



ANGORA GOATS:

**A 'Shear'
Delight!**

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Why Angoras?

New landowners who want to add a touch of style and elegance to their property – along with income, a dash of history, fun and Texana – should consider Angora goats.

Angoras are as Texan as longhorn cattle. Like longhorns, Angoras are adapted to the dry, rugged and brushy Texas Hill Country known as the Edwards Plateau. The region is ideal goat range, and is home to most of the nation's Angoras.

Angoras produce fiber more efficiently than any other livestock. They produce mohair, not Angora, which comes from the Angora rabbit. Mohair is a soft, luxurious fiber with a rich luster that is used in fine clothing, carpets, blankets and upholstery. It also accepts and retains brightly colored dyes better than other natural fibers do.

Angora goats are relatively small animals with a quieter nature than most other goat breeds. These traits make them a good choice for younger children to manage.

Exhibiting the animals in FFA and 4-H youth shows is an appealing family activity. Angora exhibitors are not required to sell their animals at the end of the show, which is a common practice for other livestock exhibited. Angoras kept for show purposes can become pets; those not kept for breeding can usually produce enough mohair to offset the cost of their upkeep.

Angoras can further earn their keep by helping to manage

unwanted brush and weeds around the homestead. Heavy brush can quickly grow out of control to the detriment of wildlife and livestock. Angoras cannot effectively control large mature vegetation, but they are ideal for managing regrowth following major brush control efforts.

Landowners interested in raising Angoras are advised to start small and learn the business before expanding. Consider starting with a small “test flock” of altered males called “muttons.” Select them after they have been shorn twice to get a good idea of how much they will shear and what their fleece characteristics are. Mohair production from muttons can be a lucrative enterprise and is a good way to learn about Angora production.

Angoras are an excellent choice for the beginning livestock exhibitor.

Veteran producers are always willing to share their expertise.





Angoras are super fiber producers

Most mammals normally have an outer coat of coarse guard hair and an inner coat of fine hair, often called “down.” Angora goats are bred to produce only a highly developed inner coat and no outer coat.

Mohair is a beautiful, lustrous, strong fiber with unique characteristics that make it as popular today as it was in biblical times (Exodus 26:7 and Numbers 31:20). It is extremely durable with a soft luxurious texture and unique appearance.

Mohair’s characteristic luster sets it apart from all other natural fibers.

Its brilliance comes from light reflecting from the smooth surface of the fibers. Mohair is a versatile year-round fabric used in warm knits for cold weather as well as lightweight blends for warm weather. Alone or in blends, mohair exhibits a signature look that is much sought-after by consumers, hand spinners and the fashion industry.

It is ideal for sweaters and accessories, and is used in everything from hats and blankets to wigs and paint rollers.

Mohair does not easily crush or mat like other fabrics. Its natural flame-resistance, insulating qualities and sound absorbency make it ideal for commercial and home furnishings. Angoras are shorn twice a year – usually in February and August – when their fleece is at least 4 inches long. The exception is mohair grown

for specialty markets such as Santa Claus beards and doll hair. These fleeces are usually allowed to grow for nine months. Annual production ranges from 1.5 pounds from a 6-month-old kid to 25 pounds from a mature male, or buck. Mature females, or does, produce from 6 to 10 pounds annually.

Mohair is measured objectively by machine and subjectively by judgement. Objective measurements of average fiber diameter, clean yield and hollow fibers (technically called medullation) ensure that processors buy and producers sell a



This animal's fleece has the dense fiber, style, crimp and luster that are characteristic of good quality mohair.

product based on its actual physical characteristics. These measurements also help breeders identify superior animals.

Subjective characteristics are style, character and luster. Style is the twist along a mohair lock’s length, and character is the crimp or wave of the lock. Luster, perhaps mohair’s

most prized characteristic, is affected by the lanolin and dirt surrounding the fiber, so scoured fibers are required for accurate assessment.

Quality mohair begins with a good breeding program. Management also greatly affects fleece value. Poor nutrition leads to short, dull, lightweight fleeces. External parasites, especially lice, spoil the appearance of the fleece, as does “defect” or plant matter in the fleeces.

Mohair on the goat is gray or brown, but shearing reveals the clean fiber below the dirt. Clean mohair is extremely white and lustrous. Shearing floors, sheds and pens should be clean and well lit. Shearers should try to remove the fleece in one piece to aid the sorting/grading process.

