



PennState Extension

# So You Want to Raise Sheep or Goats?

Melanie Barkley and American Lamb Board

**RAISING SHEEP OR GOATS FOR PROFIT** can be a satisfying enterprise. However, there are a number of management skills that each sheep or goat producer should have to be successful. Each livestock enterprise has different resources: land, labor, capital, feed, and management. To raise sheep or goats sustainably, you must manage these resources. In addition to managing resources, new producers must ask themselves, *What do I need to get started?* This question involves considerations for the type of animals a producer wishes to raise as well as where to find these animals, how to select them, and what equipment will be needed for the operation. Producers also need to consider how they will feed their animals and what health care practices they will use to keep the animals healthy. Savvy producers will let markets identify the type of animals they should raise in order to generate a profit. This fact sheet may be used as a guide for those sheep and goat producers getting started in the industry.

## What Type of Animals Should I Raise?

The first thing to decide when starting a new sheep or goat enterprise is what type of animals to raise. This decision should directly reflect the markets a producer has available to sell sheep or goats, and consider the resources available on the farm and the producer's individual goals.

Sheep and goats may be used to produce meat, wool, fiber, or milk. The intended products will determine what breeds will be best suited for the operation.

Many producers choose to breed females to produce lambs or kids to sell for breeding stock or market animals. Other producers may prefer to purchase weaned animals, also known as feeders, to raise to market weight.

Producers can start by determining if they wish to raise purebred or commercial stock. A purebred operation typically raises animals of one breed. Often a purebred operation will have all registered animals that can also be sold through purebred sales. A commercial operation may have unregistered purebred animals, or they may have crossbred animals. Crossbred animals have the benefit of hybrid vigor, which is simply the ability of crossbred offspring to increase in productivity over the average of the breeds that were part of the cross. This means that a crossbred lamb or kid could grow faster, or a crossbred female could produce more milk for its offspring.

## Selecting a Breed

Each livestock breed has different traits that they are recognized for. Breed associations can provide information on those traits and help you narrow your decision regarding what breed or breeds fit best with your operation.

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**PICTURED ABOVE:** Products of sheep and goat operations can range from breeding stock to junior market animals to wool to meat.

Sheep breeds are often divided into meat-producing (ram) and wool-producing (ewe) breeds. In addition, some sheep breeds are known as hair sheep because they shed their wool. The more common hair sheep breeds are commonly used for meat production. Sheep also have breeds used for milk production.

Some goat breeds are noted for their meat production, while others are recognized for milk production or fiber production. While many more breeds exist in the United States, some of the more common breeds are listed below.

S H E E P				G O A T S		
<b>Meat sheep:</b>	<b>Wool sheep:</b>	<b>Hair sheep:</b>	<b>Dairy sheep:</b>	<b>Meat goat:</b>	<b>Dairy goat:</b>	<b>Fiber goat:</b>
Cheviot	Border Leicester	Dorper	Awassi	Boer	Alpine	Angora
Dorset	Columbia	Katahdin	East Friesian	Kiko	LaMancha	Cashmere
Hampshire	Corriedale		Lacaune	Spanish	Nubian	
Southdown	Cotswold				Oberhasli	
Suffolk	Lincoln				Saanen	
Tunis	Merino				Toggenburg	
	Rambouillet					



**Suffolk** is one of the most common meat breeds in the United States.



The **Dorper** hair sheep breed may have black or white heads.



**Border Leicesters** are known for their long, coarse wool.



**Boer** is a very common meat goat breed.

## Where Can I Purchase Animals?

Animals can be purchased through several different means. Many sales are held across the country throughout the year and may offer only one breed, a variety of breeds, or even crossbreeds for sale. Another option would be to locate reputable breeders and purchase directly from their farm. A wide variety of animals may be available at a local auction barn; however, let the buyer beware. Animals sold through this venue are more likely to have health issues.

