

Register of Australian Herbage Plant Cultivars

B. Legumes

5. *Leucaena*

a. Leucaena leucocephala (Lam.) De Wit (*leucaena*)

cv. **Cunningham**

Reg. No. B-5a-3

Registered February 1976

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Origin (1, 2)

Cunningham was derived from a cross between the cultivar Peru and line CPI 18228 introduced from Hawaii in December 1953 and originally from Guatemala. The two lines were crossed in 1956-58 as part of an intervarietal breeding program begun by Mr S.G. Gray at the Cunningham Laboratory, CSIRO, Brisbane (1).

Since 1964, following studies of quantitative character inheritance up to and including the F₃ generation (2), evaluation of a number F₄ and later generation lines in field trials at Lansdown near Townsville resulted in selection of the high yielding F₄ line 3, the progenitor of cv. Cunningham. Experimental plantings of F₄ and later generations of this line were also made at Samford, Narayen, Walkamin, South Johnstone and Capelands (Cape York Peninsula).

Cultivar Cunningham at the F₆ stage was submitted for registration by Dr E.M. Hutton and Mr W.M. Beattie, Division of Tropical Agronomy, CSIRO, St Lucia, Qld. 4067, and recommended by the Queensland Herbage Plant Liaison Committee. Breeders' seed will be maintained by the Division. Registered, February 1976.

Morphological description (3)

The chief distinguishing feature of cv. Cunningham is its noticeably darker green foliage than other *Leucaena* varieties. Its leaflet size is comparable with that of cv. El Salvador and both have larger leaflets than cv. Peru. In cv. Cunningham the seeds are comparatively smaller and darker; mean number of seeds/kg from Lansdown harvest over several seasons are cv. Cunningham > 22 000, cv. Peru < 22 000 and cv. El Salvador < 20 000. It is possible that the order in seed size of cultivars may vary in other environments. The average number of florets per flower head in cv. Cunningham is 140 which is less than that of Peru with 170 (3). Chromosome number is $2n = 104$.

Cultivar Cunningham is taller than Peru with very well developed basal branching. Its seeding ability compares favourably with both lines sold commercially, viz. cv. Peru and cv. El Salvador.

Agronomic characters (3, 4)

In trials at Lansdown and Samford, cv. Cunningham has been slightly less vigorous than cv. Peru in the establishment year but thereafter has significantly outyielded this line. At Lansdown on solodic soil (annual rainfall 850 mm) cv. Cunningham has given annual edible dry matter yields > 7000 kg/ha which are almost one third higher than those of cv. Peru (3). At Samford in 1974-75 on an alluvial soil (annual rainfall 1034 mm) its edible dry matter yield during the year was 6000 kg/ha compared with 3600 kg/ha for cv. Peru (4). The ratio of edible to inedible material is similar for both cv. Cunningham and cv. Peru (3, 4). In trials at the Queensland Department of Primary Industries' Research Stations at Walkamin on kraznozems (annual rainfall 900 mm), South Johnstone on red and yellow friable loams (annual rainfall 3404 mm) and Brian Pastures on black earths (annual rainfall 710 mm) cv. Cunningham gave higher edible dry matter yields than cv. Peru, particularly at Walkamin and South Johnstone. At the Narayen Research Station on granitic soils (annual rainfall 713 mm) cv. Cunningham has proved to be significantly more vigorous than cv. Peru and both have survived severe frosting.

Flowering in cv. Cunningham at Lansdown occurs later than in other *Leucaena* varieties reaching its peak during March-April (3); at Samford its flowering is similar to that of cv. Peru (4) and is in

November and also March-April, the main period. Its mimosine levels in expanded leaves are 3-4% and are similar to cv. Peru but lower than that generally obtained in El Salvador and the chemical composition of its leaves is similar to that of cv. Peru (3, 4).

In common with other *Leucaena* cultivars, cv. Cunningham nodulates with both CB81 and NGR8 strains of *Rhizobium*.

References

1. Gray, S.G. (1967). A review of research on *Leucaena leucocephala*. *Trop. Grassld.* **2**, 19-30.
2. Gray, S.G. (1967a). Inheritance of growth habit and quantitative characters in intervarietal crosses in *Leucaena leucocephala*. *Aust. J. Agric. Res.* **18**, 63-70.
3. Hutton, E.M. (1975). Unpublished data. Division of Tropical Agronomy, CSIRO, Brisbane.
4. Jones, R.J. (1975). Unpublished data. Division of Tropical Agronomy, CSIRO, Brisbane.