Mohair classification is based on the fineness and style of the fiber. Younger animals generally produce finer, more valuable fiber, but goats intensively selected for fineness can be life-long producers of mohair that will classify as kid or young goat. Typical mohair classifications from finest to coarsest are fall kid, spring kid, yearling or young goat, fine adult and adult. Goats should be separated into these groups before shearing. Beyond this, mohair

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Harvesting the crop; a sack of mohair holds about 75 adult doe fleeces and weighs about 250 pounds.

Where did Angora goats come from?

Angora goats were developed in Turkey near Ankara, where the animals get their name.

The goats were exported to a number of countries by the 16th century. Early herds failed, leading to the belief that Angoras could only survive on the dry, cool Turkish plateaus. This has since been proven false. With proper management, Angoras can be raised almost anywhere.

During President James K. Polk's administration (1845-49), the Sultan of Turkey requested the services of a cotton production expert from the United States. Dr. James B. Davis of Columbia, S.C., was sent. When he returned to the U.S. in 1849, he brought nine choice goats with him, a gift from the Sultan. These goats were the first documented Angoras in the U.S.



The “birds & bees” of Angora goat production



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preparation is an all-or-nothing proposition unless a thorough sorting job can be done on the entire clip. Most U.S. mohair is packaged at shearing in what is called original bag, or “OB,” with little, if any, removal of stained mohair, called “skirting,” done.

Mohair fleeces from large flocks are packaged in 6-foot-long burlap bags, taken to the warehouse and sold on commission by the warehouseman. However, most warehouses will buy individual fleeces from owners with smaller herds. Hand spinners are generally the most lucrative market for small lots of quality mohair.

Most U.S. mohair is exported.

Most range producers place four bucks per 100 does.



Angoras are seasonal breeders whose hair-producing requirements call for high nutritional demands at the expense of reproductive efficiency.

Angoras on native range should not be bred until they are yearlings. Does bred as kids often abort, which can become habitual.

Angoras start to cycle when days shorten in the fall. Their estrous cycle varies from 19 to 21 days and estrus or heat lasts around 22 hours. Gestation is generally 150 days.

Females that do not raise kids should not be kept for breeding.

Reproduction breakdown is caused by failure to ovulate or cycle. Yearling does at breeding should weigh a minimum of 65 pounds shorn; mature does, 85 pounds or more. Animals should be in good condition and shorn before the breeding season, and once shorn, should have access to cover during rain storms or cold weather.

Goats abort more than other ruminants, and Angoras abort more than other goats. High fiber production makes them more prone to stress. Abortion usually occurs at 85 to 120 days of gestation. Abortions come in two

forms: stress and habitual. Stress abortions occur in young or thin does.

Synchronized abortions or “abortion storms” are triggered when does are stressed, followed by en-masse abortions one to three days later. Habitual aborters should be removed from the breeding herd; even does that abort from stress should be considered for removal since they often abort again. High abortion rates signal management or environmental problems.

Kid death is the greatest loss in Angora herds. Predators, cold stress, starvation and abandonment by the mother are leading causes.

Time spent kidding Angoras correctly pays off more often than it does with any other livestock species. Kidding systems are used to increase kid survival. The three main types are: confinement kidding, kidding in traps or “small camp kidding,” and kidding on the range.

Confinement kidding is labor-intensive, but survival rates are great if owners are willing to invest the “sweat-equity” required. Smaller operators and registered breeders of expensive animals often use this method, which usually consists of feeding and



Young or old, Angoras should have a good fleece covering throughout their lives.

Shearing is an art.

kidding does in pens. When the doe gives birth, the doe and her kid are placed in a “jug” or small (4 feet x 4 feet) pen for one to three days while the doe and kid bond.

In small camp kidding, groups of does are placed in small, well-rested pastures called “traps,” with access to shelter. This confinement increases doe/kid bonding and reduces losses to predation and abandonment.

In both methods, does are usually shorn a month before kidding or “cape shorn” (completely shorn except for a 4- to 6-inch fringe of hair left down the backbone for weather protection).

Range kidding is the least desirable method. Kid survival can be helped by controlling predators and picking pastures with weather protection. Kidding in large groups, even with sheds, often results in heavy kid loss.

