

# SMALL RUMINANT TALK

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Central Region

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## Small Ruminant Breeding Soundness Examinations

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Did you know that up to 15 % of rams are of unsatisfactory reproductive breeding quality? This is one of many reasons to consider performing a breeding soundness exam in our male small ruminants prior to putting them in with females. An ultimate goal of the breeding soundness exam is to help identify males that are and are not capable settling females. By eliminating these males with sub-par potential fertility prior to the breeding season you can improve economic returns to a flock. So, what is a breeding soundness exam (BSE) and who can perform it?

The objective of a BSE is to evaluate the potential fertility of a male. The reason the emphasis is on potential fertility is because until that male had a kid or lamb on the ground we cannot truly call them fertile. Research studies on BSE's in small ruminants up until now have been done in the ram but this information is commonly extrapolated for use in the buck as well and it is important to consider species and breed differences for each individual being tested. Males should be evaluated for their potential fertility/breeding soundness prior to the breeding season to prevent potential devastating economic effects for the owner or purchaser of a male and this evaluation should occur as close to the time of use as possible since potential fertility can change quickly. However, both purchasers and owners need to know the soundness of prospective male in time to find replacements should some problems be found. Rams and bucks are commonly examined 30-60 days prior to the breeding season or just prior to purchase. There is a form established by the Society for Theriogenology (SFT) for recording findings from ram breeding soundness examinations and is available to it membership from their website, <https://www.therio.org>.

All individual animals must have a permanent unique identification when recording findings on the BSE form. It should also be noted that libido also needs to be assessed and can be if there are available females in heat but a lot of times it falls to the owners to relay information about the animal's libido and decreased libido is often the reason an exam is requested.

The breeding soundness examination is not just a "semen test", it needs to be completed by a trained veterinarian and includes three parts that takes the

whole animal into consideration. The exam, and finally the semen evaluation. The male should be bright and alert, BSE physical exam, the reproductive walk with a sound gait, and have no physical lesions or signs of illness. The BSE physical exam is brief with the emphasis being placed on what the animal needs for breeding including the eyes, feet, and body condition score. Issues associated with any of these three items can have a significant negative effect on reproductive performance. For example, if the animal is blind, lame, extremely obese or extremely thin breeding may not be a priority. The ideal body condition score prior to the breeding season is a 3-4 so that should they lose a score while breeding it should not affect them long term.

The reproductive exam includes examination of the reproductive organs. However, unlike in the bull BSE where you can transrectally palpate the accessory sex glands that is not an option in the smaller male ruminants. Instead, our focus is on the scrotum, testis, prepuce, and penis. Symmetry is key when palpating each testis for any abnormalities and consistency. Simply put the left should feel like the right. We also measure for scrotal circumference because it correlates to sperm output and is considered a heritable trait. It is important at this point to remember that small ruminants are seasonal breeders, therefore it is not uncommon for a ram or buck to perform poorly if this exam is done during the summer. The prepuce is palpated for any abnormalities that may indicate a hematoma, pizzle rot, lacerations, or any other trauma. The penis can be examined while extended during the next part of the exam when they are electro-ejaculated for semen collection and evaluation. Once the semen is collected via this technique it is then examined for an estimate of the progressive motility, morphology of the spermatozoa, and identification of any other cells in the semen. Motility of sperm is easily influenced by poor technique, improper diluent, and temperature. Because of these factors a threshold of 30% and above is considered normal motility. Morphology is assessed by staining the sample and evaluating each individual sperm cell using light microscopy. One hundred cells are counted, and each abnormality is noted. Unlike the low threshold for normal motility, normal morphology must be above 70% to be considered satisfactory. Additional tests for pathogens such as *Brucella Ovis* (rams) and Caprine Arthritis and Encephalitis (bucks) should also ideally be considered a routine part of the breeding soundness exam since these can be severely detrimental to any breeding program.

