formed by bacteria found in the rumen of the goat and are not considered dietetically essential. Vitamin C is synthetisd in the body tissues in adequate quantities to meet needs.

Vitamin A is not contained in forages, but carotene found in green, leafy forages is converted into vitamin A in the body. In addition, vitamin A is stored in the liver and fat of goats during times when intake exceeds requirements. Goats consuming weathered forages or forages that have undergone long-term storage should be fed a mineral mix containing vitamin A, or should receive vitamin A injections.

Vitamin D may become deficient in animals raised in confinement barns. Animals should have frequent access to sunlight because it causes vitamin D to be synthesized under their skin, or they should receive supplemental vitamin D. Good quality sun-cured hays are excellent sources of vitamin D. A deficiency in vitamin D results in poor calcium absorption leading to rickets, a condition where the bones of young animals and joints grow abnormally.

FACTORS INFLUENCING ANIMAL REQUIREMENTS

A certain amount of each nutrient is required for maintenance of the body, which is the need for nutrients the animal has to keep warm, and to maintain its body weight. A mature dry doe or a mature wether are examples of animals having maintenance requirements only. Additional requirements above those needed for maintenance are required for growth, pregnancy, lactation and hair production. As the productivity of meat goats is increased through selection and crossbreeding with goats having a higher production potential, such as the Boer goat, nutritional requirements will also increase. Therefore, the more productive goats should be fed high quality feed, especially weaned kids being prepared for market, young replacement doelings and does in late gestation and early lactation. Does lactating twins or triplets have grater nutritional requirements than does lactating a single kid.

Goats grazing very hilly pastures will have higher nutritional requirements than goats on level pastures of the same quality because they will expand more energy to gather feed on difficult terrain.

This infromation was reprinted from the NC State University Cooperative Extension Website.

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Herd Health Facts

Everything, you need to know about
Heard Health Management

"Making a Difference in the Boer Goat Industry"

Herd Health Management Program for Goats

By: S. Mobini, DVM

Herd health management programs attempt to organize all information applicable to goat herd health into a simple, usable, and easily remembered format. The goal of the program is to improve the herd's productivity through general husbandry, nutrition management, parasite control, vaccination, and environmental management. Careful recordkeeping must be done to monitor the program's progress.

Regarding general husbandry, it is important to feed goats the appropriate rations and provide shelter against rain and dampness. The goat's hooves must be trimmed regularly to prevent the overgrowth that leads to foot rot and other foot problems. Goats should be fenced out of wet, marshy areas for proper foot care.

Wethers being fed grain are subject to urinary calculi, which are potentially fatal. Feeding ammonium chloride along with grain may help prevent formation of calculi. A constant source of fresh water is necessary for all goats.

All breeding-age animals must be tested for brucellosis and tuberculosis annually. Although it is not necessary for a veterinarian to perform all procedures, a herd health program becomes more effective when a veterinarian's advice and services are used regularly.

Each goat herd is unique and requires a program to suit individual herd needs. This article attempts to give some guidelines that can be used to develop a herd health program.

Late Pregnancy and Dry Does

Does in late pregnancy should be allowed a 40- to 60-day dry period to regain condition lost during lactation, to allow the mammary glands to rest, and to prepare the doe for kidding as well as the next lactation. Does bred at 70 to 110 days should be examined for pregnancy before drying off. At drying off, all udders should be treated with dry-cow mastitis antibiotics. This treatment is very important, because many udder infections begin during the first several weeks of the dry period. Teats should be dipped for at least five days after drying off.

The dry period is an ideal time to deworm the goats. Internal parasites increase activity during late pregnancy and can be eliminated if the does are dewormed during the dry period. Goats should be dewormed at breeding and two weeks before kidding; goats should also be examined for such external parasites as lice and treated if any are found.

Late pregnancy is the recommended time to give the yearly vaccination boosters that are used in the herd. The vaccine will both protect the doe and ensure high levels of antibodies in the colostrum, which will subsequently protect the newborn kid. I recommend at least a five-way *Clostridium vaccine (C. perfringens* types C and D, C. *chauvoei,, C. novye, C. septicum,* and C. *sordellii)* along with a tetanus booster three weeks before kidding.

