

NARBON BEANS AND FIELD PEA SUPPLEMENTS FOR SHEEP FED PASTURE HAY

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Narbon bean (*Vicia narbonensis*) is a grain legume with potential for low rainfall areas, containing anti-nutritional factors (ANFs) which preclude its incorporation in untreated form in diets of pigs and poultry (Johnson and Eason 1990). The following experiments examined the response of sheep to supplementation of a roughage diet with Narbon beans or field peas.

In experiment 1, 50 mature Merino wethers (LW 59.3 ± 2.3 kg, condition score 2-3) were allocated at random to 5 treatments and held in 5 almost bare, 0.25 ha paddocks. Treatments comprised: T1 pasture hay (1.15% N, 47% IVOMD) *ad libitum*, no supplement; T2 and T3 supplemented with field peas (4.1% N) at 10g and 20 g/kg LW respectively; T4 and T5 supplemented with Narbon beans (4.68% N) at 10g and 20 g/kg LW respectively, fed twice weekly for 8 weeks; sheep were weighed weekly; midside wool patches were clipped on days 14 and 56. In experiment 2, 5 sheep from each of T1, T2 and T4 were moved to metabolism crates. After 7 days adaptation, feed intakes and faecal output were measured for 7 days.

Narbon beans were as good as field peas for growth of sheep, indicating that any ANFs for monogastric animals had been de-toxified by the ruminant. In experiment 1, T4 (10 g/kg LW of Narbon beans) increased LW gain more ($P < 0.01$) than the equivalent ration of field peas but there was no difference between field peas and Narbon beans at 20 g/kg LW (Table 1). In contrast, wool growth was not increased by either supplement. Allden and Geytenbeek (1980) found that Narbon bean forage did not increase wool production above that of sheep fed mature pasture but field pea forage increased production 40%. Experiment 2 showed that although digestibility of dietary DM was increased by both supplements, there was complete substitution of supplement for roughage and little increase in DOMI.

Table 1. Intake, OM digestibility, liveweight gain and wool growth of sheep fed pasture hay alone (T1) or supplemented with 2 levels of field peas (T2, T3) or Narbon beans (T4, T5)

	T1	T2	T3	T4	T5	s.e.m.	P
<i>Experiment 1 (n=10)</i>							
LW gain (g/day)	6	58	90	128	99	8.8	***
Clean wool (mg/patch.day)	74	76	77	81	75	6.4	n.s.
<i>Experiment 2 (n=4 or 5)</i>							
Hay DMI (g/day)	1104	652	—	654	—	68.4	***
Legume DMI (g/day)	0	471	—	457	—	—	—
Total DMI (g/day)	1104	1123	—	1110	—	76.4	n.s.
OM digestibility (g/kg)	568	655	—	662	—	10.0	***
DOMI (g/day)	628	736	—	731	—	45.4	n.s.
*** $P < 0.001$							

The greater LW gain for sheep fed 10 g/kg LW of Narbon beans than equivalent rations of Field peas or 20 g/kg LW of either legume is difficult to explain but may have been associated with lower acceptability and slower consumption of Narbon beans than of field peas. Thompson and Curtis (1990) also observed slower growth of sheep fed high levels of lupins (400–500 g/day) than lower levels (200–300 g/day) on a weekly basis.

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