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EXTENSION

Extending knowledge. Changing lives.

SHEEP & GOATS BASICS



MISSISSIPPI STATE UNIVERSITY™
DEPARTMENT OF ANIMAL
AND DAIRY SCIENCES

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ADVANTAGES of SMALL RUMINANTS

- Produce **proteins** (meat, milk, fiber, wool) for a growing population
- Very **prolific**
- **Small initial investment** compared to big ruminants
- Can be **raised in small farms**
- Mainly on **forages**
- Easy to **handle**





**Are Sheep and
Goats different
species?**



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Differences between sheep and goats



Species:	<i>Ovis aries</i>	<i>Capra hircus</i>
No. Chromosomes:	54	60
External characteristics:		
Tail length :	short / long	short
Direction of tail:	hanging	straight up
Gland between toes:	yes	no
Gland beneath tail:	no	yes
Tear gland:	yes	no
Beard:	no	yes
Fleece:	wool/hair	hair / fiber
Main products:	wool, meat, milk y hide	milk, meat, fiber y hide



Differences between sheep and goats

Species:

SHEEP

GOATS

Feeding behavior:

Grazers

Browsers

Plant preferences:

**grasses and low-lying
vegetation**

**leaves, fruits and
high-growing
woody plants,
shrubs, and shoots**



Things you need to think of?

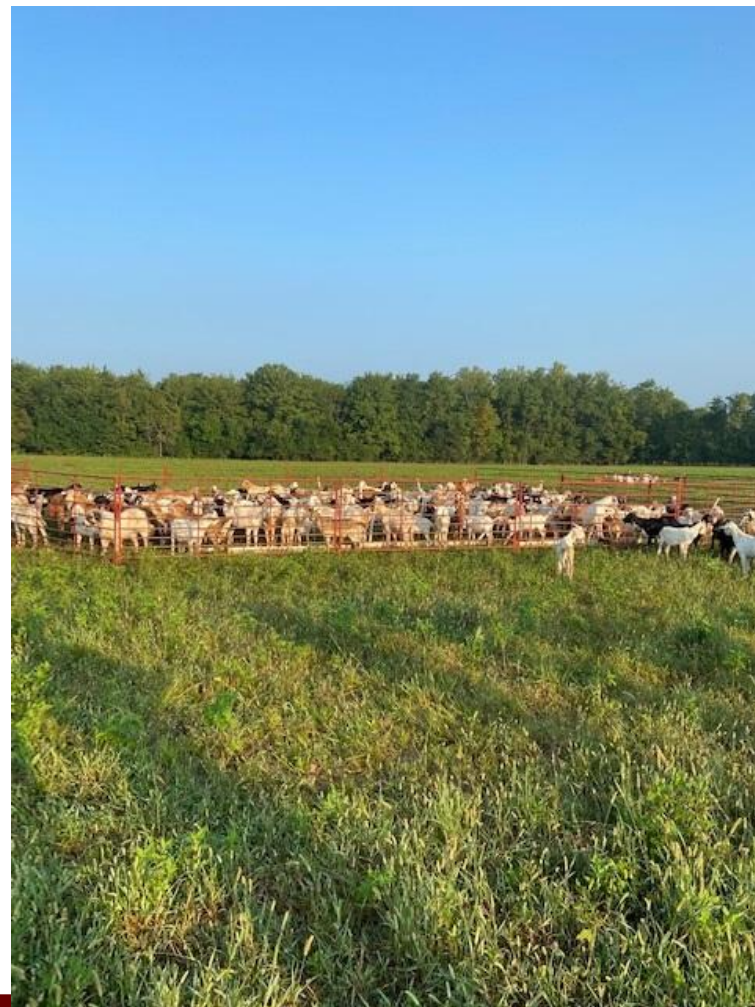
If you want to raise sheep/goats

- Size of the farm / Time available
- Facilities / Fences
- Guard dogs / work dogs
- Products / **What will make you different?**
- Breed
- Feeds



Size of the farm / Time available

From 5 to 1000 acres



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From beginner to experienced farmer

Facilities

According to your **budget**



Shelters



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Facilities



Barns



<https://m.facebook.com/ColesRidgeFarms/>



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*Design thinking in the **welfare** of the operators and the animals
Remember animals **need shade** and protection from extreme weather
Clean facilities / feeders / drinkers will improve animals' health*

Facilities / Fences



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Facilities / Fences



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Facilities



Please keep records!!