Choose breeding males that will complement the outstanding traits in your females and improve their weaknesses. Always use the best ram or buck you can afford to improve the genetics in your flock or herd. The male has a great influence on performance because his offspring could remain in the flock or herd for a number of years.

Be conscious of selecting and keeping good productive females that will produce two lambs or kids per year without assistance and maintain their body condition without becoming overly thin or fat. The goal for the number of lambs or kids born per female may vary depending on available feed resources.

## Selection Principles

There are two methods to select livestock: animal performance and visual appraisal. Animals should first be selected on performance and then the higher performing animals should be evaluated visually.

Performance selection principles evaluate measurable traits such as birth weight, weaning weight, postweaning weight, wool or fiber yield and quality, or milk yield and quality.

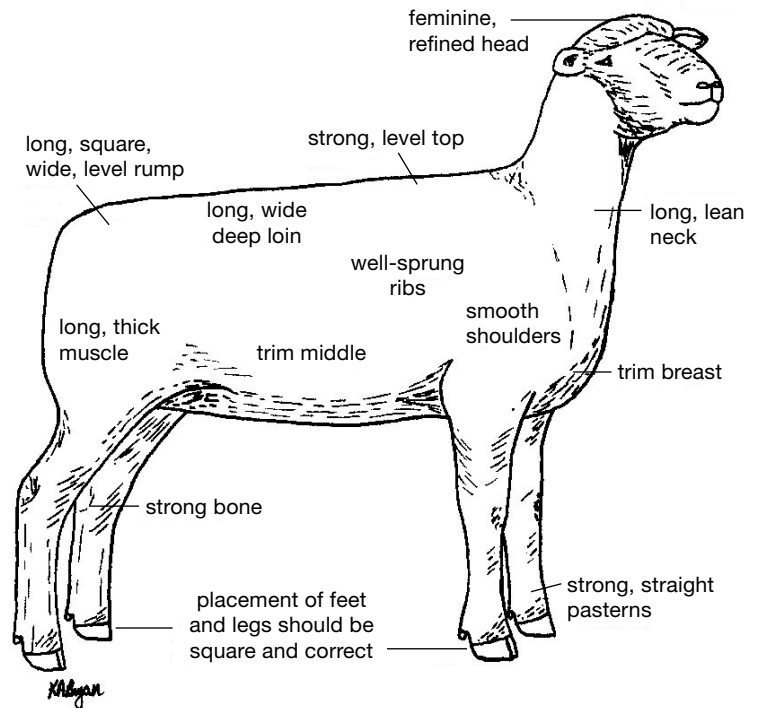
Producers who evaluate growth traits should adjust weaning weights to account for the sex of the lamb or kid, age of the dam, and birth and rearing type. Birth type refers to birth as a single, twin, or triplet. Rearing type refers to how that lamb or kid was raised: single, twin, or triplet.

Progressive sheep and goat producers with registered animals can enroll their flock or herd in the National Sheep Improvement Program to generate estimated breeding values (EBVs) for their animals. These EBVs use genetic linkages to assess genetic merit for growth, carcass, maternal, and wool traits. EBVs allow producers to evaluate animal genetics without environmental influences. Commercial producers can utilize performance data when selecting a new ram or buck. More information on estimated breeding values can be found at <http://nsip.org>.

Visual animal appraisal evaluates aspects such as structural correctness, muscling, body capacity, and breed char-

