

Register of Australian Herbage Plant Cultivars

B. Legumes

9. Annual Medics

a. *Medicago truncatula* Gaertn. var. *truncatula* (barrel medic)

cv. Paraggio

Reg. No. B-9a-9

Registered January 1982

Published in the Journal of the Australian Institute of Agricultural Science 48(4) 239-40, (1982).

Origin

Originated from seed designated CPI 47242, collected by Dr J.S. Gladstones of the University of Western Australia in 1968 and forwarded to Mr E.J. Crawford of the South Australian Department of Agriculture. It occurred on a mildly alkaline, brown, gritty loam, 11km north of Reggio di Calabria, 3 km from the coast in the Province of Calabria in S.W. Italy (1). The mean annual rainfall of the region is c. 900 mm at an altitude of 350 m.

Submitted for registration by the South Australian Department of Agriculture and recommended by the South Australian Herbage Plant Liaison Committee. Breeders' seed is being maintained by the Department of Agriculture, South Australia. Registered January 1982.

Morphological description (2, 4, 5)

Paraggio is morphologically a typical representative of the species *M. truncatula* (5), closely resembling the cultivar Hannaford. Its habit is slightly more erect than Hannaford. Purple leaf flecking does not penetrate to the abaxial surface as in Borung but is similar to Hannaford. Paraggio has clockwise pod coiling and a similar range of pod coil numbers to Hannaford, viz. 3.5-5.75, cf. 3.5-5. Paraggio pods are slightly heavier, there being about 10 000/kg, cf. about 12 700/kg in Hannaford. Pod spininess is rated as equal to Hannaford and Jemalong. Individual seeds are slightly heavier, there being about 220 000/kg, cf. about 250 000 in Hannaford (4)

Agronomic characters (3, 4, 6, 7, 8)

Paraggio was compared agronomically with Jemalong, which has superseded Hannaford because of its better production (2). Paraggio was initially grown in nursery rows at the Parafield Plant Introduction Centre, South Australia, in 1969, where it exhibited a much greater rate of breakdown of hard-seededness than Jemalong barrel medic. It was one of 122 genotypes of 12 annual *Medicago* species selected as having less than 70% impermeable seed by mid April of the year after seed maturation. All selections had pod characteristics equal to or less spiny than Jemalong. These genotypes were compared with commercial cultivars over a 2 year period (1977/78) for seasonal herbage production and for recovery after defoliation at 5x4-weekly intervals. Seed production, changes in seed coat permeability and natural regeneration were also compared during this period. Of these 122 genotypes, 12 were selected for more intensive study. All were equal to or significantly better than Jemalong in winter herbage production and recovery after defoliation and were subjected to larger sward trial evaluation for a further 2 years (1979/80). In these sowings Paraggio flowered 2 days earlier than Jemalong, whilst in the following year of natural regeneration it flowered 2 days later.

At Parafield, in 1979, Paraggio produced significantly higher seed yield than Jemalong, viz. 1260 cf. 1030 kg ha⁻¹. Higher proportions of permeable seed were available for germination by mid April of the following year (21% cf. 8.7%). Paraggio re-established with significantly denser populations than Jemalong, viz. 4300 cf. 2140m⁻². Thus, 14.3% of the original Paraggio seed produced seedlings compared with 6.1% in Jemalong. In both cultivars, about two-thirds of the soft seed available for germination and emergence produced seedlings. In this experiment, early winter herbage production of Paraggio was significantly greater than Jemalong, viz. 2910 cf. 1140 kg ha⁻¹.

Paraggio has better seedling vigour than Jemalong (4). It nodulates effectively with commercially available peat cultures of *Rhizobium* appropriate for barrel medic.

In greenhouse tests using the rating system of Mathison *et al.* 1978 (7), Paraggio is as tolerant to the spotted alfalfa aphid (*Therioaphis trifolii* (Monell) f. *maculata*) as Jemalong which has good field

tolerance beyond the seedling stage. In greenhouse tests Paraggio is rated as tolerant to very tolerant to the blue-green aphid (*Acyrtosiphon kondoi* Shinji), whereas Jemalong is susceptible. Paraggio is susceptible to pea aphid (*Acyrtosiphon pisum* (Harris)) in greenhouse tests (6). Paraggio exhibited good field tolerance to mixed populations of blue-green aphid and cowpea aphid (*Aphis craccivora* Koch) at both Walpeup and Beulah in Victoria in 1981 (3). At Tamworth, N.S.W., in 1980, Paraggio showed good tolerance to blue-green aphid under unsprayed conditions with no resultant loss in pod yield. Jemalong suffered a 90% loss. Natural regeneration of residual seed of Paraggio was better than that of Jemalong in 1981, under both sprayed and unsprayed conditions. At three other sites in New South Wales where blue-green aphid attacks were severe in 1981, Paraggio has a mean damage rating of 3.2 on a 0-10 scale (10=40% of Herbage destroyed), whereas Jemalong averaged 7.0 (8).

In South Australia, Paraggio is adapted to a range of soil types from neutral to alkaline sands and sandy loams in 350 mm mean annual rainfall areas to heavy textured, red brown earth and clay loam soils of 500 mm rainfall (4, 6). Paraggio produced more herbage than Jemalong at Walpeup and Beulah, Vic., in 1981 and offers significant advantages for improved pasture production in the Victorian Mallee (3). At eight sites in New South Wales in 1981, Paraggio produced more herbage than the mean of 56 other genotypes in the tests, whereas Jemalong produced less. In three of these tests, Paraggio was ranked in the top 25% for both herbage and pod production. Thus, Paraggio is expected to increase the annual medic content of pastures over all except the lowest rainfall areas (less than 300 mm rainfall) currently recognised as medic-growing areas of southern Australia.

References

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