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Collecting Pen and Working Chute

Water & Feeders



Guard dogs



Work dogs



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Products / What will make you different?

- Breeding animals / Club or show animals
- Meat / cuts / sausages / patties
- Milk / Yogurts
- Cheese
- Soaps



Sheep breeds



Wool sheep
Hair sheep



<http://www.ansi.okstate.edu/breeds/sheep/>
M.V. Antonio Pinhoa Farm

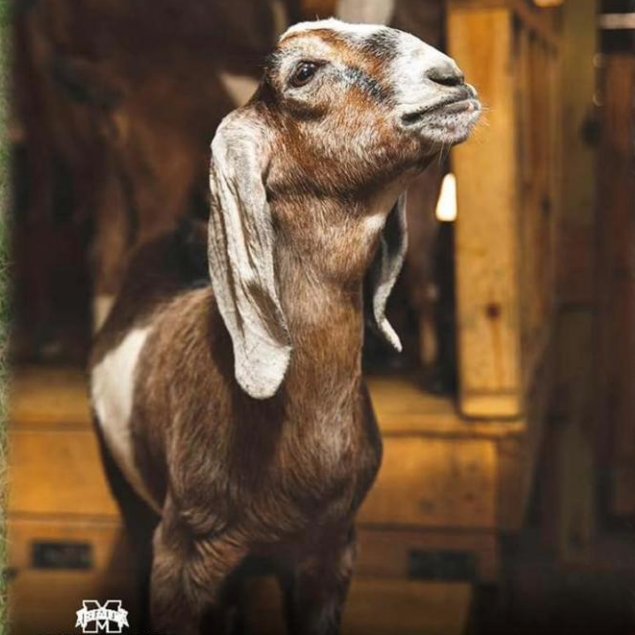
Goat breeds



Meat
Dairy

MISSISSIPPI
LANDMARKS
VOLUME 17, NUMBER 1

Fiber




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DIVISION OF AGRICULTURE, FORESTRY,
AND VETERINARY MEDICINE

RESEARCH, EDUCATION, AND EXTENSION

- Meat goats

Breeds



KIKO



BOER

<https://www.facebook.com/Triple-B-Boers-112847447572846/>



SPANISH



MYOTONIC / FAINTING

Breeds

- Meat sheep

Wool



Suffolk



Hampshire



Charollais

Hair



Katahdin



Dorper



St. Croix

MS Associations

- **Meat sheep**

Wool

Mississippi Sheep Producers Association

<https://www.facebook.com/groups/276374416129143>

Hair



https://www.facebook.com/people/MS-Hair-Sheep-Breeders-Association/61565647763715/?_rdr



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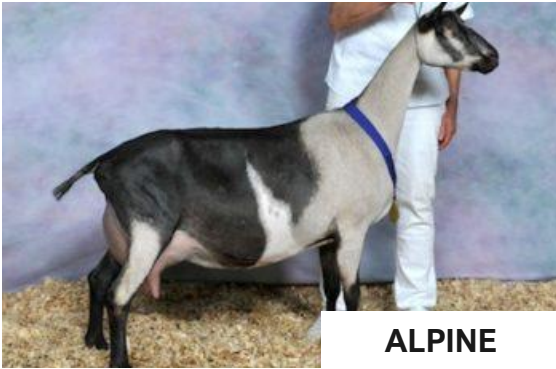
Breeds

• Dairy goats



SAANEN

<https://redwoodhillfarm.org>



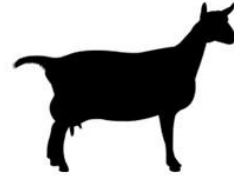
ALPINE

<https://backyardgoats.iamcountryside.com/>



NUBIAN

<https://m.facebook.com/ColesRidgeFarms/>



Dairy GOATS

430,000

is the number of dairy goats in the US (NASS, 2025). The dairy goat industry continues to expand (in the US).