The doe must be kept in proper body condition (i.e., not too fat or too thin). Over-conditioning predisposes pregnant does to such metabolic problems as pregnancy toxemia. This disorder is often fatal to both the doe and the unborn kid.

Kidding Does and Kids

The doe must be given adequate exercise until the time for kidding is very near. When kidding is about to occur, the doe should be confined in a clean maternity pen. The doe's udder and soiled hindquarters must be washed after kidding. The doe can be assisted in the cleaning and drying of the kids. The navels of the newborn kids must immediately be dipped in tincture of iodine. Kids should nurse within one hour of birth for maximum protection against disease.

In herds affected with caprine arthritis encephalitis (CAE), the kids must immediately be separated from their mothers to prevent suckling; they are then fed two to three ounces of pasteurized goat colostrum or cow colostrum. If no one can be present at kidding, the doe's teats must be taped to prevent nursing. Placenta and discharges should be removed as the doe expels them; the doe must also be prevented from eating such discharges because they can cause indigestion. All kids must be examined for navel infection; if needed, the navels should be retreated with tincture of iodine. All kids must be checked for congenital abnormalities.

A disbudding iron is used to disbud Swiss breeds at four days of age and Nubians at seven to ten days of age. Male kids are castrated at the same time, and extra teats are removed. If the doe is not vaccinated at drying time, the kids are given the Clostridium-tetanus vaccine at one to three weeks of age. Otherwise kids can receive the vaccine when they are between one and two months of age and receive a booster two weeks later.

All goats in the herd should receive yearly booster vaccinations. Kids are dewormed at three to four weeks of age with such drugs as fenbendazole and ivermectin and again at three months of age, depending on housing conditions. Management practices dictate whether kids are treated for Coccidia during weaning or two to three weeks later.

Weaned Kids

Kids must be examined for intestinal parasites one month after weaning. Buck kids and doe kids must be separated by three months of age. Polled kids should be rechecked for any genital abnormalities. Feet must be trimmed before kids are turned out. Kids are susceptible to polioencephalomalacia, which is caused by thiamine deficiency. Deficiency of this vitamin should be a primary diagnostic differential for any kid with neurologic signs, such as blindness or opisthotonos.

Bucks

Bucks are given vaccines and parasite treatments at the same time as other animals in the herd. Bucks must be given plenty of exercise. Feet must be trimmed at least four times yearly. Before the breeding season, bucks must have adequate body condition and should be examined for genital abnormalities.

Parasitology

There is little doubt that parasitism, either directly or indirectly, is the leading cause of death among goats - especially animals younger than six months of age. Removing goats from their normal dry, tropical habitat to humid, temperate regions has greatly affected the normal relationship between goats and internal parasites.

Stomach Worms The most important internal parasite of goats, the stomach worm *(Haemonchus contortus),* is prevalent throughout the southern United States. This worm is able to survive for prolonged periods of cold, hot, and dry conditions. Kids younger than six months of age, which may be concentrated during weaning and confined into small lots or pasture, are especially at risk, as are older goats kept in large numbers on a small pasture.

Goats infected with stomach worms demonstrate such signs as dullness, weakness, bottle jaw, poor appetite, loss of weight, soft stool, possible diarrhea, recumbency, and death. Because these parasites suck blood from the stomach wall, the goats also become anemic. A definitive diagnosis should be made after microscopic examination of feces.

Prevention, rather than cure, should be the philosophy used in developing control and treatment programs against gastrointestinal worms. It must be assumed that the worms cannot be totally eradicated but can be

limited to the extent that they will not cause economic loss for the producer. Clinically ill animals represent only a small part of the true economic impact of parasites. Attention must also be given to subclinical disease, in which animals do not show apparent signs, but fail to gain weight. A combination of treatment and management is necessary to achieve control of parasites.

A regular program of deworming is essential for parasite control. Rotating anthelmintics at regular intervals in order to prevent parasite resistance is recommended. Thiabendazole is the only approved anthelmintic for goats but unfortunately is not very effective because of parasite resistance to the drug. Thiabendazole has also been associated with polioencephalomalacia in some breeds of goats.

