7. Summary

Field trial to compare different therapies for retained fetal membranes.

The objective of this study was to compare different therapies of retained fetal membranes (RFM) in a controlled prospective field trial.

Cows that retained their fetal membranes for 24 hours post partum were assigned to the study. Additional cows without retained fetal membranes served as a control group on all farms. The reproductive performance of all cows was documented until day 200 p.p. The study animals were assigned to one of the four treatments, i.e. groups A, B, C and D. Their body temperature was measured for ten days after calving. Animals of all groups with a body temperature higher then 39.5°C were treated systemically with Ceftiofur (1 mg/kg BW s.c.) on three to five days. In Group A no further treatment was administered. Group B was treated additionally with 2 uterine pills (Aniclox®, 1000 mg Ampicillin, 1000 mg Cloxacillin) for 3 consecutive days. In Group C no uterine pills were administered. However, the RFM were manually removed if possible. If necessary the attempt to remove the RFM was repeated for the next two days. In Group D cows received an intrauterine treatment with 2 uterine pills for 3 days (Aniclox®, 1000 mg Ampicillin, 1000 mg Cloxacillin per treatment). Also an attempt to remove the retained placenta was made for a maximum of 3 days. Cows with fever for more then 3 days received the systemic antibiotic treatment for another 2 days. In case of fever after five days of treatment with Ceftiofur, the cow was considered a treatment failure and received an escape therapy that the herd veterinarian could choose.

At day 18-24 and day 32-38 p.p. all study cows received 25 mg Dinoprost, intramusculary. On day 32-38 a post partum examination was conducted by rectal palpation.

The treatment success was evaluated by the clinical cure rate, the incidence rate of endometritis and reproductive performance measures (days to first service, days open, first service conception rate, overall conception rate and the percentage of cows pregnant).

Of all cows, 79.8% showed a body temperature of 39.5°C or higher within 10 days post partum. The difference between Group A (85.5%) and D (71.5%) was statistical significant ($p < 0.05$). Mostly fever appeared on the first three days post partum (77.0%). All cows with fever received a systemic treatment with Ceftiofur. A total of 88.2% of all cows were treated successfully.

Of all cows 38.3% showed signs of endometritis at the post partum examination. Significant differences were found between the farms but not between the groups.

All differences in the reproductive performance measures were not significant between the four study groups. However, for most parameters Group D had the worst results.

The study group had slightly longer days to first service compared to the control group (Group A 76.7 d, Group B 80.7 d, Group C 79.2 d, Group D 78.2 d, Control Group 75.1 d). In contrast, days open were shorter as in the control group (Group A 106.4 d, Group B 111.1 d, Group C 103.4 d, Group D 108.5 d, Control Group 113.1 d).

The highest first service conception rate showed Group C (36.1%). This was significantly higher as in the control group (23.6%; $p < 0.05$). Also the first service conception rate of all study cows was significantly higher compared to the control group (31.5 vs. 23.6, $p < 0.05$).

The highest overall conception rate was found in Group B (37.4%), the lowest in Group D (26.5%). The overall conception rate of the study cows (31.7%) was insignificant higher compared to the control group (27.2%).

The highest percentage of cows pregnant was found in Group B (64.7%), the lowest in Group D (52.3%). In the control group 58.4% of the animals were pregnant. These differences were not significant.

The culling rate of all study animals (40.9%) was insignificantly lower than in the control group (41.6%). The highest culling rate was found in Group D (47.7%), the lowest in Group B (35.3%).

Regarding the milk yield no major differences were found except on the day of the first milk recording between Group A and the control group, which had significantly more milk.

In the economic analysis Group A had the lowest cost per pregnancy. Group D showed the highest cost per pregnancy.

It can be recommended to measure the body temperature of cows with retained fetal membranes for the first seven days postpartum because most of the study animals became fever during the first week post partum.

Because of the insignificant differences between the four study groups for the cure rate and the reproductive performance all four treatment strategies must be regarded as equally successful. In Group A the use of antibiotics was reduced without negative effects on the cure rate or the reproductive performance. However, the financial outcome of Group A seemed to be advantageous compared to the other groups. This group showed the lowest costs per pregnancy in different scenarios whereas Group D always had the highest costs per pregnancy.