Goat milk

and milk products are used for many purposes. Consumption is on the rise, particularly for cheese, but also as a fluid milk alternative. The goat milk-based infant formula market is experiencing significant growth. Another use of goat milk is cosmetics (e.g., soap). This market was valued at \$4.03 billion in 2023 (in the US).

While goat milk only accounts for about 2 percent of global milk consumption, it is an important source of dairy in many cultures and regions of the world. It is mostly a specialty product in the US.



Say cheese!

Cheese made from goat's milk is called chevre. Approximately 75 percent of goat milk is made into cheese. The US imports 50 percent of the goat milk cheese it consumes.



Top 10 states

Dairy goats

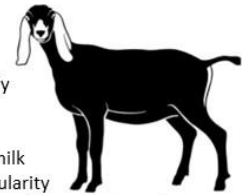
are raised in all 50 states. Wisconsin has more than double the number of dairy goats as any other state. California, Iowa, and Texas have the next largest milk goat inventories. The New England states rank 5th

Nine breeds

The American Dairy Goat Association (ADGA) recognizes nine breeds of dairy goats: Alpine, Guernsey, LaMancha, Nigerian Dwarf, Nubian Oberhasli, Sannen, Sable, and Toggenburg. The Nubian is the most popular. The Nigerian Dwarf is the smallest. Saanen and Alpine goats usually produce the most milk, whereas the Nubian and Nigerian Dwarf produce milk with the highest butterfat content (ideal for cheese-making).

Different than cow's milk

Cow and goat milk have similar basic nutritional profiles but differ in some key areas. Goat milk tends to be higher in fat, protein, and minerals. It is naturally homogenized. Goat milk contains smaller fat globules, making it potentially easier to digest. Goat milk and milk products are gaining popularity among those with cow milk allergies. They are viewed as more health conscience choices.



While most dairy goat operations milk does by hand, the majority of does are milked by machine in a parlor. Twice a day milking is most common. Large dairy goat operations raise dairy goats for income, whereas many small operations raise dairy goats for fun/hobby and "personal consumption."

By Susan Schoenian, Sheep & Goat Specialist Emeritus, University of Maryland Extension.
For more information about dairy goats, go to <https://adga.org>. ©2025

Alpine and Saanen in MS: <https://www.facebook.com/camelothills/>

More Nubian in MS: <http://www.crowncreekfarm.com/>; <https://briarcrestfarm.com/>

Breeds

- Dairy sheep



East Friesian



Lacaune



Awassi



Dairy SHEEP

Few farms

Dairy sheep farming is relatively new to the US. The first farms were established in the mid to late 1980's with meat breeds. Today, there are probably less than 200 dairy sheep farms in the US. The majority are in Wisconsin and the Northeast.

Double

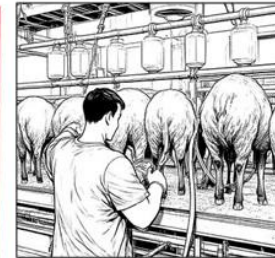
While sheep produce a lot less milk than cows and goats, their milk is significantly richer, being roughly double in the amount of milk solids (fat and protein). Sheep milk is ideal for making cheese, yogurt, and desserts.

How much milk?

Dairy ewes produce a lot more milk than non-dairy breeds: 400 to 1100 lbs. per year compared to only 100 to 200 lbs. for non-dairy sheep. Crosses produce an intermediate amount of milk.

Milk and cheese

While milk can be shipped fluid in a bag or frozen in plastic bags to a processor, most US dairy sheep farms make their own cheese or other products. Almost all sheep cheese consumed in the US is imported. There is opportunity!



Lambing

There are three lamb management systems in dairy sheep production: 1) lambs are removed 24 to 36 hours after birth; 2) ewes nurse their lambs for 30 days; and 3) ewes nurse their lambs for 30 days, but lambs are separated in the evenings.

Three breeds

Just as there are cattle and goat breeds that have been selected for high milk production, there are specialized dairy sheep breeds. In the US, they include East Friesian, Lacaune, and Awassi. The breeds are often crossed with one another.

