M318 Effect of malate supplementation to dairy cows on milk production: A meta-analysis.

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We evaluated the effect of malate supplementation on milk production in lactating dairy cows. Four trials involving 516 dairy cows assessed the efficacy of malate. A blocked design was applied in each study with 2 treatments: 1) Control, and 2) Malate (48–84 g/cow/day). The studies were similar in basic design and each treatment group (T1 Control and T2 Malate) equivalence in terms of parity, pretrial milk yield and days in milk. Three trials supplemented the additive at 48 g/cow/day in the TMR and one study at 84 g/cow/day in the concentrate. Milk production was recorded daily during 71–90 d of lactation and averages calculated in a weekly basis. Data were tested for homogeneity, pooled and combined in a meta-analysis. Data were analyzed using mixed models ANOVA with terms included for the fixed effect of treatment and the random effect of study. Animal (cow) within treatment and study were considered as a random effects. Pretrial milk yield and DIM were included as a covariate. A repeated measures ANOVA was conducted with time. Malate supplementation significantly increased milk production by 2.3% across the lactation weeks studied (41.81 vs. 42.85 kg/d; P = 0.0107, SE = 0.33). An interaction between lactation week and treatment was detected (P = 0.0015). Malate supplementation increased milk production from the beginning of the trial until the fourth week of trial (41.8 vs. 41.1 kg/d, SE = 0.46; 42.2 vs. 42.3 kg/d, SE = 0.45; 41.6 vs. 42.1 kg/d, SE = 0.44; 41.5 vs. 42.7 kg/d, SE = 0.42; for wk 1 to wk 4, respectively), maintaining the improvement afterward. It can be concluded that the supplementation of dairy cow rations with malate increases milk production under farm conditions.

Key words: dairy cows, malate, milk yield

ADSA-ASAS
July 10-14, 2011
New Orleans_Louisiana