

Goat Production Basics in Kentucky

David Ditsch, Plant and Soil Sciences; Brandon Sears, County Extension Agent for Agriculture and Natural Resources; Ken Andries, Kentucky State University; Terry Hutchens, Animal and Food Sciences; Patty Scharko, DVM, Livestock Disease Diagnostic Center

This publication provides some of the most basic information frequently requested by individuals considering commercial and/or hobby goat production.

Goat Facts

- Goats are referred to as small ruminants because they have a four-chambered stomach (three forestomachs and one true stomach) like sheep and cattle.
- Labor requirement for goats (five hours per doe per year) is higher than for beef cattle.
- Goats do not like to get wet and will seek shelter in the rain.
- Goats like to climb and jump.
- Goats can be contained in properly constructed fences.
- Goats do not herd or flow through handling equipment as well as cattle.
- Goats prefer to browse. They will get on their hind legs to eat.
- Male goats have an offensive odor, especially during the mating season.
- Male goats are very aggressive and can be difficult to manage.
- Goats are seasonal breeders.
- Goats seem to be more susceptible to parasites in grazing situations than cattle.
- The demand for goat meat is almost entirely ethnic or religiously based.
- Goats are just as susceptible to predators as other livestock.
- Most goats (both sexes) are naturally horned.

Body temperature	101.5-103°F
Heart rate	70-80 beats/min
Respiration rate (<i>resting</i>)	12-15 breaths/min
Age at puberty	7-10 months
Length of estrous cycle	18-22 days
Gestation (<i>pregnancy</i>) length	146-155 days
Kidding rate (<i>births per doe</i>)	1-3
Doe death loss (<i>breeding age</i>)	1-6%
Kid death loss (<i>birth through market age</i>)	10-20%
Breeding bucks required	1 per 30 does serviced

Breeds and Types

Goat breeds are generally divided into three primary types: dairy, meat, and fiber goats.

Common meat goat breeds are the Boer, Kiko, and Spanish. Crosses between these breeds have resulted in very good performance and hardy kids with a desire to survive. The following table lists several breeds, their breed type, and important traits to consider.

Breed	Type	Traits of Importance
Alpine	Dairy	High milk production
Angora	Fiber	Mohair yield; light muscled; must be sheared
Boer	Meat	High growth; heavy muscling for meat production
Cashmere	Fiber	Fiber production
Kiko	Meat	Hardy; large framed
LaMancha	Dairy	High milk production; very small ears
Myotonic (<i>Fainting goats</i>)	Meat	Smaller framed; very heavy muscled; hardy goats
Nubian	Dual: Dairy/Meat	Good milk; large framed; more meat than most dairy breeds
Pygmy	Meat	Small framed; heavy muscled; currently not desirable in the open markets
Saanen	Dairy	Good milkers; hardy; moderate framed
Spanish	Meat	High survivability; moderate frame; good mothers

Nutritional Requirements

The nutritional requirements for goats can often be met with forages. However, depending on forage quality and desired animal performance (i.e., lactation, growth, or maintenance), feed supplementation may be needed. On average, dry matter intake for a mature doe is 2 to 5% of her body weight per day.

Forages

The most common forage species for grazing goats in Kentucky are listed below. Goats will also graze a large number of weeds and understory plants found in Kentucky. The productivity, persistence, and nutritive quality of these species will vary with level of management.

Goats prefer to graze above their shoulder height. When given a choice, goats prefer browse species (i.e., shrubs, saplings, and brambles) over common pasture grasses and legumes.

Mineral Supplementation

Many minerals and vitamins are not available in forages at levels needed to support optimum growth, reproduction, lactation, or health of kids and mature does and bucks. Minerals are divided into two categories, macro and micro minerals, depending on the amount required in the diet. The major macro minerals are calcium, phosphorus, potassium, magnesium, sodium, chlorine, and sulfur. The micro minerals are not required in as large quantities and include copper, zinc, iron, iodine, manganese, and selenium. Both the macro and micro minerals need to be provided in the proper amounts. Providing either too much or not enough of these minerals and vitamins can cause problems. Your local Cooperative Extension office can provide you with information on the recommended mineral for your operation.

Stocking Rate and Grazing Systems

Stocking rate refers to the total number of goats per unit area over a given time period. *Continuous* grazing systems give goats uninterrupted and unrestricted access to an entire pasture throughout the grazing season. *Rotational* grazing systems control grazing activity by dividing large pastures into smaller paddocks. Rotational graz-

Common Grass and Legume Species for Grazing Goats	
<i>Perennial Cool-Season Grasses</i>	Tall fescue Orchardgrass Perennial ryegrass Redtop
<i>Perennial Legumes</i>	Red clover Alfalfa Sericea lespedeza
<i>Perennial Warm-Season Grasses</i>	Bermudagrass Eastern gamagrass Indiangrass Switchgrass Big bluestem
<i>Annual Legumes</i>	Korean/Kobe lespedeza
<i>Summer Annual Grasses</i>	Pearl/Foxtail millet Sorghum sudangrass Corn
<i>Winter Annual Grasses</i>	Rye Wheat
<i>Others</i>	Chicory Brassicas
Common Weed and Understory Plants for Grazing Goats	
Multiflora rose	Buckhorn plantain
Blackberry	Cocklebur
Honeysuckle	Kudzu
Ironweed	

ing systems require more management as goats must be moved more frequently between paddocks. In Kentucky, a sustainable continuous grazing stocking rate for goats is five to six mature does per acre. In rotational grazing systems, seven to eight mature does may be grazed per acre depending on forage availability.