Longer lactation

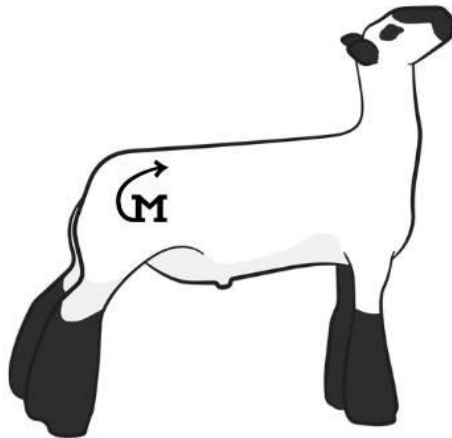
Dairy sheep breeds produce milk for longer than non-dairy breeds, usually 120 to 220 days. Breeding ewes to lamb early in the year will increase the lactation period, since shorter days cause the ewe to cease milk production.



Potential

The United States is a leading importer of sheep cheeses.

Club / Show animals



Mississippi State Club Lambs

<https://www.facebook.com/profile.php?id=100091444986593>



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Before you buy an animal

- **Check** teeth/age, good body condition, uniform udder/testicles, hooves in good condition and bright coat
- **Seller:** It is our responsibility to sell good animals and to wish well to the buyer
- **Buyer:** It is our responsibility to do the research, read and know more about how to take care of the animals



This is what you don't want to buy



Poor coat and poor body condition



Old animals



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Feeding Small Ruminants.

Main Nutrients

- ENERGY
- PROTEIN
- MINERALS



Main Nutrients

- ENERGY:

70-80% of hay or grass



Feeds

- Forages

100% when animals are not in a demanding stage
70 – 80% when animals are growing, pregnant or lactating

Examples: Annual ryegrass, Tall fescue,
Bahia grass, Bermudagrass



Feeds

- Forages

100% when animals are not in a demanding stage
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Examples: Annual ryegrass, Tall fescue,
Bahia grass, Bermudagrass



Cool season perennials



Birdsfoot trefoil (*Lotus corniculatus*)

Alfalfa (*Medicago sativa*)

Chicory (*Cichorium intybus*)

Clover (*Trifolium* sp.)

Legumes

Perennial peanut (*Arachis glabrata*)



Lespedeza (*Lespedeza cuneata*)



Kudzu (*Pueraria montana*)



Warm season perennials

Concentrate

Supplements: Concentrate / grain

- *Medicated feeds
- *Alfalfa pellets
- *Supplement mixed in farm



TDN

- **Total Digestible Nutrients** estimate of the energy content of a feed, based on the digestible portion of the nutrients that can supply energy.
- **Low-quality hay** 45 to 52% TDN
- **Mid-quality hay** 52% to 58% TDN
- **High-quality hay** > 58% TDN.



Main Nutrients

- PROTEIN



Nutrient Requirements of Mature Does			
Production Stage	Nutrient Requirements, dry matter basis		
	DMI, % of BW	% CP	% TDN
Maintenance	1.8 - 2.4	7	53
Early gestation	2.4 - 3.0	9 - 10	53
Late gestation	2.4 - 3.0	13 - 14	53
Lactation	2.8 - 4.6	12 - 17	53 - 66

Nutrient Requirements for Selected Groups of Growing Kids			
Production Stage	Nutrient Requirements, dry matter basis		
	DMI, % of BW	% CP	% TDN
25 kg dairy doelings and castrates, gaining 100 – 150 g/hd/day	3.3 - 3.8	12	67
25 kg boer doelings and castrates, gaining 100 – 150 g/hd/day	3 - 3.4	15 - 17	67
25 kg intact dairy males, gaining - 100 g/hd/day - 150 g/hd/day	3.2 - 3.7	10 15	67 86
25 kg intact boer males, gaining 100 – 150 g/hd/day	3.3 - 3.7	15	67

Adapted from Nutrient Requirements of Small Ruminants. National Research Council, 2007. Actual requirements will vary depending on breed, productivity and environment. DMI–dry matter intake, BW–body weight, CP–crude protein, TDN–total digestible nutrients.

