

THE USE OF ULTRASONOGRAPHY IN THE CONTROL OF MARES FERTILITY

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Summary

Fertility of horses is lower than of other species of domestic animals. Due to low heritability, namely larger impact of paragenetic factors, there is possibility for improvement of horse reproduction.

In this work, the possibility for use of ultrasonography for visualization of interior mare's genitalis for purposes of early pregnancy diagnoses is evaluated, and for determination of phase of estrus as well. In period from 14th to 60th day after mating, the pregnancy was successfully diagnosed, and ultrasonography was evaluated as follows: sensitivity 99.0%, specificity 85.2%, positive predictive value 91.5%, and negative predictive value 98.1%. There was 8.5% of embryonic and/or fetal mortality recorded from total number of pregnant mares examined by ultrasonography.

The evaluation of the possibility to use the ultrasonography for estrus stage determination indicated that is possible to determine after the examination if the mare is in estrous or in diestrous. After consecutive examination of mares in heat, and by measuring the diameter of the follicle, the model of secular linear trend was established for the follicular growth: $y = 25,26 + 2,38X$ (mm), and standard error for trend was estimated: $S_y = 0.45$ mm. According to the presented model, it is possible to predict the day of ovulation with the probability of 95%. According to the ultrasonic identification of the corpus luteum on the ovarium of mare in diestrus, and after application of prostaglandin preparates, the estrus was induced in 88.9% of mares. The estrus started in average after 4.1 day, lasted for 4.8 days, and the ovulation occurred after 8.4 days in average after the treatment.

The examination of the first postpartal ovulation distribution in mares showed that 54.3% of females ovulated in period from 9th to 12th day after foaling. This period is recommended for mating. Till the 9th day after foaling, 8.6% of examined mares ovulated, and this period is not recommended for linear mating. After the 14th day after foaling, 25.7% of examined mares ovulated, and according to that it is necessary to perform the heat detection in mares till the day of ovulation. It was recorded 42.9% pregnancy rate in mares after mating in foal heat.

Early pregnancy diagnosis, the possibility for determination of the estral phase of the mare, prediction of the day of ovulation, the opportunity for estrus induction, with high accuracy and immediate results, make the ultrasonography powerful diagnostic method, for the routine work and for obtainment of knowledge of the mares reproduction as well.

Key words: *ultrasonography, mare, reproduction, pregnancy, follicular growth*

Disertacion can be seen in the Library of the Faculty of Agriculture, of the University of Novi Sad (58 pages, 7 tables, 3 graphycons, 10 pictures, original script in Serbian with summary in English).