

Impact of supplementing a yeast-based product during dry period on milk somatic cell counts and health in post-calving dairy cows

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Introduction and aim of the study

In ruminants, mammary infections are major causes of morbidity and hence impact seriously on animal and economic performances. Live yeasts brought as feed additive to lactating cows have shown positive effects on milk yield and on health (prevention of acidosis and associated diseases). These effects are mainly due to the consumption of oxygen by live yeasts in the rumen resulting in pH stabilization, rumen flora proliferation and increased VFA production.

Yeasts and some of their derived products have also other interesting properties related to innate immunity & anti-oxidative activity (live yeasts, yeast cell wall, beta-glucans, Se and glutathione enriched yeasts).

These potential effects could be very useful during the dry period in order to improve cow's defenses against infections which are suppressed at calving time and during the first weeks of lactation.

The aim of this preliminary study was to investigate the effect of a mix of active products composed of live and derivatives of yeast supplemented during the dry period on the milk somatic cell counts (SCC), colostrum quality and blood parameters in dairy cows post-calving.

Material and methods

The trial included 110 cows on two dairy farms (CZ). The cows were allocated in the TRT group (n=55 cows) that received the active ingredients mixed with cereal flour (100g/cow/day, from 60 to 0 days pre-partum) and in the CTRL group (n=55 cows) that received of a placebo composed of only cereal flour (100 g/cow/day) for the same period

Treatment	Current parity	Date of calving	Previous Milk yield (at DIM = 100)
CTRL	3.1	22.1.2012	2740
TRT	3.2	25.1.2012	2765
P	NS	NS	NS

*NS = statistically not different

Table 1: Mean parity ranks and milk yield in previous lactation

of time. The study design corresponded to a mixed model with hierarchy complete blocks (couples) matched on the expected calving dates within farm as main criteria (with a maximum interval of 14 days between cows of the couple), milk yield, clinical records during the previous lactation and parity as secondary criteria

The milk SCC was monitored during the 17 weeks following calving of cows. Colostrum quality in terms of total Ig (mg/mL) was monitored. Metabolic parameters (NEFA, BHB, GPx) were monitored 7 days before the expected date of calving and 7, 14, 28 and 56 days after the calving (24 cows from each treatment).

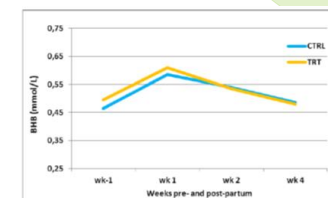
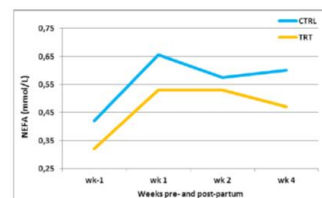
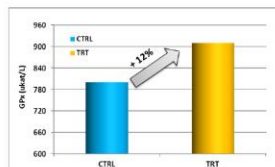
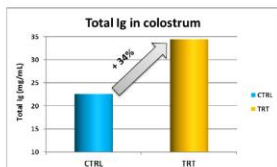
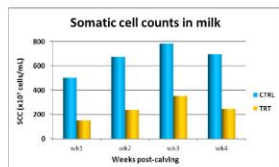
The cows were closely monitored for clinical mastitis occurrence (number and severity (local/systemic signs) of cases during the first 120 days of the current lactation; number of intra-mammary antibiotic treatments, number of systemic antibiotic treatments), and other disorders (hypocalcaemia, retained placenta, metritis, displaced abomasum, acidosis, ketosis, lameness, acidosis, etc.).

Data were analyzed using repeated measures SPSS V12.0 (Chicago, IL, USA).

Results

Results showed a significant decrease in SCC by 63% (P<0.05) in the TRT group during the first 3 weeks after the calving. Colostrum quality in terms of total Ig (mg/ml) increased significantly (P<0.05) by 34% in the TRT group. Among the blood parameters, GPx levels tended to be higher (P<0.1) at week 1 post-calving. Energy metabolism parameters (NEFA, BHB) were not significantly different between the treatments.

In addition, at week 7 post-calving, metritis cases were significantly reduced with the mix product by 38%. Clinical mastitis cases reduced from 15 (CTRL) to 11 (TRT) as well as the number of local antibiotic treatments from 90 (CTRL) to 32 (TRT).



Conclusion

The mix product under study mainly composed of live yeast and derivatives of yeast supplemented during the dry period showed a positive effect on somatic cell counts, occurrence and severity of mastitis in dairy cows post-calving, resulting in improved animal health status and reduction in veterinary costs.