<https://www.gov.mb.ca/agriculture/livestock/goat/pubs/goats-and-their-nutrition.pdf>



Minerals

Mineral Requirements and Impact on Dairy and Meat Goat Production

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Publication 3929 (POD-09-23)

By Rocky Lemus, PhD, Extension/Research Professor and Extension Forage Specialist, Plant and Soil Sciences, and Leyla Rios de Alvarez, PhD, Assistant Extension/Research Professor and Small Ruminant Specialist, Animal and Dairy Sciences.

Table 1a. Suggested ranges of macrominerals needed for a goat's metabolic functions (Hart, 2020).

Mineral	Minimum (%)	Maximum (%)
Calcium (Ca)	0.30	0.80
Phosphorus (P)	0.25	0.40
Magnesium (Mg)	0.18	0.40
Potassium (K)	0.80	2.00
Sulfur (S)	0.20	0.32
Sodium (Na)	0.20	–
Chloride (Cl)	0.20	–

Table 1b. Suggested ranges of microminerals needed for a goat's metabolic functions (Hart, 2020).

Mineral	Minimum (ppm)	Maximum (ppm)
Iron (Fe)	50	1000
Copper (Cu)	10	80
Cobalt (Co)	0.1	10
Zinc (Zn)	40	500
Manganese (Mn)	0.1	3
Selenium (Se)	0.1	3
Molybdenum (Mo)	0.1	3
Iodine (I)	0.5	50

Factsheet on MINERALS FOR GOATS !!

https://extension.msstate.edu/publications/mineral-requirements-and-impact-dairy-and-meat-goat-production?fbclid=IwAR0vOJBSvoEv-rgsPI1NICxLqG0Sex7r8IDTE2HRxqkVENoty8k_YDZOaLE

Minerals



Breeding season

- **High BCS**, no need for extra supplementation
- **Poor BCS** or in bad shape need extra supplementation → **FLUSHING**
- **Flushing** will increase the number of kids mostly from mature does
- **FLUSHING** from 2-3 weeks before and 3 weeks during breeding season
- **WATER supply**: at least 1 gallon/goat/day



Breeding season

- **High BCS** / overweight into pregnancy is a **BIG PROBLEM**
- Causes of PREGNANCY TOXEMIA and KETOSIS in goats in late pregnancy and early lactation
- Compression of the rumen, less intake, so the goat uses fat reserves as a source of energy.



Nutrition during pregnancy



- Avoid high BCS, split meals, do not overfeed
- Always keep enough good quality hay or grass
- Supply of Baking Soda → ruminal pH and avoid BLOAT
- Gentle exercise and protection from harsh weather



Kidding or lambing inside the shed or in the paddocks?

- 3 weeks before kidding give a shot CD&T to the nannies so the kids are born protected
- **INSIDE:** Clean bedding, clean water and feeders, enough space, good quality hay and supplement to meet the lactation requirements



Kidding outside

- Shelters for protecting the females and the offspring,
- clean feeders and water,
- good grasses + brush + if needed a good supplement to meet nutritional requirements and avoid periparturient parasite rise.
- Let time to bond nanny and kids



Kidding Season

- **Peripartum** has high nutritional requirements and low immunity
- Always keep enough good Grass / Quality hay
- Clean and dry beds
- Enough supply of clean water: up to 2,5 gallons/goat/day
- Hygiene at the milking parlor + Good nutrition = NO MASTITIS



