

## The potential of trifolium subterraneum subspecies brachycalycinum on red brown earth soils

P.E. Beale

Turretfield Research Centre, Rosedale,  
South Australia, 5350

The failure of subterranean clover (*Trifolium subterraneum*) on soils of high pH and high lime content was first noted in 1938 (1). By 1956 the adaptation of the cultivar 'Clare' to neutral or slightly alkaline soils was observed (2). Three subspecies of *T. subterraneum* have been described (3), cv Clare being the only commercial cultivar of subspecies *brachycalycinum* (SB). SB appears to be better adapted to heavier textured soils, stony soils and soils that crack (4). This paper describes the initial screening of over 250 lines of SB on red brown earth soils.

### Methods

Two hundred and fifty lines of SB were grown in 1981-82 in single rows four metres long. Sand was spread over the rows to facilitate seed harvesting. Growth scores were made and general plant habit observed. Isoflavones were determined on a number of lines. Seed was harvested and weighed.

### Results and Discussion

Seventy lines commenced flowering before Clare. Thirty one lines were more than seven days earlier than Clare and eight lines more than 14 days earlier than Clare. The growth habit of different lines varied from prostrate to erect. All lines had peduncles that followed a meandering route to the site where burrs lodged and developed. The highest level of formononetin recorded was .25% of dry weight and it appears that most SB lines are low formononetin. Data for some promising lines are presented in Table 1.

**Table 1. Data for 15 selected lines of SB sown 10/5/82. Unreplicated rows**

Line No.	Days to First Flower	Growth Score 0-10 3/9/82	Seed Yield g/4m. row
24417	99	10	51
28102	103	7	94
19451	108	9	100
70056B	111	5	177
70124B	112	7	143
70094B	114	7	195
70131	115	7	273
69968B	117	8	142
70058B	118	7	251
12701	118	7	202
14110A	120	6	219
CLARE	121	7.5	172
12720B	122	8	271
70114A	132	8	264
12870	134	7	144

Sixty five lines have been selected for evaluation of their persistence in a pasture-crop-pasture rotation at a number of sites on red brown earth soils in South Australia.

1. Trumble, H.C. and Donald, C.M. 1938. J. Aust. Inst. Agric. Sci. 4, 206-208.
2. Higgs, E.D. and Crawford, E.J. 1956 J. Dep. Agric. S. Aust. 60, 182-184.
3. Katznelson, J. and Morley, F.H.W. 1965. Israel J. Bot. 14, 15.
4. Katznelson, J. 1970. Proceedings of the XIth. International Grasslands Congress 192-196.