Because of a lack of many approved products for use in goats, most anthelmintics are used off-label. The following products should be considered: fenbendazole two to three times the label dose for cattle; ivermectin at 1 ml/88 pounds of body weight (1% cattle injectable may be administered orally, which will prevent abscess formation at injection sites); and levamisole as a drench or injection according to label specifications for cattle. A veterinarian should be consulted for advice on methods to avoid drug residue.

Other worms can affect goats. Such worms include lungworms *(Mullerius capillaris)* and intestinal worms *(Trichostrongylus* species). These worms are fairly common and are responsible for many young and adult animals being unable to maintain good condition.

Coccidia

Coccidiosis is a contagious disease of goats, especially young kids. In young animals, signs similar to those caused by stomach worms may be seen. Coccidiosis is greatly overlooked on many farms where deworming is directed only at traditional parasites and where programs of checking the feces for Coccidia are not in place. The classical signs of coccidiosis are most obvious in young kids and include diarrhea, severe weakness, and sometimes bloody stools. Also, Coccidia tend to predispose young animals to pneumonia.

Coccidia in young kids are generally acquired from adult animals that shed the parasites from feces into the pens and yards. Although coccidiosis is typically a disease of young, growing kids, most adults are mildly infected and will continuously shed oocysts that infect young kids. Diagnosis can be based on clinical signs or microscopic fecal examinations. Coccidiosis should be suspected when kids older than two weeks of age have scours. Older kids and adults with diarrhea may have worms, coccidiosis, or both.

Preventing coccidiosis in the herd is very important if young kids are to thrive. As soon as diarrhea has developed, most damage to the intestinal wall has occurred. A variety of drugs, including sulfa drugs and amprolium, may be given orally to treat sick kids. Monensin in the feed has also been used as prophylactic medication.

Summary

Attention to the many facets of goat husbandry is crucial to the overall health of the herd. The technician must be in tune with the various factors that affect the health of kids, does, and bucks. Nutritional and housing factors must be considered. Parasite prevention and control should also play an important role in the husbandry of goats. In this regard, the technician should be aware of the various types and dose regimens of currently available antheimintics that are effective for control of parasites in goats.

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Goat Health Tips

Provided By the South Carolina Meat Goat Association

Goat temperature?
102°-103°F

A goat's normal temperature is 102°F to 103°F. If you have a sick goat, the first thing you should do is take its temperature. If the temperature is above normal, there's probably an infection. Antibiotics might help. Below normal temperature could mean a critically ill animal. If the temperature is normal, that's important information too.

Be sure you take your goat's temperature before calling the veterinarian for advice about a sick goat. Your vet will probably ask what the goat's temperature is.

"Off feed" and grinding teeth
Eating should be the primary interest in any goat's life. If the goat stops eating normally, the animal is probably sick. Going "off feed" is one of the few ways a goat can tell you it does not feel well.

Teeth grinding is also a sign of illness in goats. You can easily hear this unpleasant noise and can tell that the goat is uncomfortable and needs your attention.

Skin problems
Roundish hairless patches on a goat's body are often caused by a ringworm fungus. Clean the skin with a mild antiseptic soap and then apply Fungisan Liquid, a mixture of equal parts of glycerin and tincture of iodine, or household bleach diluted 1 part in 10 parts water daily.

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There is no cure. A good program of cleaning the ripe abscess and isolating the goat can reduce the incidence of abscesses in the herd. Autogenous vaccines have worked well for some breeders, but may perform best if the animals are vaccinated three or four times a year.

We sell Case-Bac, a vaccine (labeled for sheep) that people use to immunize goats against caseous lymphadenitis abscesses. It will not work, however, if goats already have abscesses or have been exposed to them.

Abscesses may also be caused by imbedded foreign particles or small cuts infected with Staphlococcyus, C. pyogenes, etc. These abscesses are not a contagious herd problem.

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FEEDING PROGRAMS FOR MEAT GOATS

By: Frank Pinkerton and Bruce Pinkerton

Introduction

The nutritional needs for goats are shown in a booklet, "Nutrient Requirements of Goats", published by the National Research Council, Washington, D.C. (NRC, 1981). It is also available commercially for about $8. Please note that the figures given as recommendations are "approximate"; at this time they should be considered as guidelines only. Further research and field experience will eventually increase the reliability of future published figures.