Weights at birth are IMPORTANT

- Weigh your kid or lamb at birth

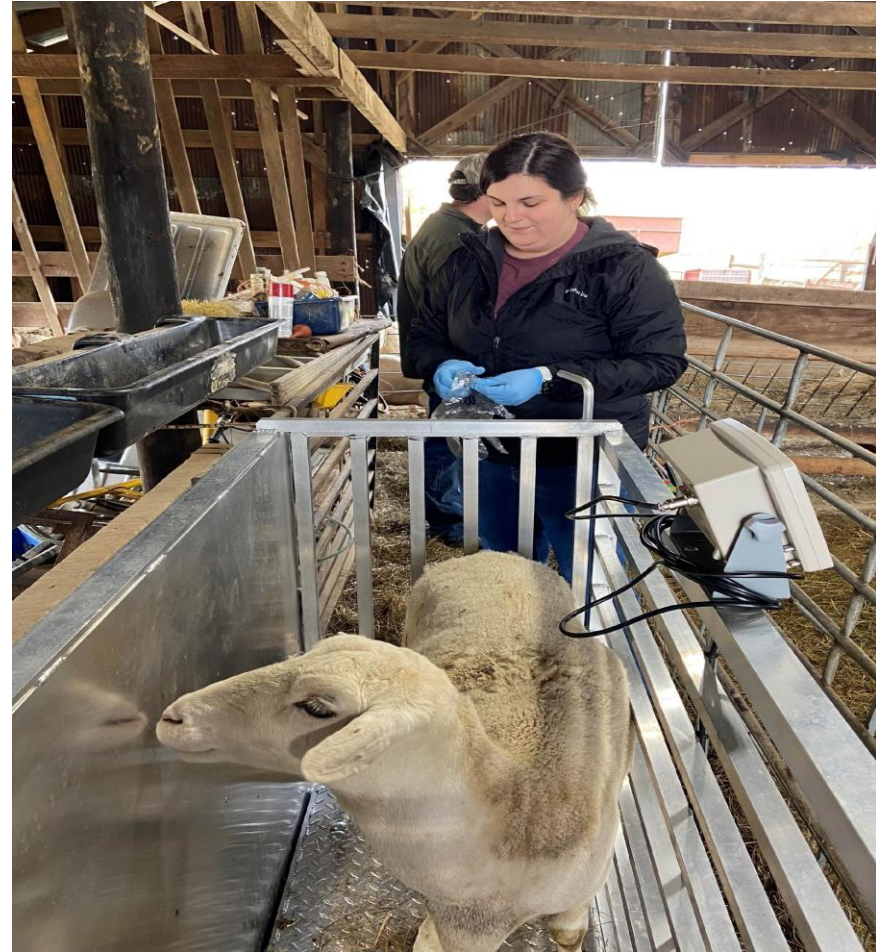
This is important to evaluate the mum, and her production at kidding or lambing



Weights

- Weigh the female at kidding or lambing

This is important to check the recovery of your females after kidding or lambing and until the next breeding season



Disinfection of the navel

- Use an iodine solution 7%

The navel of the newborn is basically a hollow tube which leads directly into the abdominal cavity and liver of the animal.



Tag your animals

- Use Official Scrapie Tags
- Under your farm Number
- First numbers YEAR last numbers the sequence of time they were born, 2501 will be the 1st animal born in 2025.



Bonding

- The bonding between the nanny/ewe and her offspring is highly important for survival
- Give space for them to bond and clean, and nurse
- Observation from a distance is important to make sure everything is ok.



Colostrum

- Make sure the nanny/ewe is nursing the kid or lamb
- Kid/Lamb needs to take **colostrum in the first hours after birth**, which will pass immunity from the mother
- 10 percent of their body weight in colostrum during the first 18 hours of life.



What makes kids/lambs more susceptible to diseases in weaning time?

- Low immunity
- Higher nutritional requirements not covered through low to medium-quality grass or hay
- **SOLUTION:** better quality feeds, a higher protein level, and creep feeding



Creep Feeding at Weaning



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Creep Feeding at Weaning



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Growth

- **Weaning time from 7 to 10 weeks,** depending on the growth of the kids/lambs
- **Preweaning:** evaluates the performance of the nanny/ewe
- **Postweaning:** evaluates the kid/lamb



Growth / Males

- **Urinary calculi in sheep and goats** a.k.a. Urolithiasis - Water Belly – Calculosis
- **What is It?** is a common metabolic disease of male sheep and goats, where calculi (stones of phosphate salts), lodge in the urinary tract and prevent urination.
- **High grain, low roughage diets** decrease the formation of saliva and therefore increase the amount of phosphorus excreted in the urine.
- **Ammonium chloride** 0.5% of the total diet will help acidify the urine and prevents the formation of calculi. Most commercial lamb and meat goat diets contain ammonium chloride, as well as the proper ratio of Ca:P.

Growth / Females

Young females should weigh 60–75% of their mature body weight before the start of the breeding season.

For example, if a doe or sheep will weigh 100 pounds when an adult, she could be bred when she weighs a minimum of 70 pounds.



Contact and Follow

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