RESEARCH OF CORRELATION BETWEEN COWS OESTROUS, MILK YIELD AND LACTATION PERIOD

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Abstract. The decline in dairy cows' fertility is often linked to incorrect detection of oestrus time but its causes are not always obvious. The objectives of the current study were to determine the correlation between the incidence of cow heat with clinical signs and milk progesterone concentration during heat and to investigate how these indices affect milk yield and lactation period. Overall, 28 Lithuanian Holstein cows from one commercial dairy herd in Lithuanian were studied.

The milk progesterone concentration was measured every three days, starting with 20 DIM to 90 follow-up. Cows in heat were identified by ordinary clinical signs. A decline of progesterone concentration in milk followed by an increase of progesterone concentration to ≥5 ng/l was identified as ovulation (subclinical heat). Most cows in heat (clinical and subclinical) were determined on the 35–60 DIM. On these days, the number of cows with clinical signs of heat was by 14 % ($p<0.05$) lower than on the days 20–35 DIM. In the period of decline of milk yield, the number of cows with the clinical signs of heat increased by 25 proc. The progesterone concentration was 3.2 ± 0.14 ng/l, or by 15 percent ($p<0.01$) higher on days 20–35 DIM, than in the period of peak productivity – 2.4 ± 0.37 ng/ml. Decline in milk yield is followed by increases of progesterone concentrations during oestrus. At this time, it is 3.05 ± 0.17 ng/l or 18 percent ($p<0.01$) higher than in the milk of cows in heat during peak lactation. Manifestations of oestrus and milk progesterone concentration were influenced by milk production and number of days postpartum. It seems likely that the elevated steroid metabolism plays the central role in the reduction of the signs of oestrus in the period of lactation-induced peak productivity.

Keywords: cow, progesterone test, oestrus, lactation, milk yield.