

Fish meal supplementation to early lactation Jersey cows grazing ryegrass pasture

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Abstract

This trial was conducted to test the hypothesis that early lactation cows grazing ryegrass pasture and receiving maize and mineral supplementation could respond to additional supplementation with a protein source such as fish meal. Multiparous Jersey cows in early to mid lactation that grazed annual ryegrass pasture in spring were used in a randomised complete block design experiment. In addition to the pasture, cows received 6 kg (as is) of a maize-based supplement, including minerals, fed in two equal portions in the milking parlour. Three groups of 15 cows received a control, a low fish meal or a high fish meal treatment (0, 4 or 8% fish meal replacing maize). Milk yield was measured and milk samples taken fortnightly. A simultaneous study on rumen fermentation was conducted using eight rumen cannulated cows receiving the control and high fish meal treatments in a cross-over design experiment. Ruminal pH and ammonia-N and volatile fatty acid concentrations were measured. Milk yield, 4% fat-corrected milk yield and milk fat and protein percentages of cows on the low and high fish meal treatments (21.9 and 22.1 kg milk/d, 24.1 and 24.2 kg 4% fat corrected milk/d, 4.73 and 4.67% fat and 3.49 and 3.45% protein) were higher than the control (20.5 kg milk/d, 20.4 kg 4% fat corrected milk/d, 3.97% fat and 3.25% protein). The ruminal ammonia-N concentration was higher in the cows on the high fish meal treatment than the control (16.7 vs. 14.2 mg/dL). Fish meal supplementation to cows on ryegrass proved to be profitable.

Keywords: Dairy cattle, cultivated pasture, RUP, maize, milk yield, milk composition