THE EFFECT OF STAGE OF ESTROUS CYCLE AT THE INITIATION OF AN OVSYNCH PROTOCOL ON THE CONCEPTION RATE

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A reproductive management protocol has been developed to synchronize time of ovulation in lactating dairy cows (Ovsynch). This protocol allows an effective management of reproduction in dairy cows without continuous detection of estrus. We evaluated whether initiation of an Ovsynch protocol at different stages of the estrous cycle altered the conception rate after timed artificial insemination (AI). A further objective of this study was to analyse the time of ovulation within an Ovsynch protocol by ultrasound.

Cows in the Ovsynch protocol were treated with GnRH (d 0), $PGF_{2\alpha}$ (d 7) and GnRH (d 9) and bred 16 - 20 hrs later. Milk samples were collected three times: 7 d prior to 1st GnRH-treatment, at the 1st GnRH-injection and at $PGF_{2\alpha}$-injection. The first two milk samples were collected in 186 cows to determine stage of estrous cycle at the start of the Ovsynch protocol by milk progesterone concentration. The 3rd milk sample was collected in 218 cows to determine the presence of a corpus luteum (C.l.) at the time of $PGF_{2\alpha}$-injection.

Ovaries were scanned in 138 cows via ultrasonography four times: at the second GnRH injection, at AI, as well as 26 hrs and 40 hrs after the second GnRH injection.

Milk progesterone levels indicated stages of estrous cycle: 37.6% cows were around the estrus, 26.7% on the beginning of diestrous, 31.7% on the end of diestrous and 4.3% were anestrous cows. First service conception rate did not differ significantly between the different stages of cycle (37.2, 30.6, 33.9, 25.0%, resp.). Synchronization rates did not differ for the different stages of cycle (89.2, 78.8, 88.9 and 80.0%, resp.). Maximum diameter of the ovulatory follicle did not vary by the stage of estrous cycle.

The overall percentage of cows ovulating during a 40 hrs period following the second injection of GnRH was 87% (synchronization rate). The percentage of follicles ovulating between 0 to 17 hrs, 17 to 26 hrs and 26 to 40 hrs was 9.4, 20.3 and 57.2%, respectively. First service conception rate did not differ significantly between the ovulation intervals (38.5%, 39.3% and 31.7 %). Maximum diameter of the ovulatory follicle was 15.6 mm without differing significantly between the ovulation intervals (16.4, 16.3 and 15.3 mm). A C.l. was demonstrated in 60.6% of cows at the time of $PGF_{2\alpha}$-injection. First service conception rate did not differ significantly between cows with and without a C.l. at $PGF_{2\alpha}$-injection (38.6% and 34.9% resp.).

In conclusion, overall synchronization rate for the Ovsynch protocol was high. Conception rate did not differ between the ovulation intervals ($p>0.05$). The stage of estrous cycle at the initiation of an Ovsynch protocol had no significant effect on the size of the ovulatory follicle and conception rate.