LUPINS IN PELLETED DIETS FOR EXPORT LIVE WETHERS

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The introduction of sheep to concentrate diets in a feedlot environment is commonly accompanied by liveweight loss (Hall and Mulholland 1982) that probably arises mainly from low intakes and digestive disturbances as sheep adapt to unfamiliar feeds and starch fermentation. Lupins contain only 1-3% starch, β-galactans being their main carbohydrate (Hill 1977) and substitution of lupins for cereal grains may offer some protection against digestive disturbance during adaptation of sheep to concentrate diets. We looked at the effect of four levels of lupins replacing cereals in pelleted diets fed to sheep in circumstances mimicking feeding conditions used in the preparation and shipment of export wethers.

Four pelleted diets containing 0, 13, 26 and 39% lupins replacing a 2 wheat:1 barley mixture in a 60% grain diet, replicated three times, were fed to 144 wethers (44.2 + 3.2 kg, condition score 2.5) from property A and 72 wethers (44.5 ± 2.9kg, condition score 4) from property B allocated respectively to 8 (blocks 1 and 2)and 4 (block 3)groups of 18 sheep each. The diets, fed at 900 g/head daily, were introduced to the sheep, starved for 48 hours, in outdoor yards over 5 days, pellets replacing 900 g hay in stepwise fashion. The sheep were then moved to indoor pens (3 sheep/m^2, 6 cm trough/head) for a further 20 days of restricted feeding, uneaten food was removed daily.

TABLE 1 Deaths, non feeders, mean liveweight change, mean daily feed intake during days l-7 indoors and daily time to eat meals during indoor feeding, of sheep fed pelleted diets containing four levels of lupins

Diet	Deaths	Non-feeders	Mean live-weight change (kg)	Mean feed intake days l-7 indoors (kg/day)	Time to eat meal (hours+)
1. 0% lupins	1	0	- 1.55[a]	0.814[a]	7.25[a]
2. 13% lupins	1	2	- 1.19[a]	0.840[a]	6.28[a]
3. 26% lupins	1	3	- 1.08[a]	0.826[a]	4.59[b]
4. 39% lupins	1	3	- 0.54[a]	0.827[a]	2.99[c]

Values in columns with different superscripts are significantly different ($P<0.05$)
+ Mean of block 1 and 2 (sheep from property A) only

Iiveweight changes and feed intakes did not differ between treatments, but time to eat meals did. The shorter meal time of sheep fed diets containing lupins may explain the higher number of non-feeders in these groups (Table 1). Sheep from property B (block 3) behaved differently to sheep from property A (blocks 1 and 2) by growing significantly faster (+ 0.09 vs - 1.68 kg), having fewer (1 vs 7) non-feeders and taking far longer to eat their feed (15.64 vs 5.28 hours). The main physical difference between the two types of sheep was the fatter condition of sheep from property B (condition score 4 vs 2.5).

We conclude that lupins would be unlikely to have any special beneficial effect such as a 'safety factor' role in pelleted diets used to feed export wethers, given the moderate grain content of these diets.

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