

4-H
PERFORMANCE
STUDY GUIDE
GOATS



PART 1- History

- The American Dairy Goat Association is located in Spindale, NC
- The American Goat Society is located in Pipe Creek, TX
- The goat was one of the earliest domesticated animals
- Archaeological evidence suggests that goats were first domesticated roughly 10,000 years ago in the fertile crescent
- Goats were first brought to North America by Columbus in 1493
- More than 80% of the world's goats live in Asia and Africa
- Neolithic farmers began herding goats for easy access to their milk and meat, as well as their dung, which was used for fuel, and their hair and bones, which were used for clothes, buildings, and tools
- Historically, goat hide has been used to make water and wine containers, as well parchment
- Goats will rapidly become feral if given the opportunity. The only other domestic animal that exhibits this characteristic is cats
- In the twentieth century, goats gained popularity as pets
- Meat goat production is the fastest growing livestock industry in the US
- The proper name for a group of goats is a trip
- Goats are excellent swimmers
- Goats are the only ruminant that regularly climbs objects and structures
- Goats are browsing animals, which means they will taste most things to see if they are edible

Part 2- Breeds/Breeding

- **Alpine-** The Alpine, also known as the “French Alpine”, originated in the Alps. They are medium to large goats with upright ears. Alpines are hardy, adaptable, and come in a variety of colors and patterns. Their milk has an average butterfat of about 3.5%. Alpines are seasonal breeders.
- **Boer-** The Boer goat was developed in South Africa. They have long, pendulous ears and a “Roman” nose. Their name comes from “Boer”, a Dutch word meaning farmer. The major portion of a Boer’s body is white with dark coloration around the head. They are gentle, strong, and vigorous. Boers breed year round
- **LaMancha-** the LaMancha is a medium sized breed, developed in the United States from goats of Spanish origin. They have excellent dairy temperament and are all-around sturdy, friendly, naturally healthy animals. They can come in a variety of colors and patterns. Their milk has an average butterfat of about 4.2%. LaManchas are seasonal breeders.
- **Nigerian Dwarf-** the Nigerian Dwarf is a miniature dairy goat of West African origin with upright ears. They come in a variety of colors and patterns. Their milk has an average butterfat of about 6.1%. Nigerian Dwarves breed year round.
- **Nubian-** the Nubian, also known as “Anglo-Nubians”, is a large, proud, and graceful goat with long pendulous ears and a “Roman” nose. They were developed in England by crossing goats with bucks of African and Indian origin. They are not heavy producers of milk, but their milk does have an average butterfat of 4.6%. Nubians come in a variety of colors and are very vocal. They are usually seasonal breeders but sometimes may be bred year round.

- **Oberhasli-** The Oberhasli, sometimes called the “Swiss Alpine”, are a medium sized breed. Their coloring is known as “Chamoisee”, which is bay in color with distinctive and specific black markings. Their milk has an average butterfat of about 3.6%. Oberhaslis are seasonal breeders.
- **Saanen-** Saanens originated in Switzerland. They are white, large in size, and have upright ears. Saanens are heavy milk producers, but the average butterfat is lower, at around 3.5%. Saanens must be white. If one is born with color, which does happen, they are called “Sables”. Saanens are seasonal breeders.
- **Toggenburg-** Toggenburgs are a Swiss breed, as well as the oldest known dairy breed. They are medium in size with upright ears. “Togg” coloring is varying from a light fawn to dark chocolate, with distinctive and specific white markings. Their milk has an average butterfat of 3.3%. Toggs are seasonal breeders. This breed was originally developed to provide milk for cheese production, so their milk can sometimes have a strong flavor.
- **Purebred** animals have parents who are the same breed and can be traced back to the establishment of that particular breed through the records of a registry association
- **Crossbred** animals have parents who are of two different breeds. Animals are cross bred to take advantage of the characteristics that different breeds exhibit, and to establish new breeds.
- A **back cross** is breeding a first cross offspring back to one of the parental breeds. This is often the first step in establishing a grading up program or

composite breed. An example of this would be breeding a Nubian and Boer, and then breeding that offspring with another Boer.



