



Accredited Research:

The effects of an oral supplement containing calcium and live yeast on circulating calcium and production following i.v. lipopolysaccharide infusion in dairy cows

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Summary

Providing oral supplement, YMCP Vital bolus to fresh cow is an approach that can markedly ameliorated a hypocalcemic status, improve dry matter intake, and milk yield in the days following administration. Overall, utilizing an oral supplement may be a valuable management strategy to improve animal well-fare and productivity during and following immunoactivation.

Experimental Study Design

Lactating Holstein cows (n = 12; 269 ± 20 DIM; 760 ± 13 kg BW; 2.7 ± 0.3 parity) were housed in individual box-stalls, jugular catheterized and allowed 4 d to acclimate.

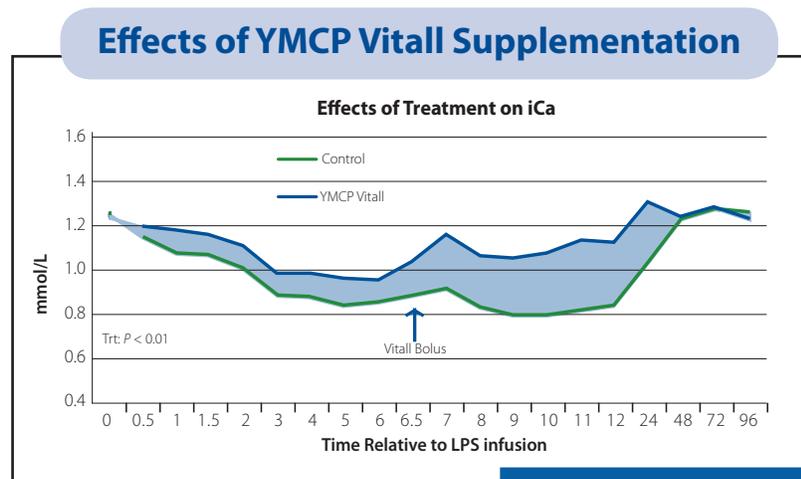
The trial consisted of 2 experimental periods (P). During P1 (3 d), cows were fed ad libitum and baseline data was collected. At the beginning of P2 (96 h) all cows were challenged with lipopolysaccharide (LPS), 0.375 µg/kg BW administered IV. Cows were assigned randomly to 1 of 2 treatments: 1) control (CON; no supplement; n = 6) or 2) YMCP Vital, administered 0.5 pre- and 6.5 h post-LPS infusion (CLY; n = 6).

Treatments

1. Control (LPS Challenge -No Supplement)
2. YMCP Vital – LPS Challenge + administration of 1 dose at .5 hour pre LPS infusion and again at 6.5 hours post respectively

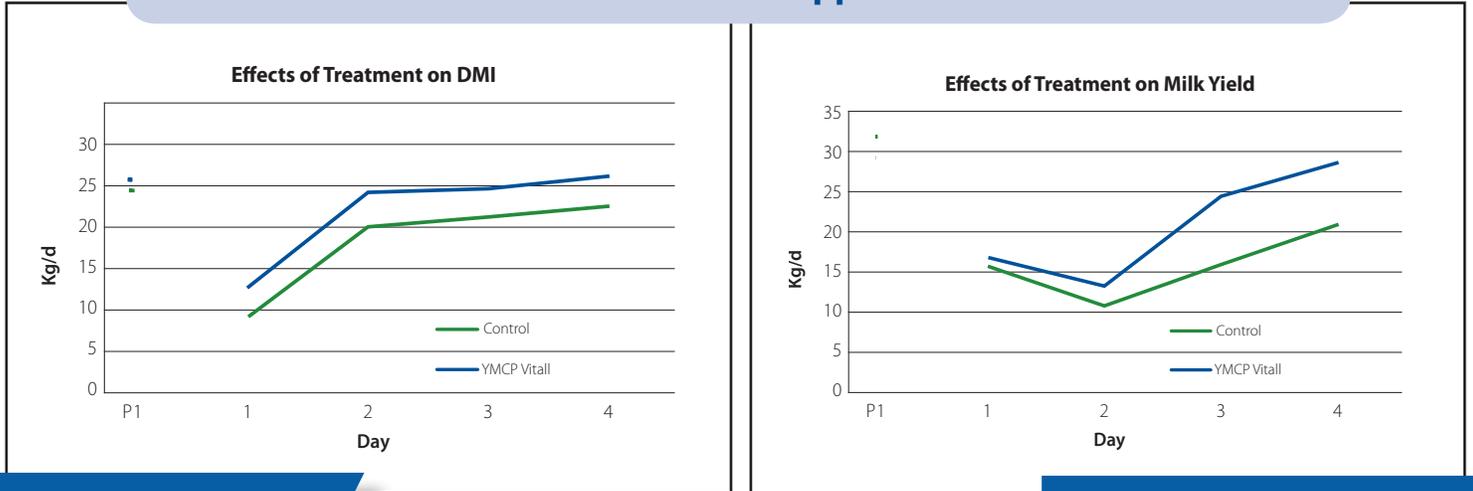
Results

Detailed ionized calcium, dry matter intake, and milk yield results are graphically displayed below:



IMPROVED 469% by 48 h AUC

Effects of YMCP Vitall Supplementation



INCREASED 22% during P2

AMELIORATED by 7.3 kg/d by Day 4

Effects of YCMP Vitall Supplementation

Both control and YMCP Vitall groups showed similar obvious response to LPS challenges. This included increased body temperature and respiration rate and decreased circulating blood glucose between 3 and 12 h post LPS-infusion. LPS markedly decreased DMI (60%; $P < 0.01$) similarly for both treatments on d 1, but overall (d1-4) DMI tended to be reduced less (14 vs 30%; $P = 0.06$) in YMCP Vitall supplemented vs CON cows, representing 22% increased DMI. LPS reduced ($P < 0.01$) milk yield on d 1 and 2 (48 and 61%, respectively). Overall (d 1-4), YCMP Vitall supplemented cows tended ($P = 0.11$) to produce more milk (32%) following the LPS challenge and this effect was most pronounced on d 4 (20.7 vs 28.0 kg/d; $P < 0.04$).

Conclusion

Supplementation of YMCP Vitall around the time of elevated levels of LPS markedly ameliorated hypocalcemia, improved DMI, and milk yield. All fresh dairy cows face significant health risks associated with suppressed immunity and a multiple nutritional component approach has proven to get cows back on feed quickly and ensure a rapid recovery. Overall, utilizing YMCP is a valuable management strategy to improve animal well-fare and productivity.