Fiber production and reproduction are in direct competition – only lactation supersedes fiber production in Angoras. To optimize all three, producers must use supplemental feeding as a necessary part of Angora goat production.

Proper nutrition is the secret to top Angora goat management. Angora goats, like cows and sheep, are ruminants. Goats are not tin-can-eating scavengers, especially Angoras, who have high nutritional needs. Pure-bred Angoras will continue to produce mohair until they starve to death. Ironically, the fleece fineness improves with poor nutrition, but the length and weight will suffer.

The key to good nutrition for goats on pasture is balancing the number of animals with the available forage. This is called “proper stocking rate.” Goats browse woody plants and forbs or “weeds” more than grass, which

makes them ideal for brushy areas. When pastures are short, sheep, deer and goats may compete for food. The best way to avoid this problem is to watch how much the goats’ favorite brush plants are browsed. If these plants are suffering, remove enough livestock to stop the damage.

Angoras have little body fat and suffer when pastures decline. They are often fed corn, but whole cottonseed is probably the better choice as a good energy and protein supplement.

Mohair is pure protein. Forty to 50 pounds of high-quality feed are needed to produce a pound of mohair. High-producing Angoras grow more mohair when the protein in their diet is increased up to 20 percent. Under range conditions, one-half pound per day of a 20 percent to 40 percent protein supplement is fed to each doe during the winter.

Proper nutrition is the secret to top Angora goat management



Angoras of both genders have horns.

Does raising kids return the most for every feed dollar spent on them. Feed and wean kids from thin does at about 4 months and continue feeding the kids. Kids are usually weaned at 4 to 6 months in late summer. Weaning can be hard on the kids, and heavy losses can occur due to poor pastures and internal parasites. Keep kids in small pastures with sheds after they are shorn and feed them a complete pelleted ration. Research indicates that kids do best when fed a pelleted ration.

“Flushing” is the feeding of breeding does 30 days before, and 30 days after, the introduction of the bucks. Flushing usually results in improved fertility, increased conception and twinning. Flush does with a quarter- to a third-pound of a high energy supplement per day. If forage is short or very poor, feed them a half to 1 pound of an energy supplement (corn/whole cottonseed) per head per day until pasture conditions improve.

Does from 90 to 120 days gestation, when the fetus grows faster and abortions are most likely, need up to a pound of high energy supplement each day. Unless pasture conditions are good, this supplement should continue for at least a month after kidding. Whole cottonseed is a good choice, though corn is often used. Breeding bucks do well on limited supplementation under normal production systems. Keep them in good shape, especially before and during the breeding season, with a complete ration of up to 15 percent protein.

When feeding livestock, make sure all the animals get their fair share.

This can be done by:

- Using blocks to feed low levels of high protein. The hardness of the blocks and the number fed governs consumption. All the animals should be able to eat with this method. Block costs are high, but labor costs are low.
 - Using feed limiters, such as 10 percent to 20 percent salt in a ground ration. This limits feed intake enough that all the animals have a chance to eat. Prevent trampling by keeping the self-feeders filled. Salt makes animals drink a lot of water. Keep water near feeders clean because salt feed falling from the animals’ mouths will contaminate it.
 - Feeding livestock a week’s worth of supplement in only one or two feedings each week. Research has shown this to be as effective as feeding them daily. Fewer trips to the pasture mean less labor and equipment costs, and less grazing disruption. Timid animals are able to eat because the amount of feed put out per feeding is much greater.
- Note:** Does abandoning small kids to follow the feed truck are a danger which must be considered in any range feeding program.

Pastured goats rarely have vitamin deficiencies, and the only mineral they may need added to their diets, other than salt, is phosphorous. Occasionally sulfur may also be lacking and can easily be supplied by using a salt block with sulfur added.

Select the best animals you can

Most breeders select animals on the basis of fleece, body development and reproduction. The Angora's adult body size should fit its environment, so pick medium-sized goats over large goats to graze marginal ranges.

Look for breeding animals with good physical traits, such as strong, straight backs and legs, and a healthy, alert appearance. Make some allowances for animals with slight physical defects if they have excellent mohair characteristics. Don't keep animals with "kemp," which are stiff, chalky, hollow fibers that do not dye uniformly and severely lower fleece value.