Alpine



Boer



LaMancha



Nigerian Dwarf



Nubian



Oberhasli



Saanen



Toggenburg

Part 3- Breeding

- The female goat is called a “doe” or “nanny”
- The male goat is called a “buck” or “billy”
- A castrated male is called a “wether”
- A baby goat is called a “kid”
- The act of giving birth is called “kidding”
- Female goats reach puberty at 7-10 month
- Male goats reach puberty at 4-8 months
- Females should be bred when they reach 60-75% of their adult weight
- Males should be used for breeding when they are 8-10 months of age
- The estrous cycle, or length of time from one heat cycle to another, is 18-24 days long

- A doe will be in estrus, or heat, for 12-36 hours
- A goat's gestation period is 148-156 days
- A goat's breeding season is from August to January
- A doe can have 1-6 kids per litter, although more than 4 kids is rare
- A doe's lactation period lasts for 10 months, and a typical goat can be expected to produce 3-4 quarts (6-8 lbs) on an average day

Part 4- Nutrition

- The six primary nutrients are: water, carbohydrates, proteins, lipids, vitamins, and minerals
- These nutrients are essential for maintenance, growth, gestation, lactation, and fattening
- Body Condition Score, or BCS, refers to the amount of fat covering the body, and is a good indicator of the nutritional status and general health of the animal
- Energy is provided by carbohydrates, lipids, and proteins
- Energy is needed to grow and carry out normal daily functions
- Water regulates the feed intake of the animal
- Water is the most important nutrient for your animal
- It is essential that a goat receives enough protein to maintain body tissues and stay healthy
- A goat's daily protein requirements vary according to its' size, age, and condition
- Protein is usually obtained through oilseed meals, such as connonseed, soybean, peanut, and sunflower
- Grains and hay are generally the most economical source of energy

- Protein supplements can also provide energy for an animal, but are expensive
- Mineral requirements are dependent on age, sex, and stage of production
- The minerals that are most important to goats are salt, calcium, and phosphorus
- Calcium and phosphorus should be fed at a ratio of 2:1
- Hay roughages are generally high in calcium and low in phosphorus
- Grains are mostly low in calcium and intermediate in phosphorus
- Vitamins are required for normal growth and maintenance in an animal's life
- Goats have a feed conversion ratio of 5:1. That means it takes roughly 5 pounds of dry feed for a goat to put on 1 pound of live weight
- A realistic Average Daily Gain for goats is between 0.2-0.4 pounds per day
- Goats will reach a point where they stop growing, and only put on more fat

Part 5- Meats/Milk

- Currently, the United State imports most of its goat meat
- Goat meat is called chevon or mutton when it comes from a mature animal
- Goat meat is called cabrito or kid when it comes from young animals
- Goat meat is lower in total fat, saturated fat, calories, and cholesterol than traditional meats
- Goat meat has more iron, potassium, and thiamine and less sodium than traditional meats
- Goat milk is higher in calcium, vitamin A, and niacin than cow's milk
- On a worldwide basis, more people drink goat's milk than any other milk
- Goat milk has more easily digestible fat and protein content than cow's milk

- Goat milk tends to have a better buffering quality, which is good for the treatment of ulcers
- Goat milk can successfully replace cow milk in the diet of those allergic to cow's milk

Part 6- Anatomy

- A goat's stomach is composed of 4 compartments: The Rumen, Reticulum, Omasum, and Abomasum
- The rumen is the largest part of the stomach, and is the primary site for microbial fermentation of ingested feed
- When wire, nails, or other foreign objects are consumed by a goat, they normally fall into the second chamber of the stomach, the reticulum. The reticulum is also referred to as the honeycomb, due to the hexagonal shapes on the lining
- The third chamber of a goat's stomach is the omasum, which is primarily involved in water absorption
- The abomasum, or "true stomach", is the portion of the goat's stomach that is most similar to a human's stomach. This is also the last compartment of the stomach
- Acetate is a major end product of rumen fermentation that is a major precursor for adipose tissue synthesis
- Female goats have an udder consisting of two teats, in contrast to cattle, who have four teats

