

Register of Australian Herbage Plant Cultivars

B. Legumes

1. Clover

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

Reg. No. B-1g-4

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Origin (1,5,6)

Developed over a period of 25 years from a seed sample of diploid material received in 1932 (CPI 2771) from Botanic Gardens, Tiflis, Georgia, U.S.S.R., this ecotype comes from the Caucasum region, and grows successfully at elevations lower than cv. Summit in Australia. The upper elevational range is close to that of cv. Treeline, but it is better adapted than this cultivar to most places of lower medium elevation in the Australian Alps.

This clover has been taken through six generations by F.W. Hely in Australia. Rigorous selection pressure was maintained as with cvv. Summit, Treeline and Prairie for effective nodulation with strains of *Rhizobium trifolii* available from stands of *Trifolium ambiguum* Bieb. occurring naturally at c. 2000-m elevation in eastern Turkey. Continuous selection pressure was exerted to achieve more and earlier flower production for most plants in the population without loss of vegetative vigour and for substantial increase in seed production. Technique for plant improvement and general domestication was similar to that used for cv. Summit (5). Forest was finally derived from a polycross of 40 elite plants. Breeders' seed is maintained by the Division of Plant Industry, CSIRO, Canberra, A.C.T. Submitted for registration by the Division of Plant Industry, CSIRO. Recommended for registration by the New South Wales Herbage Plant Liaison Committee. Registered January 1977.

Morphological description (2,3,4,5,7,8)

A diploid form of Caucasian clover, this cultivar differs from cvv. Summit, Treeline and Prairie in the following characteristics. (a) The growth habit of 1-2 year-old plants is clearly different in that it is lower and spreading rather than tufted, more rhizomatous early, and it has many promptly formed daughter plants as described by Donskova (3). (b) Its leaflets are unmarked, more uniform in size and shape and obviously broader than cvv. Summit and Treeline; mean mature leaflets have (i) length c. 35 mm, (ii) width c. 23 mm, (iii) leaflet length/width ratio of c. 1.50 (1.34, 1.76 and 1.50 for cvv. Summit, Treeline and Prairie respectively). (c) Flowers are persistently white and heads are smaller in length (21-26 mm) than cvv. Summit, Treeline and Prairie. (d) Mature heads are compact globoid v. oblong-ovate or oblong for other cultivars. (e) Seeds (680,000-720,000 per kg) are discernibly larger than those of cv. Summit, but much smaller than those of cvv. Treeline and Prairie, and samples are generally paler (greater proportion of yellow to brown seeds), with only 10-15% hard seeds. Chromosome number $2n = 16$. Forest has the capacity to cross-fertilize freely with cv. Summit, but not with cvv. Treeline and Prairie.

This new line of Caucasian clover is different to other ploidal lines, i.e. cv. Treeline, a tetraploid, is distinctly larger in leaf and flower measurements and cv. Prairie, a hexaploid, has even larger leaves and seeds than cv. Treeline.

Agronomic characters (4,7,9)

A subalpine form of Caucasian clover which can perform well in places marginal for *Trifolium repens* L. in terms of duration of snow cover and summer frosting. Very productive under cool, moist, summer conditions but foliage is sensitive to prolonged hot, dry weather (9). Persistent under prolonged dry conditions once established. Reportedly grows even at relatively low elevations in northern hemisphere's cool, temperate, humid region, (7). Best available *R. trifolii* strains held in the Australian collection for inoculation are CC227 and CC231a (9).

Strongly rhizomatous and widely spreading, quickly providing good micro-environment conditions for establishment of grasses between its daughter plants, Forest is an effective pioneer in revegetation

work. Growing in soils with lower levels of available phosphorus than *T. repens*, Forest responds well to applications of superphosphate. In Australia Forest is well adapted to the environment characteristic of the alpine forest zone of the upper valley of the Snowy River and in the vicinity of Jindabyne. In North America a parental form was found to be suited to the hardwood forest environment as in southern Michigan (7).

Preliminary seed increase is being undertaken in the better environment of southern New Zealand by the Grasslands Division of DSIR at Lincoln.

References

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