The data collected from the physical examination and semen evaluation will then be used to classify the male into one of four categories: excellent, satisfactory, questionable, or unsatisfactory. It then becomes a judgement decision for the trained veterinarian conducting the BSE to decide which category to assign each individual animal but is based on the systematic guide system available for ram evaluations. A BSE should be performed annually on all males six months of age or older in a flock, allowing producers to cull less productive males, provide adequate feed to increase or decrease body condition, provide any care or treatment as needed and purchase any replacement(s) prior to mating. By working closely with your veterinarian performing these exams, a producer can utilize this information to maximize breeding potential for the rams or bucks in their breeding program.

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# Meat-goat Producers May Want to Take Advantage of Retained Ownership Opportunities

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Oklahoma State University, [https://news.okstate.edu/articles/agriculture/2021/stotts\\_goats-retained-ownership.html](https://news.okstate.edu/articles/agriculture/2021/stotts_goats-retained-ownership.html)

Owners of meat goats who manage their costs and maintain herd health should be in a good position to take advantage of strong returns in the market, said Oklahoma State University experts.

U.S. Department of Agriculture data shows Oklahoma had 84,000 meat and other goats in 2020, compared with about 79,000 at the start of 2021 as producers toughed out the COVID-19 pandemic. The ages-old economic interaction of prices rising in response to high demand and limited supplies is currently in play, said Scott Clawson, OSU Extension area agricultural economist for northeastern Oklahoma.

Meat-goat carcasses imported from Australia, New Zealand and Mexico typically remain at a high level to meet U.S. demand. However, the coronavirus pandemic disrupted shipping lines worldwide. In 2020, those imports declined 45% from 2019.

“Reductions in the number of animals have led to higher prices, which has some producers wondering if they can feed their spring-born goats to heavier weights and possibly make more money when the animals are sold,” Clawson said.

OSU Extension recommendations are to keep two important points in mind when considering that issue: First, retained ownership creates profit by taking advantage of a price spread — the difference between two prices — rather than a price level. Also, that the operation incurs a cost to add additional weight to its animals.

Resolving these important points can be difficult, in part because data for meat goats can be tough to gather. The first step is to determine the value difference between two weight classes.

For example, if a goat’s starting weight is 40 pounds and the market is paying \$4.59 per pound for that weight class, the result is a \$183.60 sale price. If ownership is retained and the goat is fed out to 80 pounds, with the market paying \$4.25 for that weight class, then the goat should sell for \$340. The initial value difference therefore is \$156.40.

Once that is determined, the producer will need to figure out what it costs to feed the goat to the desired weight.

Continuing with the example above and assuming a feed cost of \$400 per ton, or 20 cents per pound, with a conversion rate of five, the goat’s average daily grain should be about 0.4 pound per day.

“While goats and cattle are both ruminants, factors such as size difference can result in very different feed-to-gain conversion rates,” said Cody Linker, Lincoln County Extension Office agricultural educator. “A conversion rate of five with goats translates into 5 pounds of feed to add 1 pound of gain on the animal. For cattle, the conversion rate is lower. It’s important to maintain a two-to-one calcium-to-phosphorus ratio with both.”

With the example 40-pound goat’s initial value of \$183.60, and adding the assumed \$40 feed cost calculation with other key considerations — for example, \$15 for veterinary care, \$5 for facility repairs and fencing, \$9.18 for estimated death loss of herd animals and an obligatory \$15 for other costs that might occur — retaining ownership and feeding out the goat to 80 pounds would result in a budget analysis of a \$267.78 projected breakeven price or \$3.35 projected breakeven per pound. Forage availability is assumed in the example.

“All things being equal, there seems to be an excellent opportunity for retained ownership given today’s marketplace for meat goats” Clawson said. “However, there are a few unknowns that producers need to consider.”

Clawson and Linker recommended producers be strongly conservative in their feed-cost calculations because feed conversion rates can be difficult to judge. Also, keep meticulous records of the livestock and management system used, and monitor forage conditions throughout the feeding period.

