Register of Australian Herbage Plant Cultivars

B. Legumes
1. Clover
Trifolium michelianum (balansa clover) cv. Paradana

Reg. No. B-1j-1
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Origin

Derived from the field interpollination of CPI's 45855 (Mus, central eastern Turkey) and 45856 (Foca, central western Turkey) on adjacent plots on the Kangaroo Island Research Centre, South Australia, in 1973. The open-pollinated progeny of CPI 45856 was further increased under isolation in 1974-6 on Kangaroo Island.

Breeders' seed will be maintained by the Department of Agriculture, South Australia and will only be produced in the south east or on Kangaroo Island, the main regions for which it was developed. Genetic constancy will be monitored by post control tests of all generations to establish mean flowering date and proportion of the major leaf marker classes. Submitted for registration by the Department of Agriculture of South Australia and recommended for registration by the South Australian Herbage Plant Liaison Committee. Registered, December 1984.

Morphological description (5)

The species is an erect, herbaceous, hollow stemmed, glabrous annual. Leaflets obovate to rhombic, serrate, apiculate, 1.0 to 3.0 cm long by 1.0 to 2.0 cm wide, bearing leaf markers of various colours, position and degrees of distinctiveness. Stipules entire, lanceolate to acuminate from a triangular base not adnate to adjacent stem, green to pinkish-red veined. Inflorescence umbellate, many-flowered, broadly ovoid in flower. Corolla tube 10 – 12mm long, whitish, terminating in pink tip, persistent, light brown in fruit. Pedicels bracteate, shorter than the calyx tube in flower; elongating to 3 –4 times the calyx tube length in fruit, deflexing after fertilisation. Calyx 5 – 6mm, green, tube 10-nerved,teeth equal and about 2 –3 times the length of the tube. Legume stipitate, 2 – 3 seeded. Seed yellow, brown, or black, approximately 1 400 000/kg.

Paradana differs from the species norm predominantly by its leaf markings; *c*. 60% of plants have plain leaves, and about 20% have a lower white leaf crescent, with or without a white apex. There is also a range of other leaf markers (3).

Agronomic characters (1,2,4)

In swards cut 4-weekly on Kangaroo Island from 1974 to 1978, dry matter production of Paradana was less than Trikkala subclover during the winter, but greater during the spring (1). Paradana grown on acid, lateritic soil in 1976 and subjected to both grazing and cropping has persisted until 1983 when a dense stand reestablished (1). On solodised solonetz soils of pH 6.0 – 7.0 at Kybybolite, Paradana has yielded as well as Mt. Barker and Trikkala subclovers, and a Paradana pasture sown in 1980 has remained stable under set stocking at 12 sheep/ha till 1984 (sheep removed during 1982 drought) (4). Paradana has failed on poorly drained, alkaline clays of pH 8.2 and on deep infertile sands of pH 6.0. It appears to be best adapted to soils of pH 5.5 to 7.0 (4).

No disorders of sheep or cattle grazing Paradana have been observed. Its herbage has no significant content of formononetin, genistein or biochanin A (2) or of coumestrol (4).

Paradana commences to flower two to three weeks later than Trikkala subclover and continues to flower several weeks, the individual florets often separating from the head, aiding dispersal by wind. Because of its very small seed size and high level of hardseededness (60 – 70% at maturity) it appears to be readily spread through the digestive tract of livestock grazing late cut hay or dry pastures in summer (4). It is relatively tolerant to spring moisture stress and sets adequate amounts of seed for reliable regeneration. Seed yields of up to 670kg/ha have been recorded on small plots (1). Seed can be harvested using a conventional small seeds harvester (4).

Paradana has proved to be suitable for hay production and can be baled without excessive leaf loss (4). Hay made from balansa clover at Kybybolite in 1977 had a higher crude protein content (14 – 18%) than hay made from Maral Persian clover (12 – 13%), and a similar level of dry matter digestibility (76 – 82%). Paradana is highly tolerant to clover scorch disease in the field (2). It nodulates satisfactorily when inoculated with commercial subclover inoculum or is sown into soil on which subclover has been established (1).

References

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5. Davies, P.H. (Ed.) (1969). *Flora of Turkey and the East Aegean Islands.* Vol. 3 (Edinburgh Univ. Press).