Nutrient Requirement of Goats

All breeds, sexes and ages of goats require the same basic nutrients: protein, energy, minerals, vitamins and water. The diet must contain adequate protein; no other nutrient can substitute for it. However, energy needs may be derived from dietary carbohydrates (starches and/or fiber) or fats or even from excessive protein. Nutrients are required by the goat for: maintenance, growth, gestation, lactation, and fattening. Maintenance requirements are used for basal metabolism (maintain body temperature and support vital functions) and for physical activity. The daily maintenance requirements may range from 50 to 100% of total daily nutrient requirements, depending on whether the animal is also growing, lactating, gestating or fattening.

The nutritional requirements of goats managed primarily for milk production and those managed primarily for meat production are quite similar with perhaps two notable differences. First, dairy goats are expected to milk at relatively high and persistent levels throughout a 9-10 month lactation; meat goats need only achieve a 4-7 month lactation with high initial milk flow, persistency beyond 4 months being of lesser concern. Secondly, dairy goats are typically fed considerable concentrates (grain mixtures) to encourage maximum and persistent milk flow. In contrast, lactating meat goats are not usually fed concentrates in addition to their forage diet because the extra kid growth achieved from the extra milk may well not repay the added costs. As always, special circumstances may occasionally alter normal cost-benefit calculations.

Forage Supplementation

To be economically viable, meat goats must get most of their required nutrients from forages. See the related chapter for detailed information on types of forage, nutritive value and stocking rates.

In those situations in which the available forage is insufficient in protein or energy or minerals to support desirable levels of goat performance, proper supplements should be offered in adequate quantities but, as always, with due respect to the likely cost-benefit exchange involved. In actual practice, most owners provide extra minerals to their goats year round. Typically these may be in the form of trace mineralized salt (loose or block), individual sources of calcium and/or phosphorus (offered separately or in combination with salt), or commercial mineral mixtures. Phosphorus content of forages is usually much lower than calcium content. Adequate phosphorus being necessary for reproduction and milk production, supplementation is usually economical. Goats apparently have a much higher tolerance to copper than sheep so typical cattle mineral mixes are *usually* safe for goats.

In those grazing situations in which the plants are *too low in protein* (or in which forage quantity is much reduced), additional protein must be offered to maintain acceptable goat performance. Protein

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SIMPLE GOAT DUE-DATE ESTIMATOR

To determine the due date, take breeding date and subtract the number indicated in the table. For example, if bred July 4, the doe will kid December 1. If bred November 10, the doe will be due April 9. Does bred February 18? Look for "Bred in February" and then look across to when she is due "July" and subtract the minus number "0" from the date number "18" when she was bred. So, doe is due July 18. This is based on 150 days.

- Bred in July----------due December-3
- Bred in August----------due January-3
- Bred in September----------due February-3
- Bred in October----------due March-1
- Bred in November----------due April-1
- Bred in December----------due May-1
- Bred in January----------due June-1
- Bred in February----------due July-0
- Bred in March----------due August-3
- Bred in April----------due September-3
- Bred in May----------due October-3
- Bred in June----------due November-3

Nutrition of Meat Goats

INTRODUCTION

Feeding is an essential aspect of goat raising and may be the highest expense of any meat goat operation. Goats raised for meat need high quality feed in most situations and require an optimum balance of many different nutrients to achieve maximum profit potential. Because of their unique physiology, meat goats do not fatten like cattle or sheep do, and rates of weight gain are smaller. Therefore, profitable meat goat production can only be achieved by optimizing the use of high quality forage and browse and the strategic use of expensive concentrate feeds. This can be achieved by developing a year round forage program allowing for as much grazing as possible throughout the year.

FEEDING REQUIREMENTS

Goats must consume a more concentrated diet than cattle because their digestive tract size is smaller with regard to their maintenance energy needs. Relative to their body weight, the amount of feed needed by meat goats is approximately twice that of cattle. When the density of high quality forage is low and the stocking rates are low, goats will still perform well because their grazing/browsing behavior allow them to select only the highest quality forage from that on offer. Thus, they are able to perform well in these situations, even though their nutrient requirements exceed those of most domesticated ruminant species.

