

## Comparative establishment levels of old and new pasture species in Southern NSW

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The wastage of sown seed at pasture establishment has long been regarded as a significant cost of pasture improvement. Low establishment levels of 20-40% have been accepted for many of the older pasture species, even with carefully prepared seedbeds(1). Lower establishment levels than these, however, have been measured from direct drilling for some species(1) A number of newer cultivars have been released since this earlier work and more sophisticated establishment techniques have been developed(Campbell, pers. comm ).

### Method

An experiment was conducted on granite soils of the southern tablelands of NSW at Marulan in 1985, examining the establishment levels of various pasture cultivars using three traditional establishment techniques and two sowing times, in three replicates. The species selected for study were Woogenellup and Larisa subclovers alone or with Currie cocksfoot, Kangaroo Valley perennial ryegrass and Sirolan phalaris. The three establishment techniques used were cultivated seed bed(T1), direct drilling using an Aitcheson seeder(T2) and surface broadcast(T3), whilst the two sowing times were early May(S1)and late June(S2).

### Results and Discussion

Using these traditional sowing techniques, establishment of all cultivars was still low including the newer cultivars such as Larisa and Sirolan (Table 1) Woogenellup established the most successfully (33.5,) when sown into a prepared seedbed, whilst establishment levels were less than 15% for all other treatments. All cultivars established better in the prepared seedbed, than by direct drilling or broadcast. This was due to the elimination of native grass competition and better seedbed conditions. Woogenellup established much better than Larisa when sown in May, reflecting its ability to germinate over a wider temperature range For the late sowing the germination of both cultivars was similar.

**Table 1. Establishment C%) of Pasture Species, Eight Weeks After Sowing**

Treatment	Woogenellup Subclover	Larisa Subclover	Sirolan Phalaris	Currie Cocksfoot	Kangaroo Val P. Ryegrass
T1S1	33.50	14.50	12.90	9.80	13.60
T1S2	15.10	14.30	5.30	5.10	7.00
T2S1	9.00	6.60	1.70	2.10	1.60
T2S2	12.00	8.20	2.80	2.80	3.60
T3S1	2.30	2.10	0.74	0.72	1.30
T3S2	1.60	1.50	1.00	0.97	2.00

Lsd (5%)=2.61:signif. levels in text calculated on arcsin transformations

Among the grasses, both ryegrass and phalaris had significantly higher levels of establishment in the prepared seedbed than cocksfoot, although the differences for the later sowing were not as marked. The ryegrass, however, did establish better at the later sowing by direct drill ( $P < 0.05$ ). There was no effect of the grasses on the establishment levels of either Woogenellup subclover or Larisa, but grass establishment was favoured by being sown with Larisa ( $P < 0.05$ ) Competition from silver grass (*Vulpia myuros*) and haresfoot clover (*Trifolium arvense*) proved detrimental to grass establishment in the direct drilled and broadcast techniques in the warmer, moister May weather In June the standing natural vegetation probably acted to provide shelter(2) and Larisa yielded much less dry matter than Woogenellup ( $P < 0.01$ ), therefore being less competitive.

The low establishment levels of all species warrants further research, particularly in relation to the apparent sensitivity of the grasses to competition from companion species.

1. Strang, J. and Broue, P 1959. Agric. Gazette NSW 70 617-21

2. Dowling P.M., Clements R.J. and McWilliam, J.R. 1971. Aust J Agr.Res.22 61 74