

THE VALUE OF VARIOUS VEGETABLE PROTEIN CONCENTRATES FOR LACTATING COWS GRAZING PASTURE

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The supplementation of grazing cows with concentrates is receiving considerable attention in Victoria. In general, cereal grains form the large proportion of concentrates fed to cattle. These are high in energy and low in protein which predisposes them to the problems of substitution and milk fat depression (Trigg et al. 1983). Increasing the level of protein in the supplement may have a stimulatory effect on milk yield and milk fat production (Trigg et al. 1982). They found that increasing levels of protein infusion to the abomasum resulted in an increase in partition of nutrients towards milk rather than body tissue.

Vegetable proteins differ in their rumen degradability and little is known of the relative efficacy of these to produce milk when offered to cows at pasture. This experiment was designed to investigate the effects of four protein supplements on milk production.

Twenty Friesian/Jersey cows (5 per group) in early lactation strip grazed good quality irrigated autumn pasture and were offered either linseed meal (LSM), soybean meal (SBM), sunflower meal (SFM), or cotton seed nuts (CSN), twice per day after milking at a rate of 1 kg of crude protein per day.

The experiment was preceded by a nylon bag digestibility trial designed to indicate the order of rumen degradability and rate of disappearance of the supplements tested. Results are shown in the table.

Nylon bag and milk production data.

	Pre Treatment	Treatment	LSM	SBM	SFM	CSN
	mean	mean				
Milk yield (kg/d)	16.9	18.3	18.5	18.9	17.9	18.1
Fat yield (kg/d)	0.78	0.84	0.81	0.85	0.83	0.90
Protein yield (kg/d)	0.54	0.62	0.61	0.66	0.60	0.61
Fat test (%)	4.7	4.7	4.5	4.5	4.7	5.0
Protein test (%)	3.2	3.4	3.5	3.5	3.4	3.3
Degradation at 24 hrs (%)			64	80	66	50

Even though the nylon bag trial indicated a wide variation in degradability there was no differential effect of the supplements in milk production.

Pre-experiment production data indicate that protein supplements had a positive effect on milk yield, fat yield and protein yield which were significantly ( $P < 0.05$ ) greater with supplemented cows.

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