NUTRIENT REQUIREMENTS

Nutrients are substances that aid in the support of life for the animals. Meat goats require nutrients for body maintenance, growth, reproduction, pregnancy, and production of products such as meat, milk and hair. The groups of nutrients that are essential in goat nutrition are water, energy, protein, minerals and vitamins. Weanling goats, followed by does during the last month of gestation and high lactating does, and yearlings, require a higher quality diet than average lactating does, adult bucks and dry does. In order to feed them adequately, animals should be grouped according to their nutritional needs. Therefore, weanling goats, does during the last month of gestation, high lactating does and yearlings should be grouped and fed separately from the rest of the herd having lower nutritional needs. In a grazing situation, animals having the highest nutritional requirements should have access to lush, leafy forage or high quality browse. In a barn feeding situation such as during some winter months, these same animals should be offered the highest quality hay available. Whether grazed or barn fed, goats should be supplemented with a concentrate feed when either the forage that they are grazing or the hay that they are fed do not contain the necessary nutrients to cover their nutritional requirements. To give producers an idea where these requirements fall, low quality forages contain 40-55% TDN, good quality forages contain from 55 to 70% TDN, and concentrate feeds contain from 70 to 90% TDN.

Water

Water is the cheapest feed ingredient. However, production, growth and the general performance of the animal will be affected if insufficient water is available. Water needs vary with the stage of production, being highest for early lactating does, and during times when the weather is warm and forages are dry. In some instances, when consuming lush and leafy forages, or when grazing forages soaked with rain water or a heavy dew, goats can get all the water they need out of the feed. However, water is almost always needed by some members of the herd such as lactating does. Because it is difficult to predict water needs, goats should always have access to sufficient high quality water.

NUTRITIONAL MANAGEMENT OF MEAT GOATS

Nutrition of Newborn Kids.

Colostrum is the first milk produced after parturition . Colostrum contains a high content of immunoglobulins (antibodies), vitamin A, minerals, fat and other sources of energy. Antibodies are proteins which help the goat kid fight diseases. The ability of kids to resist diseases is greatly affected by the timing of colostrum intake and the quantity and quality of the colostrum fed. Reports from cattle indicate that if left alone, 25% of the young do not nurse within 8 hours and 10 to 25% do not get sufficient amounts of colostrum. Colostrum should be ingested or bottle-fed (in case of weak kids) as soon as kids have a suckling reflex. In cases of extremely weak kids, they should be tube-fed. The producer must be certain that all newborn kids get colostrum soon after birth (within the first hour after birth, and certainly within the first 6 hours) because the percentage of antibodies found in colostrum decreases rapidly after parturition. It is crucial that the antibodies in colostrum be consumed before the kids suck on dirty, pathogen-loaded parts of its mother or stall. In addition, the ability of the newborn kid to absorb antibodies also decreases rapidly 24 hours after birth. Newborn kids should ingest 10% of their body weight in colostrum during the first 24 hours of life for optimum immunity. The extra colostrum produced by high lactating does during the first 24 hours following kidding can be frozen for later use when needed. Only first milking from healthy animals should be frozen for later feeding, and the colostrum from older animals that have been on the premises for several years is typically higher in antibody content against endemic pathogens than is colostrum from first fresheners. Revaccination against tetanus and enterotoxemia (over-eating disease) 2 to 4 weeks before the kidding date is commonly used to improve the protective value of the colostrum against these conditions. Ice cube trays are ideal containers: once frozen, cubed colostrum can be stored in larger containers and the trays used for another batch. Ice cubes are the perfect size for newborn kids, thus thawed colostrum is always fresh, and wastage reduced to a minimum. It is recommended to thaw colostrum either at room temperature or at a fairly low temperature. Colostrum should never be overcooked during the thawing process.

Nutrition of Replacement Does

Doe kids needed for replacement should be grazed with their mothers during as much of the milking period as possible and not weaned early. Following weaning, doe kids should be separated from the main herd and have access to high quality forage and receive good nutrition through first kidding at 1-2 years of age, depending on the nutritional plane. Leaving doe kids with the main herd will result in undernourished does that are bred too young and too small; these animals will never reach their production potential. A yearly supply of replacement does that are healthy, of good size, and free of internal and external parasites, is essential to the success of any meat goat enterprise.

