Performance of the IDEXX Rapid Visual Pregnancy Test for pregnancy diagnosis in sheep

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Pregnancy-associated glycoproteins (PAG) belong to a family of inactive aspartic proteinases which are produced by the binucleate giant cells of the ruminant placenta. Pregnancy-associated glycoproteins are secreted by the fetal trophoblast throughout gestation and are detectable in maternal circulation allowing for pregnancy diagnosis via commercially available assays. Although the available assays are marketed for pregnancy diagnosis in cattle, similarities in PAG structure across ruminant species allow detection of PAG in other ruminants, including sheep, using the bovine assays. Previous studies evaluated the use of PAG assays for pregnancy diagnosis in sheep performed in a laboratory setting. In these studies, samples were collected, sent to a laboratory, and results were reported after several days.1 Recently, the availability of the IDEXX Rapid Visual Pregnancy Test kit (IDEXX; Westbrook, ME) provided a method of pregnancy diagnosis with results reportable the same day as sample collection. This test could be valuable to veterinarians and sheep producers as an alternate means of rapid pregnancy diagnosis. The objective of our study was to compare results of the IDEXX Rapid Visual Pregnancy Test in sheep to pregnancy diagnosis by ultrasonography. Commercial crossbred sheep (n=143) were used for this study. Ewes had been exposed to a ram for breeding for a 60-day breeding period and rams were removed 30 days prior to ultrasound examination. Ewes were restrained in a head chute and pregnancy diagnosis performed using a variable frequency sector transducer and the Ovi-Scan sheep ultrasound (BCF Technology, Rochester, MN). Ewes were recorded as open or pregnant with an estimation of gestational age based on fetal measurements. Blood was collected into a serum separator tube via the jugular vein for analysis. Serum samples were analyzed using the IDEXX Rapid Visual Pregnancy Test kit and compared to ultrasound results. Sensitivity and specificity of the Rapid Visual Pregnancy Test were 96.8% and 73.3%, respectively, and accuracy was 94.4%. The lower specificity may be due to assay detection of early pregnancies not yet visible on ultrasound, errors in reading results of a visual assay, or the low number of open ewes in the sample group. However, the accuracy of the assay compared to ultrasound examination indicates that this test provides a reliable and cost effective method of pregnancy diagnosis in sheep which is important for both veterinarians and sheep producers seeking to improve reproductive performance in flocks.

Keywords: Pregnancy-associated glycoproteins, sheep, pregnancy diagnosis

Reference