

EFFECTS OF ADDING ADDITIONAL NITROGEN TO SUPPLEMENTS CONTAINING DAP TO RESTRICT INTAKE

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As the quantity and quality of pastures in south-west Western Australia decreases during summer-early autumn young dairy stock usually lose weight and would benefit from some form of feed supplementation. Diammonium phosphate (DAP) when added to grain restricts intake hence preventing lactic acidosis yet allows the provision of the supplement ad libitum (Hough et al., 1992). The low nitrogen content of DAP (17.5% N) compared with other additives such as urea may result in a sub-optimal level of crude protein for growing cattle grazing dry feed or fed pasture hay and offered a cereal grain supplement containing DAP to restrict intake (see Hough et al., 1992).

The effect of adding urea to a supplement of barley containing DAP to restrict grain intake was examined. Twenty-four Holstein-Friesian steers (liveweight = 102±2.6 kg) were penned individually and offered ad libitum a supplement of barley containing 4% DAP and either 0, 0.5 or 1.0% urea (8 steers / treatment) for 84 days.

Adding 4% DAP to a supplement of barley restricted supplement intake to 35% of total DM intake (see table). The addition of urea to the supplement did not affect supplement or hay intakes which averaged 0.8 and 1.7 kg DM/day/100 kg liveweight respectively. Liveweight gain and food conversion efficiency were increased by adding urea to the barley supplement with gains of 0.49 and 0.39 kg/day (P<0.05) and conversion ratios of 6.5 and 8.2 kg DM/kg gain (P<0.01) for steers with and without additional urea respectively.

	Urea (%)			s.e.	Significance
	0	0.5	1.0		
Supplement intake					
kg DM/day	1.0	1.0	1.0	0.08	n.s.
kg DM/day/100 kg liveweight	0.8	0.7	0.8	0.04	n.s.
Hay intake					
kg DM/day	2.1	2.3	2.3	0.14	n.s.
kg DM/day/100 kg liveweight	1.7	1.7	1.7	0.08	n.s.
Total intake					
kg DM/day	3.2	3.2	3.3	0.17	n.s.
kg DM/day/100 kg liveweight	2.5	2.5	2.5	0.07	n.s.
Liveweight gain (kg/day)	0.39	0.50	0.49	0.038	n.s.
Food conversion ratio (kg DM ⁺ /kg liveweight gain)	8.2	6.2	6.9	0.46	*

* P<0.05; n.s., not significant; + kg grain and hay

When young growing cattle are offered pasture hay or when they graze dry paddock feed during summer, adding nitrogen to cereal grain supplements containing DAP as either urea or as protein supplement (eg lupin grain) is warranted.

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