

Effects of Milk Heifers Prior to Calving on Udder Health and Production

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Heifers calving for the first time are more likely to develop udder edema and this often leads to mastitis. Previous studies have shown that milking heifers during the last two weeks of pregnancy before they calve may reduce subclinical mastitis and new intramammary infections during early lactation. Early milking has also tends to get the heifers acclimated to the milk procedure and reduces stress at calving. In a recent California trial, 280 pregnant heifers were randomly assigned to one of two treatment groups. Half of the group was milked three times a day beginning 15 days prior to their anticipated calving date. The other group began milking three times a day as they calved. Both groups were followed for 135 days after they calved. After calving, all heifers were housed in the same free stall barn. During the entire study period, all heifers received the same total mixed ration. They received BST beginning 60-67 days after calving. Milk yields and reproductive parameters were collected from official, monthly DHIA tests.

On the first or second day the pre-partum milking began, aseptic, 4-quarter composite milk samples from each heifer for culture. After calving, a milk sample was collected for culture from all heifers in both groups. A final sample was collected 28 days after calving. The extent of udder edema was estimated by measuring the floor surface area of the udder within 60 hours after calving. This was done by pressing sheets of paper against the teat end just prior to and after milking. The area surround by the four teat dots was calculated and compared for the two estimations. The extent of edema was also assessed by digital impression done weekly from 3 week before until 3 weeks after calving. All cows were examined rectally on day 23 after calving to assess uterine health.

The average days from assignment to one of the two groups until calving was the same for both groups (pre-partum milking, 15.1 days; controls, 14.9 days). The unit on-time during the pre-partum milking varied from 2.7 minutes at the beginning to 4.8 minutes shortly before calving. Milking the heifers before calving resulted in decreased udder edema as measured by the increased reduction in udder area (control, 33.5%; milked, 43.0%) as well as the percent reductions (control, 16.9%; milked, 23.9%). Heifers milked prior to calving also had less udder edema as assessed by the digital impression during both the pre- and post-calving examinations.

Interestingly, 81% of the milk samples taken approximately 15 days before calving were positive for bacteria. At the first milk culture shortly after calving, there was less mastitis in the pre-partum milked heifers (50%) compared to the control heifers (66.4%). By day 28 of lactation, the milk samples taken from the pre-partum heifers had 49.2% bacterial growth compared to 58.6% for the control heifers. The predominated bacterial isolates

were coagulase-negative Staphylococci. Likewise, the somatic cell counts of the heifers milked prior to calving was significantly lower (197 cells/ml) than the controls (445 cells/ml). The heifers that were milked prior to calving had a lower incidence of mastitis, cases occurred later in lactation, and had fewer cases of mastitis per cow compared to the controls that were milked beginning at calving.

The heifers that were milked prior to calving produced more milk during the first 135 days of lactation than the heifers that were milked beginning at calving. The pre-partum milked heifers produced more milk per day (3.7 lbs/day) than the control heifers. There were indications that this advantage in milk production continued throughout the lactation beyond the first 135 days.

There was no difference in the findings from the examination of the reproductive tracts at 23 days post partum. The health of the heifers milked prior to calving was similar to that of the heifers that were milked beginning at calving. Parameters that were studied were fever after calving, ketosis, LDA, lameness, culling and mortality. The results of all of these study parameters indicate that heifers milked pre-partum are no more likely to leave the herd for health reasons than other heifers.

The conclusions of the study are that pre-partum milking of dairy heifers beginning 15 days prior to the anticipated calving will reduce udder edema and the negative effects that accompany udder edema. In addition, pre-partum milking has a positive effect on somatic cell counts and clinical mastitis. It may also result in increased milk production without ill effects on general and uterine post partum health.

Santos JEP, Cerri RLA, Kirk JH, Juchem SO, Villasenor M. Effects of prepartum milking of primigravid cows on mammary gland health and lactation performance. *Livestock Production Sci* 86: 105-116, 2004.