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OBSERVATION OF IMAGES OF PREGNANCY BY REAL-TIME ULTRASONOGRAPHY IN DAIRY CATTLE, PIGS, SHEEP, AND BROWN BEARS

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By real-time ultrasonography (USG), observations of images of pregnancy were made in dairy cattle, pigs, sheep and brown bears (Ursus yesoensis).

1. Early pregnancy diagnosis of dairy cattle was performed in heifers between 17 and 24 days after artificial insemination (AI). Clear fetal sac (FS) images indicating pregnancy were obtained between 22 and 24 days after AI in 95.0% of pregnant cattle. But it was dificult to distinguish between FS images and uterine mucus fluid images. Accuracy of pregnancy diagnosis was 25.0% between 17 and 21 days, 86.4% between 22 and 24 days and 45.2% in total.

2. The fetuses of cattle were first visible on 29 days after AI, and fetal crown-rump length (CRL) and fetal heart rate (FHR) were measured after then. GRL measurements were difficult to make after about 60 days of gestation. Correlation between the fetal age and the FHR was roughly positive up to about 60 days of gestation, and after that time, it was highly negative. Fetal internal structure image could be seen after about 60 days of gestation. Two fetuses were judged male and female, respectively, on about 80 days of gestation, and they were confirmed postpartum. Fetal images were taken by rectal scanning up to about 150 days gestation and by external scanning after that. Twins resulting from embryo or bisected embryo transfer could be diagnosed on about 35 and 80 days of gestation, which confirmed that USG could be applied to determine fetal numbers in the early gestational period.

3. In sows, uterine images were taken by external scanning from the caudal flank area to the groin area. The uteruses of gilts were difficult to detect. Clear FS images were obtained from 18 days after breeding and the fetuses and their heart beat were observed from 23 days after breeding. Accuracy of pregnancy diagnosis was 83.3% between 14 and 29 days after breeding. In sheep, scanning area of uterus was only the groin area in the early gestational period. Clear FS images were found at 25 days after breeding, and the fetus and its heart beat were observed at 33 days.

4. Brown bears were examined from September 1984 to January 1985. In mid-December 1984, FS and the fetuses that were regarded to be in the early stage of development were found by external scanning of the caudal abdominal area. After 33 and 37 days, the pregnant bears gave birth to cubs.

From the above results, it was concluded that USG could aid in pregnancy diagnosis and fetal observation in dairy cattle, pigs, sheep and brown bears.