“Using current market reports to project future prices is always a bit of gamble,” Clawson said. “Late summer or early fall is typically the annual low-price-point for goats weighing 40-60 pounds. Heavyweight goats tend to exhibit less seasonal variation. A producer always needs to keep an eye on the cost position relative to his or her specific operation.”

OSU Extension recommendations are for producers to speak with local auction house operators and determine an approximate level of discount for their budget analyses. Clawson cited the example figures used above from San Angelo, Texas, one of the nation’s top goat markets. Local auction houses generally will discount the price.

Fact sheets detailing research-based recommendations for best goat management practices and livestock budget analyses are available online through OSU Extension and through OSU Extension county offices.

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## To Drench, or Not Drench

Reid Redden, PhD, Associate Professor & Extension Sheep & Goat Specialist; Center Director of the Texas A&M AgriLife Research and Extension Center in San Angelo, Texas A&M AgriLife Extension, <https://agrilife.org/sheepandgoat/>

This spring was cooler than most and some were fortunate to get a good healthy rain. As things start to warm up, we expect to have problems with internal parasites in sheep and goats. Fortunately, there has been some advancements in technology to help in the fight against these pesky parasites. The bad news is, strategic treatment is not simple, and the more science learns about parasites, the more we realize just how much we don’t understand!

For me, the complexity of life is part fascinating and part frustrating. The intricate process by which sunlight and water grow plants that are eaten by sheep and goats to sustain themselves, grow, and reproduce is truly incredible. It is amazing how they overcome challenges and thrive in the face of adversity. Unfortunately, parasites, predators, and pathogens that negatively impact sheep and goats are just as complex and resilient.

Therein lies the dilemma: how we make decisions to better manage sheep and goats knowing there will always be drawbacks to every decision. Successful ranchers employ practices that result in the most benefit with the fewest consequences. Yet, best practices differ from one operation to the next and these best practices are constantly changing. The reason they vary between operation is because each ranch has different resources (labor, land, feed) and different overall management strategies (breed, season of birth, supplementation).

Parasite management is the best example of this. The barber pole worm (*H. contortus*) is the most damaging parasite to sheep and goats and is particularly problematic for certain animals: those that are thin, lactating, or young. Though the barber pole worm thrives in wet, warm, late spring conditions, it can still persist in most any animal and in any weather condition common in Texas.

For decades, ranchers administered dewormer products repeatedly to prevent barber pole worm. However, treatment does not always eliminate every worm from the animal, with some resistant specimens surviving. These worms then reproduce at an alarmingly fast rate (10,000 eggs per day!) and before you know it, an entire population of worms resistant to the treatment you utilized has developed. Continuing to treat animals with the same products and tactics is eventually useless. Slowing the rate of dewormer resistance is possible, but requires an understanding of the parasite, its lifecycle, and the animal’s immune system.

Simply put, there is no silver bullet to control parasites that will work for everyone. If someone tells you otherwise, they are misled, misinformed or straight up lying. Strategic parasite management is a plausible solution, but this requires implementation of several strategies to mitigate the impact of internal parasites.

Parasite Management Practices Common to Texas Sheep and Goat Industry:

Fall or Winter Lambing/Kidding: Animals with compromised immune systems are most susceptible to barber pole worm. By shifting the birthing season to a time when parasites are not thriving because of less-than-ideal environmental conditions (for them, at least) your livestock may be vulnerable, but the threat of parasites is not nearly as high.

**Combination Treatments:** Providing 2 or more dewormer products back-to-back improves the efficacy of treatment and prolongs development of resistance. Copper oxide wire particles may be part of the combination treatment.

**Refugia:** The process of leaving some animals untreated, while treating those who are in need, is called refugia, and allows for not at-risk animals to harbor parasites that aren't resistant to the combination treatment. Eliminating barber pole from your herd/flock completely is not realistic, so if you are always going to have parasites in your sheep or goats, at least they are worms that can be sufficiently controlled with anthelmintics.

