

Effect of Clinical Mastitis on Production and Reproduction

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Mastitis has been reported to have a negative effect on both production and reproduction in dairy cattle. A recent farm trial on a two large, high producing Central California dairies confirms these previous findings. The study included 1001 Holstein dairy cows on two commercial dairies. On these two dairies, data was retrieved from the DairyComp 305 records to determine the date of their first case of clinical mastitis and AI breeding dates. Four groups of cows were studied from calving through the first 320 days of milking. The first group (C, controls, 501 cows) had no recorded cases of clinical mastitis during their lactation. The second group (MG1, 250 cows) had their first cases of clinical mastitis prior to the first AI breeding. The third group (MG2, 147 cows) had their first AI breeding and being diagnosed pregnant. The final group (MG3, 103 cows) had their first case of clinical mastitis after they were diagnosed pregnant. The distribution of cows by lactation and previous production was similar between the four groups.

In these two herds, the milkers check for abnormal milk or swelling of the udder at each milking. When the milkers detected clinical mastitis, they collected a sterile milk sample from the cow for culture to identify the causative bacteria. The common bacteria found in the milk samples from cows with clinical mastitis were environmental Streps (115, 23%), coliforms (75, 15%) and coagulase-negative Staphs (26, 5%). The most common finding was “no growth” (263, 52%). In most cases, the “no growths” are assumed to be coliforms. Most of the clinical cases occurred in the MG1 cows (250) followed by the MG2 cows (147) and MG3 cows (103). The distribution between the groups was similar in terms of culture results. Eight cows found with mycoplasma and 16 cows with Staph aureus were excluded from the study as they were immediately sent to market. The type of bacteria causing the mastitis did not affect the reproductive performance.

As is well known, clinical mastitis will result in increased somatic cell counts. In this study, this effect of increased somatic cell counts was seen for all three groups with clinical mastitis compared to the control group. The earlier the occurrence of clinical mastitis in the lactation, the quicker the increase in somatic cell counts were seen. Because of this trend, the MG3 cows with mastitis after pregnancy diagnosis had a similar pattern of somatic cells to the controls with clinical mastitis. More cows with clinical mastitis also left the herd compared to the controls without mastitis and they also left the herd earlier than the controls.

The cows in the control group (C, 80.3 lbs/day) and those with clinical cases after pregnancy diagnosis (MG3, 81.8 lbs/day) had similar milk yields. By comparison, the groups that had clinical mastitis earlier in lactation had reduced milk yields (MG1, 75.5 lbs/day; MG2, 77.2 lbs/day). It appears that the earlier in lactation the first case of clinical

mastitis occurs, the greater the negative effect on production. Overall, the milk components were not significantly affected by clinical mastitis.

Days to first service were similar for all four groups of cows. However, cows that had a case of clinical mastitis prior to their first breeding had an extended interval from calving to first AI. The conception rates were similar between the controls and MG3 cows. The cows that had mastitis prior to pregnancy diagnosis had decreased conception rates compared to the controls. The greatest effect was seen in the MG2 cows that had the first clinical case of mastitis between AI and pregnancy diagnosis. The result at 320 DIM was that more cows were pregnancy in the controls and MG3 groups compared to the MG1 and MG2 groups. There was an increase in abortions in all the groups with clinical mastitis compared to the controls, but the increase was similar in all three groups.

The overall conclusion is that clinical mastitis reduces cow performance in terms of production and reproduction. The negative effect is greatest on those cows having mastitis early in lactation. Mastitis also increases culling rate and marketed cows leave the herd earlier than cows without mastitis. Control of mastitis early in lactation is based on total dry cow antibiotic treatment and continuous efforts to provide clean dry bedding for dry cows and cows in the calving areas.

Santos JEP, Cerri RLA, Ballou MA, Higginbotham GE and Kirk JH. Effect of timing of first clinical mastitis occurrence on lactational and reproductive performance of Holstein dairy cows. [Animal Reproduction Sci](#) 80: 31-45, 2004.