

Effects of a Yeast, Mineral, and Antioxidant Bolus on Transition Cow Performance under Flemish Field Conditions

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Introduction and objective: The transition period, particularly the first 30 days in milk (DIM), is a critical time for dairy cows, marked by increased disease susceptibility and reduced performance as a result. Strategies to improve feed intake, rumen environment, and nutrient status during the peripartum period are considered important to help cows adapt to the lactation phase.¹ This study investigated the effects of a postpartum bolus containing live yeasts, minerals, and antioxidants on eating and rumination behavior, health events, and fertility in dairy cows under Flemish field conditions.

Materials and methods: Between November 2023 and March 2024, 142 freshly calved cows from a Flemish dairy herd ($n > 300$) were enrolled in this study. Cows were randomized by parity and calving month to either a treatment group (B; $n=50$) receiving a single 220g bolus (YMCP Vitall®, TechMix, LLC., Stewart, USA) within 6 hours of calving or a control group (C; $n=59$) receiving no treatment. Total eating and rumination time per day was monitored for the first 10 DIM using SenseHub™ Dairy (Allflex Merck & Co., Inc., Rahway, NJ, USA). Furthermore, early lactation health events and fertility treats were recorded. Data were analyzed using JMP 17, with significance set at $P < 0.05$ and trends at $P < 0.10$. Excluded were 33 cows due to missing data or pre-calving health issues.

Results: Parity 2 cows in group B exhibited numerically higher total eating time over the first 10 DIM, with significantly longer eating times immediately postpartum (Day 0; 224 and 164 min/day for B and C respectively, $P = 0.006$) and a trend towards longer times at 8 DIM compared to group C (264 and 226 min/day for B and C respectively, $P = 0.06$). Similarly, parity 3+ cows in group B showed numerically higher total eating times, significantly exceeding group C at 1 DIM (199 and 157 min/day for B and C respectively, $P = 0.02$) and 8 DIM (233 and 195 min/day for B and C respectively, $P = 0.03$), and trending higher at 7 DIM (215 and 185 min/day for B and C respectively, $P = 0.099$). Rumination time was significantly higher in group B for parity 2 cows at 1 DIM (473 and 359 min/day for B and C respectively, $P = 0.008$), with no significant differences observed in parity 3+ cows. Both groups showed a marked decrease in eating time on 2 DIM, coinciding with their introduction to the high-production group. Health events within the first 10 DIM were numerically lower in group B (9 cows; 18%) compared to group C (12 cows; 20%). Mortality and culling rates were also lower in group B (1 cow; 2%) compared to group C (4 cows; 7%). Importantly, diseased cows in group B maintained similar eating and rumination times to healthy cows, whereas diseased cows in group C showed significant reductions concerning eating time at DIM 1,2,3,4,5 and 7 and ruminating time at DIM 1,2,3,7 and 8. In parity 3+ cows, group B tended to be inseminated earlier (75 days) than group C (88 days; $P = 0.09$). The interval from calving to conception was numerically shorter in group B (87 days) compared to group C (104 days; $P = 0.11$). The relative risk of successful first insemination was 1.3 times greater in group B.

Discussion and conclusion: This study indicates that a fresh cow bolus containing live yeasts, minerals, and antioxidants may offer benefits to dairy cow health and subsequent performance. The bolus appears to support eating and to a lesser extent rumination time in the crucial days following calving, potentially aiding rumen adaptation and nutrient utilization. While overall health events were similar between groups, the bolus group showed more resilience, with diseased cows maintaining eating and rumination times comparable to healthy cows. These observations align with a previous study where a similar bolus containing live yeasts, minerals, and antioxidants led to higher dry matter intake compared to controls in cows with induced inflammation.² Furthermore, promising trends towards earlier insemination and improved first service conception rates in older cows suggest potential fertility advantages.

References

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