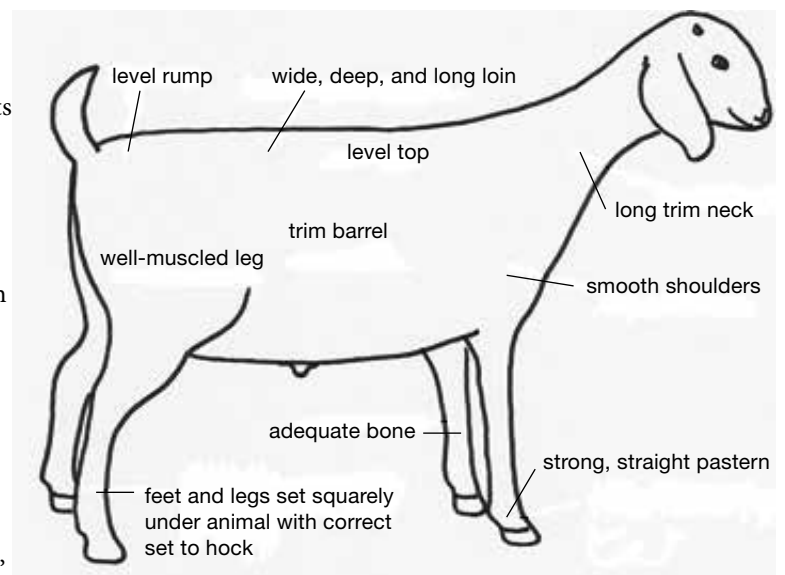
Breeding sheep should exhibit these ideal characteristics.

Pennsylvania 4-H Livestock Judging Manual



Meat goats should exhibit these ideal characteristics.

Melanie Barkley



acter. Evaluating structural correctness allows producers to identify animals with defects that are not apparent through performance evaluation.



Melanie Bartheley

This style of mineral **feeder** is portable and can be moved as animals rotate through a pasture system.



Melanie Bartheley

This **feeder**, designed for a small number of animals, can accommodate both hay and grain.



Melanie Bartheley

The front and rear panels of this **feeder** slide toward the center as animals consume the hay. The left and right side panels are stationary.

Purebred producers who raise registered stock should become familiar with breed characteristics associated with the breed they raise, such as:

- ear length and shape
- color on the ears, muzzle, and feet
- hair color on the legs
- amount of wool covering on the head, face, or legs
- defects that disqualify animals from registration

## Equipment Needs

After the appropriate animals are chosen for the operation, the equipment necessary to maintain those animals must be gathered. Sheep and goat operations need a variety of equipment. Basic equipment includes feeders, water tubs or watering systems, and health care equipment. Larger operations often use equipment for handling sheep or goats.

### Feeders

Feeders should be used to prevent animals from eating off the ground. Well-designed feeders will also prevent animals from wasting feed by spilling it onto the ground. When sheep or goats forage for their feed on the ground, they are more likely to develop health problems, particularly those associated with parasite infections.

Many different sizes and styles of feeders are available for sheep and goats. Some feeders can accommodate feeding both hay and grain, while others may be designed to feed just hay or just grain. Producers should be sure that all animals have access to the feeder if feeding at specified time frames. If animals have free-choice access to the feeders throughout the day, smaller feeders can be used.

Both sheep and goats should have access to a good quality mineral mix formulated for their species. Most producers provide free-choice access in mineral feeders, while others include minerals in a grain mix.

Fenceline-style feeders allow producers access on one side to place feed and grain into the feeder while animals access their feed on the other side. Walk-through feeders allow producers to walk down the middle of the feeder. Grain can be placed in a trough on either or both sides and hay is shared in the central walking area. Producers should be careful not to contaminate feeders with manure-covered footwear.

Larger operations often feed hay in the form of large round or square bales. Many feeders that accommodate these large bales are square and have two opposing sides that slide as the animals consume the bale. This allows the sheep and goats to reach the inner portions of the bale as they consume it.

## Water

Water is possibly the most important nutrient because it impacts feed consumption. Poor quality water or not enough water can decrease feed intake and result in decreased animal performance. Producers can supply water using anything from buckets to troughs to automatic watering systems. As with feeders, many different styles are available. The key is that water should be fresh, clean, and available at all times.

