Instilling New Genetics in Small Ruminants: Tips for Success

by Jessy Shanks

Breeding season is just around the corner! In the livestock world there are several options for inseminating females. Artificial insemination (AI) is a popular method of breeding animals that does not require live cover, i.e. a male physically breeding a female. You just need semen from the male and a way to put that semen into the female's reproductive tract. Artificial insemination, along with embryo transfer, semen cryopreservation, etc., falls into a category labeled advanced reproductive technologies or ART. These technologies are performed in a variety of species including various zoo animals, cattle, pigs, horses and even humans. When you are working with elephants an AI procedure is understandably quite involved, but with livestock species it is typically simple. Producers are using AI successfully in small ruminants for a variety of reasons. Utilizing AI leads to a more concentrated lambing/kidding season, more uniform lamb/kid crop (depending on sires used), and it opens up the possibility of using new genetics. You might not be able to spend thousands of dollars on a male for your operation, but you might find it possible to purchase semen from an expensive male for $100-$300 per straw. Different males may be more or less expensive, but the genetic possibilities are endless if you are willing to invest the time and money.

Small ruminants are typically inseminated via laparoscopic artificial insemination (LAI). This means that a laparoscope is used to visualize the uterus through a small incision in the female's abdomen, and semen is placed into the uterus through a second incision. By doing this the veterinarian is able to bypass the anatomically unique cervix of small ruminants and put the semen exactly where it needs to be to ensure optimal pregnancy rates. Insemination typically takes only minutes and is performed under light sedation. The procedure is relatively simple but this does not mean that preparation and timing should be taken lightly. We could talk for hours about LAI, what to do and what not to do, but a few simple tips will help you get started.

First, you need to select healthy females who display ideal body condition scores (BCS) to breed, not too skinny or too fat. Sick animals who are underweight do not respond well to sedation and are typically not going to become pregnant even under the best of circumstances. Obese animals don't respond well to synchronization and typically make the procedure more difficult due to their increased body fat. So choose your females carefully! Second, follow all the instructions that your veterinarian gives you from start to finish. Preparation for a procedure like LAI should start weeks in advance beginning with good nutrition for your females. Your veterinarian might also want you to deworm animals as needed and also perform other management procedures such as vaccinations and hoof trimming to make sure everything is optimal when it comes time to breed. We also want to minimize stress during the weeks leading up to LAI, so get these chores out of the way and do them in a stress-free manner. That way your females are nice and relaxed prior to the big day. When you look at an LAI protocol you might think that the times are a bit drastic (2:00 am injection times, 4:00 am CIDR pull times etc.), but I assure you that your veterinarian has done that for a reason. Your vet has taken the breeding time and date and scheduled each and every injection around that, down to the minute. So if they tell you to pull CIDR's at 3:00 am on Wednesday then you better be in the barn ready to start right at 3:00 am. You can't pull them at 7:00 am that day and expect good results. Timing is everything when utilizing ART. We don't have a male selecting the perfect time for breeding, so we have to rely on our knowledge of the female's reproductive cycle to time everything to the best of our ability. So follow all the instructions your veterinarian gives you, including removing feed and water when they tell you (this includes pasture and any bedding they might eat). If a ewe or doe comes in with a full rumen to be inseminated then this creates complications, and very likely can cancel the surgery. You wouldn't eat a whole meal before a scheduled surgery would you? So don't make your veterinarian deal with this on LAI day. I promise they aren't making this stuff up! My third and final piece of advice is to be prepared when those lambs/kids start hitting the ground. You may be used to lambing and

kidding over a three-month period, but you have shortened that time period drastically by using LAI. If you breed 100 females on one day, and you get an 80% pregnancy rate then approximately 80 of your females are going to give birth within a short time frame. This usually happens over roughly a week's time because gestation times vary. Plan accordingly and be prepared because lambs/kids will be arriving quickly!

If you are interested in utilizing LAI or any form of ART in your flock or herd do some careful research and be well aware of the cost, time and labor involved. Talk to your veterinarian so you can become familiar with the process and know what is expected. The first time will be frustrating and you will most likely be doubting yourself about halfway through, probably at 3:00 am when you are pulling CIDRS! With careful planning and preparation you can make LAI work for your operation if it aligns with your goals and intended market. Talk to fellow producers who have utilized LAI before and get their feedback as well. The more you know then the better equipped you are to tackle any situation that might come up. Feel free to reach out to me with any questions you might have at jharri50@utk.edu or 865-974-4160.

Jessy Shanks *is the Small Ruminant and Youth Programs Specialist at the University of Tennessee, Knoxville. Jessy raises Southdown and Dorper sheep with her husband and daughter just below Knoxville. Her background is in reproductive physiology and she enjoys teaching producers and youth about small ruminants in any way possible.*

Purdue University Researchers Need Your Help!

Researchers from Purdue and the USDA are studying how to reduce the threat **black vultures** pose to livestock. Black vultures are known to occasionally attack newborn or weak livestock, as well as scavenge livestock immediately after death. Our first step is to look for ways to distinguish between livestock that have been killed by vultures from those that died of other causes and were then scavenged. To do this, we will conduct necropsies on livestock that have been killed by vultures. Therefore, we are asking for donations of any calves you lose or suspect you have lost to vulture predation. If you experience such a loss, please call or text Marian Wahl at 317-647-5294 as soon as you can and she will coordinate collection of the animal. The donation of these carcasses will help us define the extent of the problem caused by vultures.

We are also conducting a survey to better understand producers' experiences with vultures across the region. We'll be asking you about any problems you've had with vultures, and any techniques you've found useful (or not useful) in dealing with them. This survey is voluntary and completely anonymous. Take our survey at **tinyurl.com/LivestockVultureSurvey.**

We rely on help from producers like you to find the best ways of addressing human-wildlife problems like these with practical solutions. If you have any questions about our work, contact Marian at 317-647-5294 or wahlm@purdue.edu, or visit our website at **tinyurl.com/PurdueBlackVultures.**

Call for Photos

Submit your sheep & goat pictures for the 2022 Kentucky Sheep & Goat Management Calendar today!

We are accepting photos until **August 15th** so don't miss your chance to highlight your favorite farm moment. Who knows, you may even score a spot on the cover.
Here is the criteria:

- Digital pictures must be high resolution/high pixel quality.
  - 300 ppi at 11.5" x 9" (print size)
  - 10 in x 8 in (minimum size)
- Horizontal/Landscape orientation photos only ☐ ☒
- Picture must be of sheep or goats
  - can include people and/or guardian animals
  - fiber images will also be considered
- Kentucky producer photos are preferred

Email your questions or pictures to
Kelley Yates, kyates@kysheepandgoat.org
with the following information:

Farm Name/Contact Name/Information
County of Residence