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Changes in colostrum bioactive components depend on cytological quality

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INTRODUCTION

Although good colostrum quality is highly desired, not many researches show what factors have impact on its components. It is believed that udder diseases, ketosis and chronic acidosis significantly lower the level of immunoglobulines in colostrum simultaneously causing its poor quality. The aim of this study was to indicate which intramammary infections, and as a result cytological quality, impact on the content of immunostimulating components of colostrum.

MATERIAL AND METHODS

The experiment was conducted on 250 cows all kept in a free-stall housing system. Animals were divided into two groups, depending on somatic cell counts (SCC) in colostrum per ml: <400 x 10^3 and >400 x 10^3. The gross composition of colostrum, as well as its cytological quality were determined. The 1st sample was collected max. up to 2 hours after calving. Colostrums samples were taken individually from each cow 7 times during the experiment: from the 1st to 2nd day after calving - two times /day, and from 3rd to 5th once/day. Data were presented as least squares means with standard error of mean. The experimental data were analyzed statistically by two-way ANOVA, and Tukey's post-hoc test using SPSS 23.

RESULTS

Figure 1. Changes in content of Immunoglobulin G [g/L] during the first 7 collections, depending on SCC count

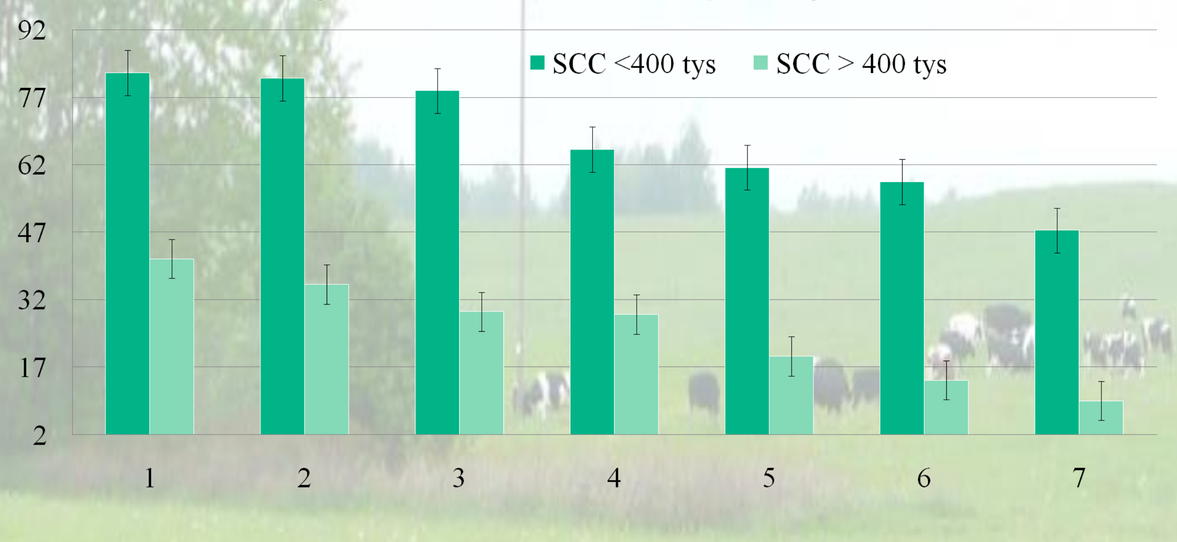


Figure 2. Changes in content of Lf [g/L] during the first 7 collections, depending on SCC count

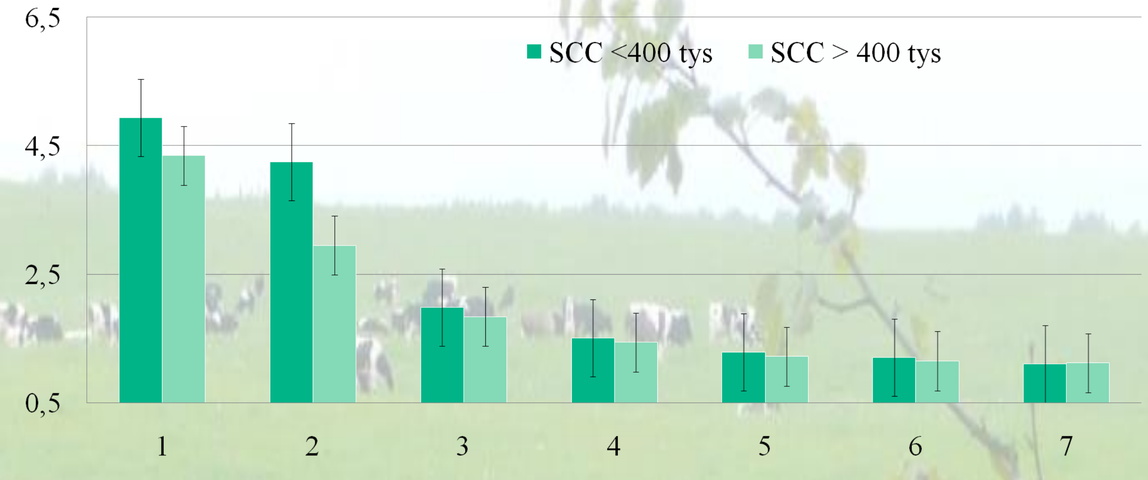
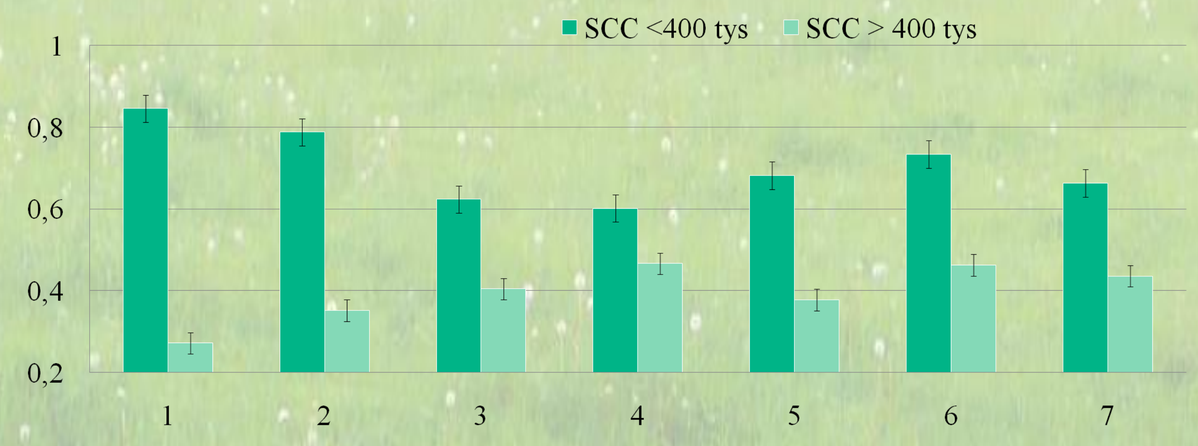


Figure 3. Changes in content of CLA [g/100g of fat] during the first 7 collections, depending on SCC count



CONCLUSIONS

1.The quality of colostrum varies, and that variability is determined by cytological quality.
2.Colostrum rich in health-promoting ingredients (especially IgG) and with low level of SCC shortens the period of high risk of disease in calves.
3.Bacteria in colostrum may bind free IgG in the gut lumen or block uptake and transport of IgG molecules into the enterocytes, thus reducing absorption of IgG.

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