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### P471 Early-lactation cow response to supplementation of a methionine deficient ration with KESSENT® M and Smartamine M.

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Methionine (Met) is a limiting amino acid for dairy cows that when supplemented as rumen-protected Met RPM) can improve performance. This experiment compared production and plasma Met response of dairy cows provided a Met deficient diet supplemented with 2 RPM products. Twenty-four multiparous and 6 primiparous Holstein cows,  $95 \pm 20$  and  $71 \pm 3$  DIM, respectively, were used in a replicated  $3 \times 3$  Latin square design with 21-d periods. Treatments consisted of a control diet with a predicted metabolizable Met deficiency of 17 g/d (CON), or control diet plus 13 g/d of MP Met from either KESSENT M (RPM-K; Kemin Industries, Des Moines, IA), or Smartamine M (RPM-S; Adisseo Inc., Antony, France). Cows were fed ad libitum once daily, and RPM was top-dressed twice daily. Intake and milk yield were recorded daily, with milk samples collected during d 13–14 and 18–21 in each period. Weekly means of intake, milk yield, and milk composition were determined and analyzed with the GLIMMIX procedure of SAS, with the random effect of cow, and fixed effect of treatment, period, week, parity, block, and interaction of treatment by week. Blood samples were collected d 21 of each period. Plasma free Met expressed as a percentage of total nonsulfur containing amino acids was analyzed with GLIMMIX. Treatment did not affect milk yield (41.6 kg/d;  $P = 0.49$ ) or milk protein yield (mean 1.32 kg/d;  $P = 0.25$ ), but affected milk fat percentage ( $P = 0.01$ ) and milk protein percentage ( $P = 0.02$ ) and tended to affect milk fat yield ( $P = 0.09$ ). Milk fat percentage was not different for RPM-K and RPM-S (3.76 vs. 3.73%;  $P = 0.32$ ), and both were greater than CON (3.67%;  $P \leq 0.05$ ). For milk fat yield, there was no difference between RPM-K and RPM-S (1.48 kg/d;  $P = 0.78$ ), but RPM-S was greater than CON (1.45 kg/d;  $P = 0.04$ ), and RPM-K tended to be greater than CON ( $P = 0.08$ ). Milk protein percentage was not different between RPM-K and RPM-S (3.25%;  $P = 0.96$ ), but both were greater than CON (3.22%;  $P = 0.02$ ). Plasma free Met was affected by treatment ( $P < 0.001$ ) and did not differ between RPM-K and RPM-S (2.04 and 2.05%, respectively;  $P = 0.87$ ), but both were greater than CON (1.39%;  $P < 0.001$ ). Overall, both RPM-K and RPM-S resulted in similar increases in milk fat, milk protein, and plasma Met compared with CON.

#### KEYWORDS:

methionine, lactation