

Sub clovers for Tasmania: production of early mid season and late groups

P.M. Evans and J.A. Carpenter

Dept of Agriculture, Mt Pleasant Laboratories, Launceston Sth, Tasmania

Rainfall and evaporation patters and latitude make late flowering cultivars of sub clover (*Trifolium subterraneum*) the obvious choice for the Tasmanian environment. However, some early-mid-season lines seem to have the ability to continue growing actively after flowering starts if the season is favourable (1). Introductions and crossbreds from the National Sub Clover Improvement Program (NSCIP) are being evaluated. Data from the best five mid-season-late lines of sub-species *subterraneum* and early-mid-season yannicum lines, together with four commercial cultivars used as controls, are presented here.

Methods

Cultural practices and fertiliser applications used were those recommended for tie districts. All sites were drilled with perennial ryegrass cv. Nui at 6 kg ha⁻¹. Two replicates of plots of 2m x 0.5m of 124 NSCIP lines and registered cultivars were sown by hand at 30 kg ha⁻¹ after inoculation, in May 1985 at all sites. The Epping site was on a virgin, sandy lateritic soil. The Relbia site was on a fertile alluvial clay; the Whitmore site was in a cold district on a solodised solonetz clay loam. Seedling numbers were counted each autumn and dry matter production was estimated with a pasture probe (2); trials were grazed after each sampling. Flowering times were recorded at 3-4 day intervals. Seed yield was determined by taking two 78.5 cm⁻¹ soil cores to 4 cm depth per plot in early summer.

Results and Discussion

The mid-season-late *subterraneum* lines established well, but the yannicum lines established poorly due to poor seed scarification. In 1985, the *subterraneum* lines had about 3 times more seedlings established and their dry matter production was more than double that of the yannicum lines (Table 1). In 1986, seedling numbers increased 10 fold over 1985 for both subspecies at Epping and Relbia and the best five lines of both groups yielded about the same (Table 1). Seedling numbers only increased five-fold at Whitmore and at this site the *subterraneum* lines outyielded the yannicum lines. Optimum seedling densities were possibly not reached at Whitmore by the latter group. There was a 29 day difference in flowering time between the earliest crossbred 76Y51.26 and the latest introduction, GF.177.1, but 76Y51.26 produced slightly more dry matter across all three sites. The data suggest that some early-mid-season yannicum lines have the ability to keep growing when conditions are favourable and can regenerate well in the second season even if establishment after sowing is poor. The best mid-late lines show a potential to replace currently recommended cultivars in Tasmania, having better dry matter production and regeneration ability.

Table 1 Establishment year - 1985

SITE Line	Fl. D.*	REBELIA		EPPING		WHITMORE		REBELIA		EPPING		WHITMORE			
		Seedl. /m ²	D.M. t/ha	Seedl. /m ²	D.M. t/ha	Seedl. /m ²	D.M. t/ha	Seedl. /m ²	D.M. t/ha	Seedl. /m ²	D.M. t/ha	Seedl. /m ²	D.M. t/ha		
B9830F	39	596	2.1	183	560	3.8	165	320	0.5	4175	2.6	5450	2.0	3000	2.7
B9880J	41	388	1.7	126	380	2.2	87	318	1.1	4775	2.3	6175	1.8	1675	2.5
B9779C	47	224	2.3	141	432	1.5	155	284	1.3	2900	3.3	2700	1.7	2100	3.0
B9774F	52	200	1.5	118	512	1.4	168	492	0.8	3050	2.7	4850	2.2	1900	2.9
GF.177.1	56	416	1.9	77	336	2.3	228	352	0.7	1425	1.8	4925	2.9	825	1.9
Mean	47	365	1.9	129	444	1.9	161	373	0.9	3265	2.5	4860	2.1	1900	2.6
Woog.	24	156	1.0	40	128	1.1	64	240	0.3	600	1.0	875	1.4	825	1.9
K'dale	42	420	2.6	115	368	2.0	227	228	0.4	2475	2.6	4050	1.8	1100	1.3
76Y51.26	27	132	0.9	38	108	0.6	72	136	0.2	1925	3.1	1875	1.7	1675	1.9
76Y51.9	34	108	0.7	33	52	1.0	79	232	0.3	1900	2.3	1175	2.4	950	1.3
76Y52.14	45	172	1.1	40	188	0.8	109	112	0.1	1150	1.9	1675	2.6	975	1.7
76Y52.12	45	24	0.4	32	64	0.9	96	104	0.3	775	2.2	1800	2.6	550	1.0
76Y52.15	47	148	1.2	52	136	0.9	99	232	0.3	725	2.7	1325	1.7	950	1.7
Mean	40	117	0.9	39	110	0.8	91	163	0.2	1295	2.4	1570	2.2	1020	1.5
Trikkala	35	104	0.7	70	144	0.8	62	60	0.3	1275	3.7	4000	2.1	475	0.6
IATise	43	208	1.3	107	248	0.9	118	128	0.4	1800	3.2	2425	1.7	1000	0.2

* Flowering date, days after 1 Sept. # No. seedlings established, autumn
 # Sub clover only, total all samplings \$ Seed yield, seeds per dm²

1. Gladstones, J.S. 1985, W.A.D.A. ISSN 0157-6259

2. Vickery, P.J. and Nicol, G.R 1982 CSIRO. Anim. Res. Lab. T. Pap. No. 99 22p