Fencing

Options for Constructing New Fences

The fence that offers the most security for goats is constructed of woven wire with horizontal and vertical stays approximately 4 inches by 4 inches. This type of fence prevents goats from getting their heads stuck in the fence while providing excellent predator control. Treated wood, steel, or cedar fence posts should be placed on 15-foot spacing for maximum strength.

Fence Type	Specifications	Approximate Cost	Recommendations
Sheep and goat fence	48" tall with 4" square openings	\$0.67 per foot	Install close to ground and keep tight
Woven wire fence (field or cattle type)	47" tall with various size square openings (most larger than 4")	\$0.56 per foot	<ul style="list-style-type: none"> Install close to ground and keep tight May need electric standoff wire on the interior of the fence to eliminate the possibility of heads getting caught in large square openings
Treated wooden posts	5" by 8'	\$10.00 each	<ul style="list-style-type: none"> No more than 15' apart Use for corner and line braces
Metal T-posts	6'	\$3.20 each	No more than 15' apart
High tensile fence	12.5 gauge	\$0.11 per foot @ 6 strands	At least 6 strands
Non-electric barbed wire fence	15.5 gauge	\$0.14 per foot @ 6 strands	At least 6 strands

Install all types of woven-wire fences as close to the ground as possible to eliminate escape routes for kids or small goats.

Cattle woven wire may be used in place of goat woven wire by installing one strand of electrified wire along the interior of the fence approximately 10 to 14 inches off the ground to prevent goats from getting their heads stuck in the larger fence squares.

New fences may also be constructed by using high tensile electrified wire. Perimeter fences should be constructed using five or six alternating hot and ground wires approximately 9 to 11 inches apart to provide maximum control.

Options for Renovating Old Fences

Existing fences can be made “goat-proof” by adding barbed or electric wire. Plank-type wooden fences can be upgraded by adding electrified wires between the planks. Any fence that is too high off the ground may be fortified by using either barbed wire or electric wire in these locations. Remember that goats are excellent climbers and will climb out of even the best constructed fence if objects (i.e., stumps, logs, rocks) are too close to the fence. Also, gates should be constructed with goat-proof latches. Corner braces should not be positioned so that goats can walk up them and escape.

Health Issues

The number one cause of death in goats in Kentucky is the blood-sucking gastrointestinal parasite *Haemonchus contortus*, or barberpole worm. The reproductive capacity of this parasite and resistance to many “dewormers” make parasite control the greatest limiting factor to developing a goat industry in Kentucky. Internal parasite management includes:

1. Proper grazing.
2. Frequent/timely animal inspections using the FAMACHA method to aid in diagnosis of anemia. The FAMACHA system, developed in South Africa by Dr. Fafa Malan, hence the FA MA CHA (for “chart”) name, is used to determine the level of anemia resulting from the internal blood-sucking parasite *Haemonchus contortus* and the need for de-worming. The FAMACHA system involves the examination of the mucus membranes of the goats’ eyes, relating the color (shades of red on a scale of 1-5) to the anemia of the animal.
3. Selecting effective deworming products and correct dosages.
4. Eliminating animals from the goat herd that need frequent deworming treatment.

Foot scald/rot is another common health issue that results in lameness and often develops into a major economically significant disease. Frequent foot trimming helps reduce the incidence of foot scald by keeping mud from packing into foot crevices. Spot treatment with antibiotic

sprays has limited benefit. Foot baths using zinc sulfate are the most effective treatment for foot scald. Special facilities must be constructed to hold goats for the 15-minute treatment. Goats with chronic foot scald/rot should be eliminated from the herd.

Vaccinations

A good health plan centers around a solid vaccination program that protects your animals from the common diseases *Clostridium perfringens* C and D (overeating disease) and tetanus. There are two basic reasons we vaccinate our animals: 1) to prevent disease and 2) to reduce the recovery period if an animal is exposed and contracts the disease. A basic vaccination program should include vaccinating kids at one month of age and a booster vaccination three to four weeks later. Booster bucks and pregnant does 30 days prior to the start of kidding.

Predators and Predator Control

The control of predators often requires a combination of methods, i.e., a guardian animal and a good fence. Dogs (i.e., Great Pyrenees, Komondor, Akbash, Anatolian, and Maremma), donkeys, and llamas are commonly used. The choice of guard animal is a personal decision.

Markets

In general, the demand for goat meat in the United States is greater than the domestic supply. Therefore, the market for meat goats continues to improve. In Kentucky, meat goats are sold at many local stockyards and by private treaty. Currently, the Kentucky Department of Agriculture organizes several graded goat sales across the state and conducts several Tel-O-Auctions throughout the year. For more information about these marketing opportunities, go to www.kyagr.com.

Annual Basic Goat Budget (per breeding doe)			
COSTS			
Input	Amount Needed/Year	Cost per:	
		Unit	Year
Pasture	0.33 ac	\$25.00/ac	\$8.25
Corn	2.5 bu	2.80/bu	7.00
Hay	500 lb	0.035/lb	17.50
Mineral	20 lb	0.38/lb	7.60
Veterinary, medical			6.00
Protein supplement	28 lb	0.10/lb	2.80
Labor	5 hr	variable	variable
<i>Costs/Doe/Year¹</i>			\$49.15
RETURNS			
Kids Weaned/Year	Weight of Weaned Kid	Average Price/Lb	Returns/Year
2	50 lb	\$1.10	\$110.00
Breakeven kid price/lb = \$1.09			
<i>Profit/Doe/Year¹</i>			\$60.85
¹ Labor not included.			