Pregnancy Disease (Ketosis)

During late pregnancy, does require a relatively high level of nutrients. In fact, nutritional requirements are as high during late pregnancy as they are during lactation, especially if the pregnant doe is carrying more than one fetus. Not only are extra nutrients needed by the developing fetuses, but they also crowd the abdominal cavity and reduce ruminal volume. As a result, large amounts of feed cannot be consumed. Because of this, does fed a poor quality diet (especially if they are fat) can develop ketosis and die due to inadequate energy intake. Grain and protein meal and to a lesser extent whole cottonseed are the prefered feeds to overcome this problem.

Inadequate nutrition during late pregnancy will also result in small, weak kids at birth, and high early death losses, especially in twin and triplets. When forage or browse is low in quality, (40 to 55% TDN; 10%

protein or less), does in late pregnancy and early lactation should be provided with about 1 lb/day of a 16% protein concentrate.

Urinary Calculi

In goats, clinical obstruction of the urinary tract is most frequently seen in young, castrated males and the calculi are usually comprised of calcium phosphate salts. Castrated goats kept as pets and show bucks are at high risk for developing the condition due primarily to the feeding of excessive grain in the diet. If the diet contains too much phosphorous relative to calcium, supplemental calcium from feed grade limestone is required to maintain a calcium:phosphorous ratio of 2:1 to 4:1.

Body Condition

Producers should be concerned with the body condition of their breeding animals. The term body condition refers to the fleshing of an animal. Does should not be allowed to become too thin or too fat. Failure in reproduction, low twinning rates and low weaning rates will result if does are too thin. Overly fat does can suffer pregnancy toxemia, but fat does are rarely a problem .

Simply looking at an animal to determine its body condition can easily be misleading. Rather, animals should be touched and evaluated in a chute. The easiest area to feel and touch to determine the body condition of an animal are the rib areas, on either side of the spine, by running a hand over those areas and pressing down with a few fingers. In doing so, one is able to determine the amount of fat covering the ribs. Other areas to monitor are the shoulders, the tail heads, the pins, the hooks, the edge of the loins and the backbone. Practice makes perfect, thus use your animals to get a feel for it. An easy way to start is to select a few animals that are over conditioned and some others that are thin to get a feel for extreme cases. Then introduce a small group of animals and compare their condition to the animals having extreme body condition. Producers should develop an eye and a touch for the condition of their animals and strive to maintain a moderate amount of condition on their goats. If you can easily see the backbone and ribs, the goats are most probably undernourished. When body condition starts to decrease, it is a sign that supplemental feed is needed or that animals should be moved to a higher quality pasture. Waiting until goats become thin to start improving their feeding regime may lead to large production losses.

One should also be concerned with the body condition of the breeding bucks. Bucks will have reduced fertility if they are too thin. On the other hand, if bucks are overfed and become too fat, they may have no desire to breed does.

Flushing

Flushing means increasing the level of feed offered to breeding does, mostly energy, starting about one month prior to the introduction of the bucks, to increase body weight, ovulation rate and hopefully litter size. Increasing the level of energy offered to does should continue throughout the breeding season and for approximately 30 to 40 days after removing the bucks, for adequate implantation of the fetuses in the uterus. Body condition is used to determine whether flushing will be of benefit to breeding does. Does in extremely good body condition will tend not to respond to flushing. On the other hand, does that are in relatively poor condition as a result of summer pastures of poor quality, high worm loads, late kidding of twins or triplets, will respond favorably to flushing by improving their body condition.

Flushing can be accomplished by moving breeding does to a lush nutritious pasture 3 to 4 weeks prior to the introduction of the bucks. This cost-effective flushing method is underutilized in the Southeast where forage is abundant. Another method is feeding ½ lb/day of a high energy supplement. Corn is the grain of choice for flushing; whole cottonseed is another low cost, high energy supplement. The goal being to increase the intake and body weight, breeding does should be grouped according to their body condition and fed accordingly to first improve their body condition, then to maintain it.