

## The effect of increasing postruminal methionine supply on lactational responses in dairy cows

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Methionine has been suggested (eg, Rulquin, 1987), as a limiting amino acid for milk protein synthesis. The objective of this study was to determine dose-response relationships between graded duodenal methionine infusion levels and milk protein yield and content, in high-producing dairy cows.

Five Holstein cows, fitted with duodenal cannulae were offered twice daily a complete diet containing: maize silage 64%; rumen-protected soybean meal 8.83%; soybean meal 6.3%; cereals 14%; urea 0.56%; molasses 0.4%; minerals 0.87%; and alfalfa hay 5%, on a dry matter basis. The animals were assigned to a 5 x 5 latin square design in which the treatments were continuous (14 d) infusions of DL-methionine: 0, 6, 12, 18 and

24 g/d in a total volume of 5 000 ml water; each with a constant infusion of L-lysine (10 g/d).

The treatments did not affect dry matter intake, milk yield, fat yield or content. In contrast, milk protein yield and content and casein percentage were regularly ( $P < 0.05$ ) increased, with increasing amounts of methionine (table I). It is concluded that postruminal methionine supplementation may be seen as an efficient method of increasing milk protein yield and content in cows fed maize silage-soybean meal diets.

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Rulquin H (1987) *Reprod Nutr Develop* 27, 299-300

**Table I.** The effects of duodenal infusions of methionine on feed intake, milk yield and its composition.

Parameter	Infusion level (g/d)					SE
	0	6	12	18	24	
DMI (kg/d)	23.0	22.2	22.6	23.1	22.9	0.78
Milk yield (kg/d)	37.5	37.9	36.3	36.6	37.9	1.53
Protein yield (g/d)	1014 <sup>b</sup>	1039 <sup>ab</sup>	1054 <sup>ab</sup>	1071 <sup>ab</sup>	1099 <sup>a</sup>	43
Protein content (g/kg)	27.2 <sup>c</sup>	27.6 <sup>bc</sup>	28.6 <sup>ba</sup>	29.4 <sup>a</sup>	29.7 <sup>a</sup>	0.88
Casein/protein (%)	81.0 <sup>b</sup>	81.5 <sup>ab</sup>	81.7 <sup>ab</sup>	82.3 <sup>ab</sup>	82.5 <sup>a</sup>	0.91
Fat yield (g/d)	1297	1320	1247	1253	1287	58
Fat content (g/kg)	34.4	34.5	33.8	34.3	34.8	1.69

a, b, c Treatment means of rows differ significantly ( $P < 0.05$ ).