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## *Techniques for improving first-service conception rates in ewes and does*

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Sheep and goat producers only get one chance for a successful first-service conception  Failure at this stage of production lengthens labor-intense lambing/kidding windows, and when using enhanced reproductive practices, such as AI and ET, conception failures lead to lost input costs and missed elite genetic marketing opportunities.

 hat are some of the factors that improve pregnancy rates in small-ruminant operations  The list is vast  flushing, nutrition, heat abatement, cold stress, fleece length, hair cover, health status, parasite load, stress, time of the year and hand mating come to mind, among others. Producers have more control over some factors on that list than others, but for this article, I will focus on three factors that producers can strong-arm for success.

**Fertile and fit bucks**

Males need to pass a breeding soundness exam (BSE) to successfully and efficiently service females. A BSE involves a three-part evaluation by a licensed veterinarian. First, a physical examination is conducted to determine the male's fitness.  hat are his body condition score, his structural correctness and the soundness of his feet and legs  These factors indicate whether he can cover ground to breed and withstand the rigors of mounting multiple times daily and will also help to evaluate his libido.

Secondly, a physical palpation of the reproductive tract is performed to make sure that the buck can fully extend, that the testicles can ascend and descend to regulate temperature during cold and heat stress, and that the scrotal circumference is large enough for his age and stage of maturity. Scrotal circumference is also an indicator of fertility and is genetically correlated with an earlier age of puberty in female relatives. The scrotal circumference of rams that are six months old should be at least 30 centimeters, and a 1  -month-old ram's scrotal circumference should measure 35 centimeters.

Finally, a semen sample is collected to determine its motility and morphology. The motility of a semen sample measures the forward movement of the e aculate and demonstrates a positive relationship to the animal's fertilizing capacity. Morphology checks the collection for sperm cell abnormalities. Atypical gamete formations occur in the head, body and tail of each sperm cell, and bucks whose samples are measured to be 30  nontypical fail the exam.

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**Physical attributes in ewes and does can improve conception rates**

Make sure the females are in the desired breeding body condition. They should have a BCS of 3.0 on a scale of 1 (emaciated) to 5 (obese). The ewes/does need to be sound-footed and free of diseases, such as foot scald/rot, internal or external parasites and pink eye, to name a few. Vaccinations for abortion agents need to be current. Standard practices in the sheep and goat industry involve flushing to increase the ovulation rate. Producers regularly increase the calories and protein offered to females 2 to 3 weeks prior to buck turn-out to increase the number of ova ovulated and available for fertilization upon breeding. Based on their species and breed, ewes are more seasonally polyestrous than does and, therefore, during the breeding months of February through June, are less successful in becoming pregnant. Expect fewer offspring per female bred during these months compared to females bred from September through December.

Another tried and true technique to naturally stimulate estrus in small ruminant females is to fence-line tease them with bucks 10 days prior to turn-out, or to use vasectomized bucks 10 days prior to them being turned out with intact, fertile males. This procedure could result in more successful first-service pregnancies.

**The importance of vitamins and minerals**

A technique that is often skipped in the nutrition conversation is to supply both males and females with the correct amounts of vitamins and minerals to enhance their reproductive success. As part of the Alltech family, Show-Rite and Hubbard strongly believe in the benefits of macro minerals and vitamins but have an even stronger conviction in the reproductive value of trace minerals. That brings me to my final point: **Trace mineral nutrition is critical to first-service conception rate success.** The source and bioavailability of the trace minerals are key. Our Bioplex® line offers a range of trace minerals that provide mineral nutrition in a form as close to nature as possible. Bioplex minerals are chelated, which means that they are bound to amino acids and a range of peptides. They are easily absorbed and readily metabolized, helping to optimize animal performance. Bioplex trace minerals (zinc, manganese, copper [for goats] and cobalt) are co-factors in the enzymes that are critical for the animal's defense system, growth and reproduction.

Sel-Plex® is Alltech's proprietary organic form of selenium yeast. It is an excellent dietary source of selenium and is manufactured to mimic the selenium found in nature. The selenium from Sel-Plex is safer and better able to meet the higher requirements of livestock raised for rapid growth, boosting their reproductive performance and health status. Alltech's trace minerals are also more fully utilized by the animal, making them safer for the planet.

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Fat-soluble vitamins are important in relation to animal fertility. Amino acid-bound trace minerals are less damaging to fat-soluble vitamins when manufactured and stored as part of a vitamin/mineral mix. This means that not only are the minerals more bioavailable to sheep and goats, but the vitamins A, D, E and K that are packaged with minerals are better utilized by the animal and have a longer shelf life. Research has shown that supplementation with Bioplex zinc can support greater sperm livability, more total sperm cells and increased semen quality in bucks.

**Here's the take-home message: Make sure that all sheep and goats are supplemented with minerals 45 days in advance of breeding so their body and blood storages can be replenished to support first-estrus success at conception.** How can you provide these products or mineral supplementation? Show-Rite Newco Lamb Feed is great if you're looking for a bagged product, while Lamb Nutribase 800 A Plus is the way to go if you want to mix your own feed. Blueprint Sheep Mineral is also available if you're looking for a loose mineral.

Many factors impact conception, and no single protocol, feeding method or management technique is going to get producers a 100% rate of success on first service. Great animal husbandry skills, healthy stock, and a high-quality nutrition and mineral program will lead to reproductive success — and, just as importantly, a larger return on your investment.