

Register of Australian Herbage Plant Cultivars

B. Legumes

1. Clover

Trifolium ambiguum M. Bieb. (Caucasian clover) cv. Alpine

Reg. No. B-1g-5

Registered September 1983

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Origin (1,2)

Three high-elevation diploid forms of *T. ambiguum* were used by F.E. Hely to produce Alpine: Summit (1), CPI 27598 and CPI 2771 (2), CPI 2771 is a medium to high elevation form introduced from the Botanic Gardens, Tiflis, Georgian S.S.R. and CPI 27598, a high elevation form from Armenian S.S.R. Unemasculated CPI 2771 plants were cross-pollinated by Summit and the offspring with the dominant leaflet marker phenotype of Summit were selected as F1 hybrids. These were randomly intercrossed and crossed with CPI 27598 without a leaf mark. Progeny with leaf markings were used to pollinate unemasculated CPI 2771 plants. The seeds from the CPI 2771 parent were grown at several Snowy Mountain locations (elevation c. 1700m) and approximately 45 plants selected phenotypically over four years for uniformity, productivity, even flowering, seed setting ability and high symbiotic performance in association with *Rhizobium trifolii* strains CC 227 and CC 231a (1). Submitted for registration and field tested by B.S. Dear, Agriculture NSW, and M. Zorin of CSIRO, Division of Plant Industry. Breeders' seed will be maintained by N.S.W. Department of Agriculture. Registered September 1983.

Morphological description (2,3)

Alpine is similar in appearance to other diploid lines. However, it produced a greater number of daughter plants from rhizomes (53) than cvv. Forest (38), Summit (18), Treeline (23) and Prairie (46) in a field trial (4) at 1150m near Berridale, N.S.W. The leaflets of 65% of plants have a distinct pale green crescent, which has an apex in the centre of the leaflet and arms extending to the margins at points approximately one third of the distance from the base of the leaflet. The terminal leaflet averages 27mm long by 16mm wide, the length by width ratio being 1.62. Summit has a ratio of 1.56 and Prairie 1.75 under similar conditions. Average leaflet areas are 436mm² in Alpine, 395mm² in Summit (2), 467mm² in Forest and 609mm² in Prairie. The average nitrogen content of leaflets grown in the field is 3.3%, which is similar to Summit and Forest, but greater than Prairie, which has 2.4%N. Petioles are green and glabrous. Heads are solitary, dense, spheroidal, 30mm long by 26mm wide. Approximately 720 000 to 786 000 seeds/kg. Chromosome number 2n = 16.

Agronomic characters (4)

Highly persistent at 1150m in the Monaro region of NSW, with up to 95% of plants alive after four years of intermittent drought (4). *T. repens* cv. Ladino failed to persist under these conditions whereas Alpine withstands summer drought. In the Lake Eucumbene area first growth appears in early September with flower buds visible at the end of October and opening in the second week of December with all plants flowering. At Canberra the first flowers open in the first week in November. The flowering period is similar to both Summit and Forest (4). Alpine remained well nodulated over four years. It strongly resisted frost heaving and cold winters (av. minimum winter temperature -1°C). The main advantages of Alpine over Summit and Forest are its greater vigour and productivity combined with equal persistence. It also produces a greater number of daughter plants compared to Summit and Forest which enables it to produce a dense sward within four years. Alpine is designed to replace Summit in alpine pastures with elevations between 950 and 1300m where snow cover is only intermittent through winter. It could also be expected to be slightly superior to Forest in these conditions.

References

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2. Anon. (1977). Register of Australian Herbage Plant Cultivars. *J. Aust. Inst. Agr. Sci.* **43**, 92-4.
3. Barnard, C. (1972). *Register of Australian Herbage Plant Cultivars*. (Div.Pl. Ind., CSIRO, Canberra).
4. Dear, B.S, and Zorin, M. (1985). Persistence and productivity of *Trifolium ambiguum* Bieb. (Caucasian clover) in a high altitude region of south-eastern Australia. *Aust. J. Exp. Agric.* **25**, 124-32.