**Genetic Selection:** Some sheep and goats are more susceptible to barber pole worm than others; identifying and keeping those that have greater resistance as breeding stock can be a major piece of the puzzle. In brief, certain aspects of some animal's immune systems allow them to naturally prevent parasites from becoming overly established in their abomasum. Fecal egg counting is a common way to estimate worm loads and a great tool for identifying potentially resistant animals. To help ranchers test their animals for parasite resistance, we have started a fecal egg count laboratory. Check out our website for more information.

**Grazing Management:** Barber pole worm hatch and develop outside of the animal, but are consumed when the animal grazes short grasses that the larva has crawled up on. The period from hatch to consumption by the animal can be as short as 4-5 days in ideal parasite conditions. Rotation of pastures before the parasites have developed is a great tool, however it requires the rancher to be set up for such. When grasses are taller (above 4-6") or weather conditions are not suitable for egg hatching, having a longer rotation interval is OK. The key is, larva can survive on pasture for months, so not re-grazing the same area for a while is important for pasture rotation practices to be effective.

Employing a number of these practices on your ranch can help reduce both the economic and animal health related consequences brought on by internal parasites. Philosophically, it seems the "best" ranchers manage their land and livestock to maximize profit in good years and limit losses in poor years. Not to mention, they are lifelong learners who know that they have nothing completely figured out and relish the chance to incorporate new ideas and techniques. This spring has west Texas set up for a good grass growing season and livestock and their young should flourish... don't let internal parasites ruin this opportunity!

To provide feedback on this article or request topics for future articles, contact me at [reid.redden@ag.tamu.edu](mailto:reid.redden@ag.tamu.edu) or 325-657-7324. For general questions about sheep and goats, contact your local Texas A&M AgriLife Extension Service county office. If they can't answer your question, they have access to someone who can.

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## Can I Feed My Bucks and Rams Cottonseed?

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### Why do producers want to feed cottonseed?

Cottonseed is often readily available in Louisiana and across the southeast United States. It is high in both crude protein (CP) and total digestible nutrients (TDN). On average, cottonseed offers 24% CP and 95% TDN. Its high energy level is partially due to its approximate 20% fat content. It should be noted that fat content of diets should be around 5% or less to avoid decreased rumen function and reduced animal performance.

### What is gossypol?

Gossypol is a toxic, yellow pigmented compound found in almost all parts of the cotton plant, including the seeds, stems, leaves, and roots. Importantly, the highest concentration of gossypol may be found in cottonseed. Decades of data illustrate that it is toxic to monogastrics (pigs, horses) and pre-ruminants (young ruminants without a developed rumen). Because of this, you will see nutritionists suggest not feeding cottonseed to young lambs and kids that are just beginning to eat whole feedstuffs. Although results vary, it has also been shown to decrease fertility levels of mature males when fed at a high enough concentration.

## How much is acceptable to feed?

Due to its high fat content, nutritionists will often recommend feeding cottonseed to mature animals at a rate of 0.5% of their body weight or less than 20% of total intake. In the case of males, results from research done at various universities have illustrated decreased fertility when cottonseed was fed at high levels for prolonged periods of time.

## Conclusions for Feeding Cottonseed to Males

Many producers like to err on the side of caution. It is common to find veterinarians and specialists recommending to not feed your males cottonseed for 60 to 90 days prior to the start of the breeding season. This simply helps eliminate the potential of reduced fertility. Once you turn males out with females for the breeding season, they can consume the same ration as the rest of the herd. Be sure to keep cottonseed at the rate of 0.5% of their body weight or no more than 20% of their diet. It will take a couple of months for a decrease in fertility to begin from consuming gossypol, so an average 60-75 day breeding season should not be affected.

Please reach out to your local extension agent, veterinarian, or me with any questions.

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