## Pasture Systems

Most sheep and goats graze pastures throughout the spring, summer, and fall. Producers should pay close attention to pasture height in an attempt to prevent internal parasite infections. Pastures should be subdivided to provide an adequate amount of forage for the grazing time, often four to five days. Animals should be moved to a new section of pasture by the time forage has been grazed down to 4 inches in height. Most parasite larvae can be found in the first 2 inches of growth, so rotating animals to a new grazing area before the animals graze the pasture too close to the ground helps prevent parasite infection.

A good quality perimeter fence contains livestock inside the pasture and keeps predators out. Many producers prefer high-tensile fencing with some wires electrified, while other producers prefer woven wire fencing. Subdivision fencing divides larger fields into smaller areas to better manage forage growth. Subdivision fencing typically ranges from two- or three-wire permanent fencing to polywire with step-in posts or electric net fence. Both the polywire and electric net fence types incorporate wire filaments into the plastic strands.

Pastures should also provide access to water. This ranges from temporary systems that move with the animals to permanent systems. Some producers may choose to install underground systems that can be accessed throughout a pasture system.



This style of **automatic watering system** has openings to flush the system either through the front or from the bottom of the reservoir. It requires a heating disc to prevent water from freezing during the winter.



This **pasture watering system** uses a float valve connected to a garden hose to supply a constant supply of water to animals.



This **spring development** collects water in a wet area. The system uses a collection tank that fills a watering trough. This type of system can also include frost-free water hydrants that use gravity to provide water in other areas of the pasture.

## Shearing Equipment

Most producers shear sheep or fiber goats in the spring prior to turning them out to pasture. Beginning producers often hire professionals to shear their animals. While these producers don't need to own shearing equipment, they do need an area where a shearer can set up their equipment and a nearby pen where animals can be grouped and easily caught. Producers often use a second pen to hold animals after they are shorn.

## Health Care Equipment

Routine health care employs practices to prevent disease. Common practices include tagging, vaccinating, docking, castrating, and deworming. These practices require basic equip-

ment such as tags and tagging pliers, syringes and needles, elastrator bands, a band expander tool, and a drench syringe or drench gun. Tagging is considered a health care piece of equipment because tagging is important to identify treated animals.

Producers may also wish to disbud their goats to prevent horn growth. This is often performed with an electric dehorner shortly after the horn buds break through the skin. Disbudding prevents future injury to other animals and handlers.

Hoof trimmers or foot shears are another small equipment item. Hooves may be trimmed by setting the animal on their rump, tying the animal to a panel, and lifting each foot, or by placing the animal in a turn table that turns the animal on its side. Flocks and herds with foot diseases will also have a footbath tub and panels to contain animals in the footbath.

## Other Types of Equipment

Larger equipment may be used by sheep and goat operations to allow producers to handle or manage animals more efficiently. Producers can use a scale to monitor animal growth performance at weaning and other times throughout the year. A scale should also be used to weigh animals to calculate the correct dosage for medication treatments. Three types of scales are often used by livestock producers: beam, dial, and digital.



**Elastrator bands** with a band expander can be used to dock tails on lambs or castrate both lambs and kids. Docking length is at the discretion of the producer.

Both sheep and goats should be drenched with deworming products. Always use either a **drench gun** or **drench syringe** that places the deworming product at the back of the tongue.



Several different types of **foot shears** are available to use when trimming hooves. This animal is held in a turn table.

Handling system equipment allows producers to more efficiently handle animals. It functions by gathering animals into a group pen and then funneling them into the chute. Animals walk single file down the chute, where they are held for routine health care or sorting. Gates at both ends of the system contain the animals while producers perform tasks. Gates can function by sliding back and forth or up and down like a guillotine. A special gate at the end of the system allows producers to sort animals to the left or the right when splitting animals into groups. This may be done to separate animals for sale or to sort a large group of females into two or more breeding groups.