The number of kids raised, not born, is the ultimate goal of reproductive efficiency. More kids can be raised through good management and proper nutrition than by selectively breeding for reproduction.

Fleece weight should be a priority in any breeding program. Weigh the fleeces of prospective breeding animals. Be careful not to discriminate too much against does with kids whose fleece weights may reflect the stresses of kid-raising.

A medium-sized goat with a heavy uniform covering of mohair over its entire body is better than a big goat with a lightweight fleece.

Select on objectively measured fleece weight, lock length, fiber diameter and character of mohair instead of just visually assessed lock type. Neck and belly covering are highly related to fleece weight.

Before and after... Top Angoras should produce plenty of mohair and exhibit good, well-balanced conformation.



The Sonora Research Station's annual July sale is a good place to get performance tested bucks. The station, located near Sonora, is part of the Texas A&M University System.

Staple length, and neck and belly covering are highly heritable traits. Fleece weight and density, fiber diameter, kemp and weaning weight are moderately heritable. Reproductive rate, longevity and adaptability have low heritable rates.

Most important fiber-producing traits can be changed through selection. For the best results, concentrate on the one or two traits that will most improve a flock's mohair.

Postpone selecting breeding animals, especially bucks, until the second or third shearing. Weigh the animals, measure staple length and the as-shorn fleece weight at each shearing, and keep the best after their third shearing. Ideally, these animals should have been raised on native range.

Keep breeding does that have good mothering skills. Sell those that abort, are unsound, exhibit age-related fleece loss and fail to raise a kid for more than one season. Poor teat and udder structure is a leading cause of kid death, so does with poor udders should not be bred. Bucks should be judged on their ability to breed and the performance of their offspring.

Baseline data for starting a selection process is available through the official judging guide of the Texas Angora Goat Raisers' Association. The Texas Agricultural Experiment Station's Angora Goat Performance Test is another excellent resource and can be found at

<http://sanangelo.tamu.edu/genetics/angoratest.htm>

Healthy Angoras are a picture of elegance and style



Angoras raised on arid pastures have fewer disease and parasite problems than confined animals or those grazing lush, wet grasses or small grains.

Angoras are brush-browsing animals. They prefer to feed above internal parasites that infect from lower vegetation, which gives them some natural protection. Goats grazing mostly weeds and grasses can suffer from internal and external parasites. The Angoras' high fiber production can keep them in nutritional stress because their nutritional needs often exceed the amount of quality nutrients they can get from their environment. This can add to their vulnerability.

Homonchus contortus, also called the large roundworm or barber pole worm, is the Angora's most damaging internal parasite. Affected animals become anemic and accumulate fluid along their bellies and around their jaws. Parasitism hits stress-prone animals such as young or growing kids, lactating does, bucks during breeding, and goats grazing low-protein, low-growing forages such as Bermuda grass.

Preventative management techniques against internal parasites include: maintaining good nutrition, not overstocking, rotating pastures, letting animals browse as much as



Angoras and their fleeces can be exhibited.



possible, grazing mixed species and de-worming only when necessary to avoid parasite resistance to dewormers.

Coccidiosis, an internal protozoal parasite, can be a serious problem in goats, especially kids at weaning. Feed and water contaminated by coccidia-infected goat droppings spread the infection. Preventative measures include limiting goat numbers in corrals, keeping water systems and feeders clean, and feeding commercial rations containing a coccidiostat.

Lice cause scratching which can damage the fleece and lower its value. Angoras can have biting and/or the more serious blood-sucking lice. Most lice die or leave the

animal after shearing, but enough stay to re-infest. Most producers treat goats for lice and ticks at shearing, but treatments are most effective two to eight weeks later. Two treatments done two weeks apart are ideal. Dipping or shower-type treatments do the best job. After the animals have two months of mohair growth, "pour on" or "spot on" treatments are the most effective.

Toxic plants can harm Angoras. Overgrazing can leave little but poisonous plants in the pasture for the animals to eat. A proper stocking rate is the best toxic plant preventative. Learn more about toxic plants at <http://texnat.tamu.edu/cmplants/toxic/index.htm>

Protect your Angoras from the elements

Rain, wind and low temperatures kill shorn goats. Two of these elements are usually needed for losses to occur, but cold or wet weather alone can kill. Extreme weather conditions have killed goats even in full fleece. Losses often include trampling by goats trying to stay warm.

