105-AGR

Impact of yearling fitness traits on fertility rates in multi-breed meat goats

Replacement females refer to young, nulliparous females that are selected to replace culled animals in the herd. Selection of superior replacements will contribute to the reproductive herd, ensuring the continuity and improvement of the herd over time. Selection criteria such as body weight and parasite burden can impact reproductive efficiency. The parasite Haemonchus.contortus.is a blood-sucking gastrointestinal nematode that causes significant production loss in goats, and many studies are done to decrease their impact on herd profit. Goats are introduced into the breeding herd at around 19 months of age in order to kid at two years old. The earlier that a producer can select a replacement population the less money they have to spend on does that are not suitable as replacements. This study analyzed how body weight and parasite burden taken at a year of age influences fertility rates of two-year-olds. Weight, blood, and fecal samples were taken on yearling does between 2011 – 2018. Ratios were calculated from the weights and categorized as low, moderately low, moderately high, or high. Packed cell volumes (PCV) were recorded as secondary indicator traits of Haemonchus.contortus.burden. Fecal egg counts (FEC) were recorded using the Modified McMaster Technique. Yearling sire breed and dam age were also recorded for analysis. Yearlings with high ratios had higher ($p.< 0.05$) pregnancy rates than yearlings with low ratios (79.0 ± 5.8% vs. 37.5 ± 7.9%, respectively). Yearlings with low PCV had lower ($p.< 0.05$) pregnancy rates than does with high PCV rates (26.8% ± 7.8 vs. 60.4% ± 8.9, respectively). Yearling FEC did not ($p.> 0.05$) affect pregnancy rates in replacement does. Sire breed and dam age did impact ($p.< 0.05$) replacement doe fertility rates. The results show that body weight at a year of age can impact the fertility rates of two-year-olds. While FEC did not impact fertility rates in this study, PCV did. Further analysis needs to be done on the relationship between yearling PCV and FEC. This study suggests that producers can use some of these traits for replacement selection even earlier than first breeding.