## Reproduction and Breeding Seasons

Gestation length for sheep and goats is similar and takes about five months, varying slightly among breeds and species. Meat sheep breeds have a gestation length of 144 to 147 days, while wool breeds have slightly longer at 148 to 151 days. Gestation length for goats ranges from 145 to 155 days.

Most goat breeds cycle throughout the year, but most sheep breeds are photoperiod dependent. This means that when day lengths become shorter, sheep begin to cycle. Some sheep breeds are less photoperiod dependent than others and have the ability to breed outside the normal fall breeding season. Sheep breeds noted for out-of-season breeding include Dorsets, Polypay, Rambouillet, Targhee, and hair breeds.

Estrus cycles and age at puberty vary between species (Table 1). If breeding ewe lambs or doelings, they should weigh at least 65 to 70 percent of their mature weight by the start of the breeding season.



This scale uses a balance beam to measure an animal's weight.

**Table 1.** Estrus cycle and age at puberty.

Species	Estrus Cycle	Age at Puberty
Sheep	17 days	7 to 12 months
Goats	21 days	4 to 8 months

Some producers prefer to breed sheep earlier in the breeding season in order to market at specific times in the spring. In other situations, producers may breed earlier so that lambs or kids are older and heavier before turning out to pasture. Research has shown that older and heavier animals tend to be more resistant to internal parasites than younger and lighter weight animals. In order for some breeds to become pregnant earlier in the breeding season, producers may need to manipulate daylight hours.

Producers can house animals in a barn, such as a bank barn, that limits the amount of daylight they are exposed to. This mimics shorter day lengths and encourages those animals to cycle. A teaser ram (a ram that was vasectomized as a lamb) can be used to stimulate ewes to begin cycling earlier in the season. This is not necessary for goats as the buck's odor brings does into heat very quickly.



This straight section of the chute has a fold-down piece in the panel to allow producers easier access to animals.

Some producers will take this a step further and synchronize their females so that they all come into heat, or cycle, at the same time. This is necessary for an artificial insemination procedure and is most often accomplished with the use of a CIDR. The CIDR contains hormones and is inserted vaginally into the females. Females receive a prostaglandin injection at the time the CIDR is removed.

## Signs of Impending Lambing or Kidding

As a ewe or doe nears her time to give birth, she exhibits several signs that the birthing process will begin. About a month prior to lambing or kidding, the udder will begin to fill with colostrum. This is the first milk and it contains antibodies that help protect newborn lambs and kids from disease.

When the ewe or doe is ready to give birth, the muscles around her hips will begin to relax and appear as if they are sinking. The vulva changes color and is most apparent with lighter skin colors. The light pink color will change to a darker pink color. The vulva will also swell. The udder will feel full and tight at this point. The ewe or doe will also refuse feed and move away from the flock or herd. Females may also paw the bedding.

The first sign that the female is in labor is the appearance of the water bag. Within a short period of time, the front feet

and nose of the newborn should appear. This will progress as the female pushes to expel the newborn. Once the lamb or kid is born, the mother should begin licking to dry off the newborn and encourage the lamb or kid to stand and nurse. If the lamb or kid is a twin, the feet of the second newborn should begin to appear soon after the first is born.

Once the birthing process is complete, many producers choose to place the female and her offspring in a small pen, called a jug. This pen is normally sized 4 by 4 feet or 5 by 5 feet square. At this time, check the teats to make sure the mother has milk, and dip the navel of the lambs or kids in an iodine solution to prevent infection. Some producers also like to give the newborns a nutritional drench at this time. The female and her offspring remain in the jug for one to two days to bond. Jugging lambs or kids is not required, but it is recommended when lambing or kidding in a barn or confined lot area. Lambing or kidding in barns is also recommended whenever there is a threat from predators such as coyotes.

Pay close attention to newborns for the first couple days after birth. Newborns should stretch when they stand and appear alert. Newborns that cry for their mother or rush to nurse as soon as they get up likely are not receiving enough milk. Weak lambs or kids may require feeding with a tube. Consult a veterinarian or an experienced producer for assistance.



