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Ultrasound Pregnancy Detection in Sheep

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Why should I ultrasound my flock?

- **Increase the Number of Lambs Marketed:** Expose your ewe lambs (6 to 9 months of age) to a ram for 30 days. Identify nonpregnant ewe labs early and keep only those determined to be pregnant. Flocks that select for ewes that breed as ewe lambs typically have more lambs and a shorter lambing season. (Caution: Ewe lambs that become pregnant need to be managed differently than the main ewe flock because their nutrient requirements are typically 25 percent greater than mature ewes.) Ewe lambs determined to be open prior to 10 months of age can be marketed as feeder lambs because they are young enough to still grade as lamb after a 45- to 60-day feedlot period. In addition, open ewes can be sold as replacements to low-input range sheep operations because they typically do not breed ewe lambs.
- **Decrease Lambing Labor:** Scan your entire ewe flock and sort them into groups by the number of offspring. Open ewes can be marketed or moved out of lambing facilities. Single- and twin-bearing ewes can be sorted and placed in separate drop pens. Ewes with singles typically require very little assistance during lambing. Shepherds may choose to pasture lamb the single group or lamb the ewes in a separate area from the multiple-pregnancy ewes and manage more extensively, whereas, twin- and triplet-bearing ewes can be lambed in drop pens that are checked more often and managed more intensively after lambing. This strategy can reduce labor by concentrating efforts on ewes with multiple births and lead to an equivalent overall lamb survival rate.
- **Increase Prolificacy of the Range Flocks:** Range-lambing flocks struggle to select highly prolific replacements because the birth type of lambs is not known. Most often, replacement ewes and rams are the largest and healthiest lambs after weaning. Consequently, this method of selection favors single-born lambs. However, if ewes are scanned and sorted into different lambing pastures, selection of replacements exclusively from the twinning pasture will increase flock prolificacy.
- **Reduce Ewe Feed Costs:** Removing ewes that are open is the obvious method to reduce the amount of feed required. However, we often fail to remember that we can save roughly 25 percent on winter feed costs by sorting single- and twin-lambing ewes or early and late-lambing ewes. Feed requirements increase by 25 percent during the last 45 days of gestation, and ewes carrying twins require 25 percent more feed than ewes with singles. Feeding ewes appropriately not only reduces feed costs but increases ewe health; single-bearing ewes that are offered feed to meet the twin-bearing nutrient requirements can become overly fat. Consequently, overly fat ewes are at a higher risk for lambing difficulty, typically do not produce as much milk and may have difficulty rebreeding during the next breeding season.

Image of twin pregnancy ~ 35 to 40 days of gestation

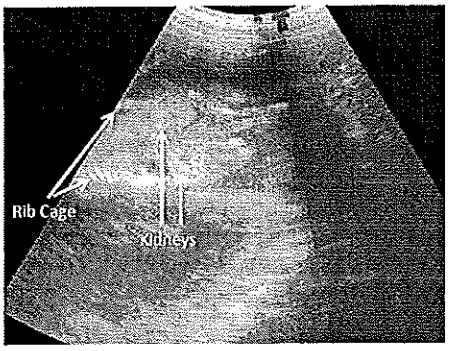

Image of fetus at ~ 80 to 90 days of gestation (you can clearly see the rib cage and both fetal kidneys)

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When should I have my ewes scanned?

- Pregnancy can be determined in the ewe from 35 days after breeding until lambing.
- The optimal time to scan ewes to determine the number of lambs is from 35 to 90 days post-conception. After 90 days, detection of multiple lambs is difficult because lambs appear very large on the ultrasound monitor and the body of one lamb may block the body of its twin.
- The optimum time to scan your ewes is 60 days post-ram introduction or 90 days prior to the start of lambing. However, late pregnancies will be missed if the ram is left for more than a 34-day breeding season.

How does the technology work?

- Scanning equipment emits ultrasonic waves that reflect off dense tissue. The ultrasound console displays an image from the reflective waves. Pregnancies are identified by a trained technician who interprets the image.
- The ultrasound probe is placed in the rear flank area along with a lubricant to ensure good contact so ultrasonic waves can penetrate the skin.
- Early pregnancies (less than 35 days) are identified by pockets of amniotic fluid that fills the uterus; however, multiple fetuses are difficult to positively identify. Medium-aged pregnancies (35 to 90 days) are easier to identify and quantify because they are larger and the fetal organs are easily distinguishable. Older pregnancies (greater than 90 days) are easy to identify but difficult to quantify because fetuses are too large and too far within the abdominal cavity to distinguish between single and multiple pregnancies.

NDSU Extension sheep specialist Reid Redden uses ultrasound technology to check whether a ewe is pregnant. He is able to view the ewe's entire reproductive tract on a console.

- We recommend that ewes are removed from access to feed and water 12 to 24 hours prior to scanning. A full rumen can put pressure on the abdominal cavity, which makes getting a good image difficult for the technician. In addition, a full bladder can lead to false positives, especially with the PregTone technology.
- Working chutes that give the ultrasound technician open access to the ewe's rear flank improve the technician's speed and ability to scan ewes.

What other methods are used to determine pregnancy?

- **BioTracking:** This is a company that offers pregnancy tests for sheep. These tests can detect 30-day and older pregnancies with a simple blood sample. We are conducting experiments with this company to evaluate a test to predict multiple pregnancies.
- **Udder palpation (bagging):** Ewes usually develop a bag two to four weeks prior to lambing. Shepherds can bag ewes on a weekly basis to identify those that are closest to lambing and move them into lambing groups.
- **PregTone** is an inexpensive tool that sends out ultrasonic waves and provides a beeping tone when it detects amniotic fluid. This technology is effective; however, it only works to detect pregnancy between 60 and 120 days of pregnancy, and it can indicate false positives if the ewe has a full bladder.

For more information on this and other topics, see www.ag.ndsu.edu

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