Shorn Angoras can even die from wind and rain in August, when temperatures are not low. Owners transporting goats should be especially wary of this. If not protected after shearing, animals that were comfortable on their trip to the shearers in full fleece may be dead from exposure by the time they arrive home.

Angoras can become dangerously chilled in less than an hour. Once their body temperature drops, they hump up shivering and stop moving. They will die if not helped. Save them by keeping them warm for 24 hours or more. Goats can die weeks after shearing if cold and depleted energy leaves them constantly shivering. Supplementally feed the animals during this time to improve their survival chances. Animals stop eating when seriously chilled, so keep them as well fed as possible. Natural protection or sheds must be provided for all slick-shorn animals in extreme weather. Accustom the animals to the sheds before they are needed.

Cape shearing is a popular way to protect Angoras. Shear the cape 30 to 40 days after the regular shearing, using equipment that leaves a



stubble to prevent irregular fiber length at the next shearing. Fleeces free of contaminants are the most valuable.

Vegetable matter in the fleece lowers its value. Some weed and grass seeds are very hard to remove in the scouring process. Find pictures of mohair-contaminating plants at: <http://texnat.tamu.edu/cmplants/L-5003/woolm.htm>

Lessen fleece damage by planting and grazing annual or perennial forages while seed heads of problem plants are being shed. Spraying herbicide over a pasture and grazing that pasture during critical times is another approach. Kids pick up the most defect because they are smaller and closer to the source. Producers may want to pen-feed them during critical times.

Goats with well-defined locks and a moderate amount of lanolin in the fleece tend to pick up less defect. Finally, shearing dates may need to be moved before the noxious weed seeds are released from the plants.

Keep Angoras safe from predators

Angora goats, especially young kids, are susceptible to predators. The price of the animals killed is only a part of the total loss.

Control measures, the disruption of management options and the inability to produce goats in areas with heavy predator populations must also be factored into the cost.

Be aware of the problem. Many young kids can be killed before the producer realizes it. The carcasses may be completely eaten, taken to dens or hidden. Does with large udders and no kids are a good clue that something is wrong. Next, identify the predator. Texas Cooperative Extension publications can help. Contact a county Extension office for more information.

Help through Texas Wildlife Damage Management Service is available at: <http://agextension.tamu.edu/twdms/twdmshom.htm>

Guard animals such as donkeys, dogs and llamas are another option that has met with varying degrees of success, but the best protection is usually to pen the animals at night.

We hope this information has helped you decide to participate in becoming part of a true Texas tradition: Angora goats.

For more information visit: <http://sanangelo.tamu.edu/angora>

Glossary of Terms

Browse— Tender shoots, twigs, and leaves of trees and shrubs. “To browse” is the goat’s practice of grazing these plant parts.

Buck— An adult male goat, also called a billy.

Cape shorn— The practice of leaving an unshorn strip of mohair along an Angora’s back to protect it from chilling after it is shorn.

Character— The waves found along a lock of mohair.

Cottonseed— The seed of the cotton plant. Whole or “fuzzy” cottonseed is fed as it naturally occurs following the ginning process. It is high in protein (21 percent), fat, fiber and energy.

Doe— An adult female goat, also called a nanny.

Flushing— Increased nutrition just before and during the breeding season to cause does to gain weight and ovulate.

Kemp— Undesirable short, hairy, hollow-cored fibers that do not dye well, thus lowering the fleece value.

Kid— A juvenile goat of either sex.

Lock— A tuft or ringlet of mohair.

Luster— The characteristic shine of mohair caused by light reflecting from the relatively smooth surface of the individual fibers.

Medullation or “Med”— All undesirable hollow fibers including kemp.

Mutton— A castrated male goat, also called a wether.

OB or “original bag”— How most U.S. mohair is packaged by the producer into 6-foot burlap bags at shearing with little sorting done.

Ruminants— Cud-chewing, even-toed hooved mammals with complex three- or four-chambered stomachs.

Style— The number of twists found along a lock of mohair.

Stocking rate— The number of animals grazing on a given area for a specific time, usually expressed as acres per animal, unit, month or year.

Veg or “defect”— Plant parts and seeds that become embedded in mohair before shearing that lessen its value due to the difficulty of removing it.