Melanie Bankley

The **water bag** is a clear fluid filled sac that signals the birth will occur soon.



Scott Myers

These goats are housed in **jugs** with their kids for one to two days to allow time to bond.



## Feeding and Nutrition

All animals require water, protein, energy, vitamins, and minerals in their daily diet. These may come from a variety of sources but should be balanced to meet nutritional requirements. Nutrient requirements change throughout an animal's lifetime and reflect their stage of production: growth, maintenance, breeding, pregnancy, or lactation (milk production).

Forages such as pasture and hay often meet requirements for mature animals, but they may not meet requirements for fast-growing animals. Therefore, additional protein or energy sources may need to be added to the ration to meet requirements.

Additional protein requirements may be met with better quality hay or through grain sources such as soybeans or soybean meal, cottonseed or cottonseed meal, fishmeal, or linseed meal. Additional energy requirements may be met with a variety of grain sources such as corn, oats, wheat, barley, or spelt.

In most cases, pasture provides the most economical feed source for sheep and goats. Pastures should be rotated to maintain high quality and help prevent internal parasite infections. In general, animals should enter a pasture when forages are 6 to 10 inches tall. Animals should rotate out of a pasture by the time the forage has been grazed down to 4 inches. This not only provides high-quality feed for the animals but also helps maintain healthy plants.

Grain supplements are most often used for flushing during the breeding season, the last third of gestation, and lactation; as a creep feed for nursing lambs and kids; or for growing and finishing lambs and kids. Flushing refers to increasing the plane of nutrition prior to and during the breeding season to increase ovulation rates and lead to twinning. Creep feeding is the practice of supplying good-quality grain and/or hay to young lambs and kids while they are nursing. This boosts weight gains and body condition, or level of fatness.

## Health Issues

A good indicator of healthy sheep and goats is their body condition. Body condition for sheep and goats is scored on a five-point scale with one being emaciated and five being obese. Sheep and goats should be maintained at an average body condition score of three. Animals with decreasing body condition scores, or losing weight, signal a potential health issue.

The first step to keeping animals healthy is to prevent diseases from entering the farm. This occurs through biosecurity practices. Any new animal that arrives at the farm—and animals that leave the farm and return—should be quaran-

ted from other animals for three to four weeks. In addition, changing shoes and clothing after visiting locations where you had contact with other sheep and goats can help prevent bringing diseases to your farm. Visitors to the farm should be asked to either disinfect their shoes or wear plastic disposable boots.

All producers should form a relationship with a veterinarian. This veterinary-client-patient relationship allows the veterinarian to become familiar with your farm management practices and your animals and allows the veterinarian to more quickly address any health issues within your flock or herd.

## Internal Parasites

One of the biggest challenges to sheep flocks and goat herds is internal parasites. These “worms” not only cause decreased animal performance but can also lead to animal death if not addressed. A procedure called FAMACHA was developed to help producers assess the level of anemia and identify individuals that require treatment. Only animals showing signs of parasitism should be treated. The biggest threat for internal parasites comes from *Haemonchus contortus*, also known as the barber pole worm. This worm feeds on blood in the abomasum (one of the stomach compartments), and high numbers of this worm can result in anemic animals and may even lead to their death.

Additional internal parasites that may affect sheep or goats include stomach worms, lungworms, meningeal worm, and coccidia. Consult your local extension educator or veterinarian for more information on individual internal parasite species and their treatment.



This goat exhibits signs of **internal parasites**: rough hair coat, loss of body condition, and overall unthrifty appearance.

Linda Spahr

## Foot Scald and Foot Rot

A major reason for implementing biosecurity measures is to prevent highly contagious, difficult-to-eradicate problems such as foot scald or foot rot. Many sheep producers struggle with foot health in their flock due to bacteria that cause foot scald or foot rot. Both of these contagious issues can cause severe lameness. If your flock becomes infected, it is time consuming and expensive to treat infected animals and eradicate foot scald or foot rot from the flock.

