

## Study utilizes ultrasound during mid-gestation to determine gestational age in sheep

By Alyssa Condon

A recent study published in *Reproduction in Domestic Animals* from Dr. Sarah Reed's lab, in collaboration with Dr. Rachael Gately of Tufts University Cummings School of Veterinary Medicine, explored the effectiveness of ultrasound during mid-gestation in pregnant ewes for estimating gestational age. Several variables, including heart width, umbilical cord diameter, rib width, and placentome inner and outer diameters were measured during each ultrasound. These variables can be observed by transabdominal ultrasound, making this method of determining gestational age easily utilized by livestock producers.

The researchers found that there was linear growth of heart width, umbilical cord diameter, and placentome inner and outer diameters during mid-gestation. This indicates that these factors can be used to identify gestational age in sheep. The measurements for rib width were inconsistent, likely due to inaccuracy of the ultrasound measurements rather than actual inconsistent growth. However, these inconsistencies reduce the usefulness of this measurement as a determinant for gestational age. Based on their results, the authors were able to produce seven equations that can be used to estimate gestational age based on fetal heart width, umbilical cord diameter, and inner and outer placentome diameters.

Dr. Reed expects that this information will be useful for producers when gestational age may be unknown. She states, "The use of ultrasound during early gestation is well documented, but use during mid-gestation to monitor lamb growth is of varied usefulness depending on the structures measured. Our work focused on several structures that are easily identified on ultrasound during mid-gestation, and determined that heart width, umbilical cord diameter, and placentome diameter are excellent predictors of gestational age. This information will allow producers to estimate lambing dates when breeding dates are unknown, enabling them to better manage their flock by providing appropriate late gestation nutrition and observation."

The entire article can be found at:

Jones, A. K., Gately, R. E., McFadden, K. K., Hoffman, M. L., Pillai, S. M., Zinn, S., Govoni, K., & Reed, S. A. Ultrasound during mid-gestation: Agreement with physical foetal and placental measurements and use in predicting gestational age in sheep. *Reprod Dom Anim.* 2017;52:649–654. <https://doi.org/10.1111/rda.12961>