

Fertilising Native Pastures

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Perennial native grass pastures will generally respond to fertiliser provided they contain a responsive legume. This is particularly true of those with a significant component of microlaena (*Microlaena stipoides*) or wallaby grasses (*Austrodanthonia* spp). It is generally believed that too much fertiliser will cause native grasses to die out, and this can occur, but is it the fertiliser that causes such losses? This paper provides some data on the persistence of several native grasses following six years of relatively high fertiliser application.

The work was carried out on Howard Sinclair's property "Amaroo" at Newbridge. The altitude is 1200m, the soils are shallow, acidic (pH_{C_a} 4.2) and shale derived. Soil phosphorus and sulphur levels were initially very low. The pastures were dominated by wallaby grass, with microlaena, wheat grass (*Elymus scabrum*), some perennial rye (*Lolium perenne*), sub clover (*T. subterraneum*), *Vulpia* spp. and soft brome (*Bromus mollis*).

The "control" paddock received 125 kg/ha single superphosphate every third year (common practice in the district). Two other paddocks received a "high" fertiliser input of either reactive phosphate rock (RPR) or water-soluble, single superphosphate (SSP). In 1995 these paddocks had 420 kg/ha SSP or 300 kg/ha RPR & gypsum which provided equal amounts of sulfur & phosphorus. In '96 & '97, 250 kg/ha SSP or RPR/sulphur blend was applied and for the last three years, 180 kg/ha of the relevant products (based on 2 kg phosphorus supplied for each ewe carried) were applied.

Before the demonstration commenced, permanent transect lines were established in each paddock to monitor species presence and persistence. In March 2001, the ten 1m² fixed quadrats were counted again and basal presence under the intersection of wires in a 10 cm square mesh grid was recorded. Results are below (Table 1).

Table 1. Effect of fertiliser treatments on presence of 6 grass species

Paddock	Control		High SSP		High RPR	
	Oct 1994	March 2001	Oct 1994	March 2001	Oct 1994	March 2001
Danthonia	296	375	179	453	140	331
Microlaena	7	22	42	28	28	67
Elymus	0	30	0	8	0	5
Perennial Rye	2	55	69	60	55	256
Phalaris	0	0	7	0	7	9
Yorkshire Fog	0	7	20	2	8	174

Border Leicester x Merino ewes were set stocked, producing second cross lambs with an August lambing and mid December weaning. The "district practice" paddock remains at 5 crossbred ewes/ha. Where more fertiliser was applied, stocking rates were increased to utilise the extra feed produced. The two high fertilised paddocks carried 6 ewes/ha in '95 and '96, 7.5 ewes/ha in '98 and '99 and 8 ewes/ha for the last 2 years.

Annual grasses and sub clover generally produce the bulk of extra production in winter/spring in fertilised native pastures and can smother the perennials. However in the present demonstration, they rarely rose above 20% and 30% respectively due to the increased stocking rate and the perennial grasses have persisted. It appears that native pastures should be managed no differently to introduced pastures when fertilised - utilise the extra feed grown by increasing the stocking rate.

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