- Goats have horizontal slit-shaped pupils, an adaptation which increases peripheral depth perception
- A goat's internal temperature should range between 103°F and 104°F
- Goats have no front teeth on their upper jaw. They instead have a large dental pad that allows them to tear grasses and forage
- Goats have 24 molars and 8 incisors
- Goats have a Roman nose that is convex in shape

Part 7- Caring for Kids

- It is essential that kids (baby goats) get colostrum immediately after birth
- Colostrum contains antibodies to protect the newborn against disease, in addition to being lower in fat and higher in protein than normal milk
- Dehorning can occur as soon as you feel the beginning of horns, known as nubs, when rubbing the top of a baby goat's head

Part 8- Diseases

- **Acidosis-** Lactic Acidosis is caused by excess consumption of concentrates (grain) which results in high levels of acid being produced by the rumen. Affected goats appear depressed and listless and may have abdominal pain
- **Boils-** Local abscesses generally found on the head, neck, flank, udder, and stomach of goats. Though appearing harmless, these abscesses readily spread to lymph nodes and extend to the internal organs, where the resulting damage shortens the productivity and life of the animal
- **Caprine Arthritis Encephalitis (CAE)-** CAE is caused by a lentivirus, which is a type of retrovirus. This disease causes multiple other diseases in goats, such as

arthritis, pneumonia, mastitis and weight loss in adults, and encephalitis (inflammation of the brain and brainstem) in kids

- **Caseous Lymphadenitis (CL)**- 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 through unbroken skin. This disease is caused by a fairly common bacteria found in the soil.
- **Coccidiosis**- Coccidiosis usually presents as acute diarrhea with or without blood, straining, severe weight loss, and sometimes as a neurological form that results in the death of the animal
- **Enterotoxemia**- Enterotoxemia is also known as “overeating disease” It is caused by an organism that is normally present in the intestines of goats. When a goat’s feeding schedule is suddenly changed, or a large amount of grain is swiftly consumed, the organism will grow rapidly and produce a toxin that causes death in a few hours
- **Foot Rot**- A highly infectious disease caused by 2 different bacteria that infect the foot
- **Mastitis**- Inflammation of the udder, or mammary gland. It’s usually caused by a bacterial infection
- **Pinkeye**- Identified by watering of the eye, redness of the whites of the eye, eyelid swelling and clouding over pupil. Several different organisms can cause pink eye, and it is usually transmitted horizontally (between goats in a herd)

- **Parasites-** An organism that lives on (external) or in (internal) another organism. The relationship between host and parasite is a form of symbiosis. In parasitism, the host is harmed, while the parasite benefits.
 - **External-** flies, ticks, lice, and mites
 - **Internal-** roundworms, nodular worms, whip worms, and lung worms
- **Ringworm-** Ringworm is a skin fungus. When an animal is infected, rough, scaly, circular areas develop. Infections are mostly found on the head, ears, neck, and sometimes the body and udder.
- **Sore Mouth-** Soremouth is caused by a virus and can be recognized as small red spots at the corner of the lips. The spots soon develop into blisters and later turn into scabs
- **Urinary Calculi-** Urinary Calculi are only found in male animals. Similar to kidney stones in humans, this disease is the formation of stones in the urinary tract. Calculi is the result of 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 to phosphorus ratio, and 10-15 pounds of ammonium chloride per ton of feed. This, along with plenty of fresh drinking water, will help prevent calculi from forming

Part 9- Showing Goats

- **Leading-** As you enter the ring, lead the goat at a normal walking speed around the ring in a clockwise fashion. Walk on the left side of your animal, next to the head. Hold the lead chain with your right hand.

- Posing**- When you pose and show your goat, always keep it between yourself and the judge. Pose your goat with the front feet placed squarely underneath and the hind feet slightly spread