Foot rot, in general, is characterized by lameness and a separation of horny portions of the hoof from the sensitive tissues underneath. The early stage of foot rot is the reddening of the skin between the claws, which eventually results in tissue death. The initial reddening of the skin is commonly known as foot scald.

The second stage of foot rot is the undermining of the horny tissue at the heel or the inside center of the toe. At this point there is a foul odor.

The third stage of foot rot is when the entire sole and sometimes the whole hoof wall are undermined into the sensitive tissues that usually attach to the hoof wall. Both claws may be affected at the same time. Also, more than one foot may be affected. During an outbreak there may be many different stages present at any one time.

Treatment requires hoof trimming and foot bathing in a zinc sulfate solution. The University of Maine developed a 28-day protocol to assist producers in eradicating foot scald and foot rot from their flock or herd.

## Marketing

There are a number of markets available for lambs and kids. Many producers in the eastern United States focus on marketing weaned milk-fed lambs and kids for ethnic holidays. Other options for marketing sheep and goats include breeding stock, junior market animals, freezer lambs or kids, or retail meat cuts.

Throughout the year, lamb and goat meat is often the main course at holiday celebrations for many people. Sheep and goat producers can plan their breeding seasons so that they can market their lambs and kids at the proper size for these holidays.

If you want to sell lambs or kids to ethnic markets, important considerations include the weight and sex of the animal and the method in which the meat is harvested. For Islamic markets, the meat must be harvested according to halal dietary laws. For Jewish markets, the meat must be harvested according to kosher dietary laws. For both traditions, the animals must be well cared for and treated with respect.

Lambs and kids designated for the ethnic market can be sold at auction or directly to the consumer. Keep in mind that state



These sheep will be allowed to soak their feet in a zinc sulfate solution to kill the foot scald or foot rot bacteria.



This ram lamb will be sold intact for the ethnic market, meaning he is marketed with his tail and testicles.

laws prohibit a producer from selling meat unless the animal was processed in a USDA-inspected facility. Therefore, the producers should sell lambs and kids live and the customer would make cutting arrangements with the processing facility. Many producers also provide the service of delivering the lambs or goats to a local processing facility. Some buyers may request halal- or kosher-certified processing facilities for their animals.

Producers who choose to sell for ethnic holidays should plan to sell intact lambs or kids in order to garner the highest prices. “Intact” refers to lambs or kids that have not been altered. The lambs are marketed with tails, and males should have their testicles. Horned animals should have no damage to the horns.

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Prepared by Melanie Barkley, extension educator.

For more information about **sheep**, please visit [extension.psu.edu/animals-and-livestock/sheep](http://extension.psu.edu/animals-and-livestock/sheep). For more information about **goats**, please visit [extension.psu.edu/animals-and-livestock/goats](http://extension.psu.edu/animals-and-livestock/goats).

Many opportunities exist for sheep and goat producers. This publication covers basic concepts related to raising these animals. New and beginning producers should seek further information on not only basic production practices but also nutrition, reproduction, and health in order to produce high-quality, healthy animals.



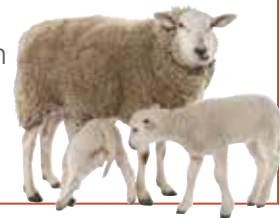


# So You Want to Raise Sheep or Goats?

**This booklet will give you the information you need to raise your animals.**

**You'll learn:**

- how to decide what type of animal you should raise
- about the different breeds and how to select the right one for you
- where to purchase your animals
- what to look for as the ideal characteristics of sheep and goats
- what equipment you'll need to raise your animals
- how to breed and raise your goats or sheep
- what to feed and how to care for your animals health
- what it takes to market your animals



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