

#### **491 Effects of the level of dietary protein and methionine supplementation in dairy ewes in early lactation.**

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Multiparous Lacaune dairy ewes ( $n = 47$ ;  $77.2 \pm 1.2$  kg BW) in early lactation ( $37 \pm 2$  DIM), were used to assess the effects of the level of CP (14.8 vs. 16.6%; DM basis) and supplementation with rumenprotected Met (0 vs. 5 g/d; Smartamine, Adisseo, France) in the diet to cover 100% of metabolizable Met based on cow requirements (INRA 2007). Ewes were in balanced groups of 6 per pen (8 groups), milked 2× daily and fed a TMR ad libitum (44:56% forage:concentrate; DM basis). Met was supplemented mixed with 40 g of cracked corn grain fed individually at the a.m. milking. The trial was a crossover split-plot design with 2 periods of 3 wk with a 2-wk washout period. The ewe period was the experimental unit. Intake (group) and milk yield were measured daily, and milk sampled for composition on d 16 and 17 of each period. Individual intake was assessed by using 30 g/d of PEG6000 as external marker. Blood samples were taken on d 18 of each period for metabolites analyses. BW, BCS and wool growth (shearing 200 cm<sup>2</sup>/ewe) were recorded at the start and the end of each period. Data were analyzed by using the GLIMMIX of SAS (v.9.4). No differences in DM intake ( $3.50 \pm 0.12$  kg DM/d), milk yield ( $2.52 \pm 0.17$  kg/d), milk protein ( $5.42 \pm 0.07\%$ ) and casein ( $4.02 \pm 0.06\%$ ) were detected either by CP or Met treatments. Milk urea content increased ( $P < 0.01$ ) with CP ( $47.0$  vs.  $54.9 \pm 1.2$  g/L), milk fat ( $6.54$  vs.  $6.31 \pm 0.13\%$ ) and solids ( $17.7$  vs.  $17.4 \pm 0.2\%$ ) decreased ( $P < 0.01$ ) with Met. Blood urea increased ( $33$  vs.  $48 \pm 2$  mg/dL;  $P < 0.01$ ) and glycemia decreased ( $66$  vs.  $62 \pm 2$  mg/dL;  $P < 0.05$ ) with CP, whereas BOHB tended to increase ( $0.585$  vs.  $0.640 \pm 0.042$  mmol/L;  $P = 0.06$ ) with Met. Blood NEFA, cholesterol, insulin or greasy wool growth were not affected by treatment, but BW gain tended to increase with CP ( $P = 0.06$ ). Plasma Met concentration did not change with CP but increased with Met supplementation. CP or Met had no effect on N efficiency ( $24.8 \pm 2.4\%$ ). Increasing CP level did not improve lactating dairy ewe performance. An excess of metabolizable protein supply could explain the poor milk protein yield responses in Met balanced diets.

Key Words: dairy sheep, dietary protein, methionine