COMMON VETCH GRAIN AS A PROTEIN SUPPLEMENT FOR DAIRY COWS

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Grain of common vetch *(Vicia saliva* L.) is available in South Australia as an alternative to lupin grain which is commonly used as a protein supplement for dairy cows. Although the presence of toxins limits the inclusion of common vetch in pig (Van Barneveld, pers. comm.) and poultry diets (Glatz and Hughes 1993), there is little information on the suitability of common vetch as a protein supplement in dairy cow rations. This experiment compared the production and composition of milk by cows fed either lupin (12.3 MJ ME/kg DM, 29.8% CP) or common vetch cv. Blanche Fleur (12.5 MJ ME/kg DM, 29.3% CP) grains, as protein supplements to a silage and pasture-based diet.

Forty Holstein-Friesian cows in the first or second month of lactation were allocated to groups of 2 based on similarity in calving date and milk fat yield recorded during a 14-day covariance period. Cows within each group were allocated at random to be fed 8 kg/day of either a rolled 1: 1 barley-lupin grain mixture or 1: 1 barley-vetch grain mixture. All cows were fed 1 kg/day of a commercial pelleted mineral/vitamin/buffer supplement which was mixed with the grain. The treatment diets were fed twice daily at milking for a 10-day adaptation period and 49-day test period. Cows were managed as a single herd with wilted, round bale pasture silage (9.1 MJ ME/kg DM, 17.3% CP) available *ad libitum* together with restricted perennial ryegrass/subterranean clover pasture (11.7 MJ ME/kg DM, 15.8% CP). Milk yield and composition were recorded 3 times each week and liveweight once each week. Silage intake for both treatment groups was recorded during the last 14 days of the test period.

Table 1. Covariance-corrected mean daily yields of milk and milk components, milk composition, liveweight and liveweight change of cows fed lupin or vetch grain

	Lupin grain	Vetch grain	SED
Milk yield (L)	30.3^{bA}	27.7^{a}	0.3
Fat yield (kg)	1.30^{b}	1.23^{a}	0.01
Protein yield (kg)	0.92^{b}	0.87^{a}	0.01
Fat content (g/kg)	43.1^{a}	44.8^{b}	0.3
Protein content (g/kg)	30.5^{a}	31.6^{b}	0.1
Final liveweight (kg)	553^{a}	563^{b}	4
Liveweight gain (kg/day)	1.0^{a}	1.2^{b}	0.1

[A] Means in the same row followed by different letters differ significantly ($P<0.05$).

Cows fed lupin grain produced significantly ($P<0.01$) more milk, fat and protein than those fed vetch grain (Table 1). Milk fat and protein contents, and liveweight change were significantly ($P<0.01$) higher for cows fed vetch grain than for those fed lupin grain. Cows ate all of the grain offered and group silage intakes were similar for both treatments.

Although common vetch grain was readily eaten by dairy cows when fed as a component of a concentrate mixture with barley grain, it was less suitable than lupin grain as a protein supplement for dairy cows fed a diet based on silage and pasture in early lactation.

GLATZ, P.C. and HUGHES, R.J. (1993). Proceedings of the Australian Poultry Science Symposium, Sydney, p.90.