

Register of Australian Herbage Plant Cultivars

B. Legumes

1. Clover

Trifolium resupinatum L. var. *majus* Boiss. (Persian clover) cv. Morbulk

Reg. No. B-1k-4

Registered 16 February 1999

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Released by Agriculture Victoria.

Australian Journal of Experimental Agriculture, 1999, 39, 505–6.

Origin

Morbult derives from an accession of *Trifolium resupinatum* L. var. *majus*, CPI 27377-2, originally collected in Sialhot, Afghanistan in 1935, and subsequently used at the Estacao Agronomica Nacional in Portugal in the development of the cv. Maral. The development of Morbulk was the result of a screening and selection program by Agriculture Victoria which sought a suitable cultivar with reliable herbage production. The common cultivar available in Australia, Maral, is an uncertified cultivar that varies considerably depending on the origin of the seed (Kenny and Reed 1985; Lee and Reed 1993).

In 1990, 73 Persian clover accessions were obtained from the *Trifolium* collection maintained by the Western Australian Department of Agriculture (Snowball 1993). The lines were compared with several cultivars and were chosen to represent populations flowering from 10 days earlier to 10 days later than Maral. After preliminary screening, the 26 most promising lines were assessed in replicated rows at Hamilton, Victoria, in 1991. They were evaluated for vigour, flowering time, digestibility and crude protein content.

The best 16 lines were grown in plots at Hamilton in 1992 and assessed for herbage production. In 1993, 7 lines were evaluated at Kyabram and Glenormiston, Victoria. In 1994, 2 of these lines were space-planted and selection within lines was undertaken for herbage yield, uniformity and seed yield. In 1995, the 2 lines were subjected to advanced evaluation in trials at Hamilton, Lake Bolac, Chatsworth and Gippsland, Victoria, using Maral as a control. The soil at the Chatsworth

site was moderately saline with an electrical conductivity of 1.33 dS/m in mid July. The superior line, derived from CPI 27377-2, was selected for cultivar development.

Morbult was approved for registration by the Victorian Pasture Variety Committee and has provisional protection under the Plant Breeders Rights (Anon. 1997). Basic seed will be maintained by Agriculture Victoria.

Morphological description

Zohary and Heller (1982) noted that *T. resupinatum* var. *majus* was only known in cultivation and distinguished it from *T. resupinatum* var. *resupinatum* on the basis of its hollow, thicker stems and larger leaves. Comparison of the 2 varieties in Australia also indicates that var. *majus* produces fewer lateral shoots and is much more soft-seeded than var. *resupinatum*. Morbulk is erect to semi-erect, up to 60 cm in height. Stems are hollow, branching at the base, with a diameter of 9 mm at mid-point. Plants are glabrous, leaflets are ovate to obovate, averaging 25 by 15 mm with a maximum of 45 by 30 mm, margins slightly serrated. Leaf markings are absent. Stipules are pale green, with red veins, the pigment more pronounced than in Maral. Inflorescences are pale pink, 14 mm in diameter. Peduncles are 20–35 mm long. Mature inflorescences are 13 mm in diameter. Morbulk flowers 10 days earlier than Maral at Hamilton, Victoria. Seeds are 98% soft at maturity and have an average weight of 1.5 mg/seed.

Agronomic characteristics

The high feeding value and various roles of Persian clover in southern Australia have been outlined by Kenny and Reed (1984), Flinn *et al.* (1985) and Stockdale (1993). Persian clover can be cut for hay or grazed as standing hay. It shows excellent regrowth after cutting or grazing. Persian clover grows well under waterlogging and mild salinity and has a broad range of pH tolerance (pH 5.0–8.5).

Morbult has similar digestibility and crude protein levels to Maral but is 10 days earlier in maturity. It is at least as productive as Maral in late spring and 36% more productive, on average, in winter and early spring. It can be grazed in late winter-early spring and then cut for hay in late spring-early summer. During the 1995 season, in spring cuts taken at 4 sites, Morbulk outyielded Maral by 23% (Clark *et al.* 1996; Evans and Cameron 1998). Morbulk has the potential to replace Maral and extend the use of Persian clover into areas with lower rainfall (i.e. between 500 and 800 mm/year). Morbulk is grown as an annual crop from seed inoculated with Persian clover inoculant, rhizobial strain No. CC2483g.

As with Maral, Morbulk has the ability to regrow after a

hay cut in late spring. Morbulk has produced 68% more seed than Maral at Hamilton on 1 occasion and has the ability to grow well in mildly saline conditions (Clark *et al.* 1996). The accession from which Morbulk was selected has been characterised as resistant to clover scorch [*Kabatiella caulivora* (Kirchn.). Karak] disease (Snowball 1993). The reaction of Morbulk to rust was not significantly different to that of Maral.

Acknowledgments

The part of the development that occurred between 1991–94 received financial support from the International Wool Secretariat. Bill Feely and Jeff Rowe provided technical support.

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