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Early Pregnancy Diagnosis by Transrectal Ultrasonography in Dairy Cattle

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Abstract

The objective of the present study was to determine differences in time of detection of pregnancy between heifers and cows and the interval after insemination at which the maximum sensitivity and negative predictive value of transrectal ultrasonography are obtained in both heifers and cows. One thousand four hundred transrectal ultrasonographies [TRUS-1; 1,079 in cows and 321 in heifers] were performed using a 5 MHz linear transducer. The animals were randomly assigned to have TRUS performed once between Days 24 to 30 in cows and between Days 21 to 27 in heifers [estrus= Day 0]. Every TRUS diagnosis was subsequently compared with a second TRUS diagnosis [TRUS-2], performed 3 to 8 d later, after Day 30 [31-38] for cows and after Day 27 [28-35] for heifers. The sensitivity and specificity between cows and heifers for the common days of TRUS (from 24 to 27) were compared. In cows, the sensitivity increased gradually from 74.5% at Day 24 to 100 % at Day 29 [P<0.01]. Specificity increased from days 24 to 25 and reached a plateau of 96.6% on Day 26 [P<0.01]. In heifers, the sensitivity increased from 50% at Day 21 to 100% at Day 26 [P<0.01]. Specificity increased from 87.5% at Day 21 and remained steady at 94% starting on Day 23 [P>0.05]. The sensitivity between cows and heifers was 89.2% and 96.8%, respectively (P<0.05). The specificity between cows and heifers was 93.0% and 93.4%, respectively (P>0.05). In this study, heifers were detected pregnant earlier than cows, and the maximum sensitivity and negative predictive value were obtained three days earlier in heifers [Day 26] than in cows [Day 29].

Key words: cattle, pregnancy diagnosis, transrectal ultrasonography, accuracy