

# Register of Australian Herbage Plant Cultivars

## B. Legumes

### 11. Serradella

#### a. *Ornithopus compressus* L. (yellow serradella)

##### cv. Eneabba

Reg. No. B-11a-5

Registered February 1988

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#### Origin

Eneabba was bred as an artificially-induced, early-flowering mutant of cv. Pitman, produced by soaking the dry, scarified seed in 0.20% aqueous ethyl methanesulphonate (EMS) for 12 hours at 20°C in May 1962 (Gladstones and Devitt 1971). The treated seeds were sown in seed boxes, and 1200 resulting seedlings transplanted into the field at the University of Western Australia, Nedlands at 100 x 80 cm spacing, and allowed to grow and seed down naturally. Vegetative remains were removed after maturity, and the seeds raked lightly into the soil *in situ*. After natural regeneration in the autumn of 1963, some 170 individual early-flowering mutants, representing probably 40-50 separate mutations were dug up and transplanted as they were identified. Between-line and within-line pedigree selection for vigour and fertility were practiced down to the M<sub>7</sub> generation, when the 14 best families were bulked for testing.

Two families M115 and M167, which flowered 19-20 days earlier than the parent cv. Pitman at Perth, were recognised at the time as being agronomically the most distinguishing characteristics. However, because, in the absence of visible distinguishing characteristics, they did not meet the requirement of the then seed certifying authorities for a 21 day difference in flowering time, they were rejected by the Western Australian Herbage Plant Liaison Committee. Instead, the slightly earlier-flowering M96 was registered and released, as cv. Uniserra.

Testing of Eneabba (M167) was resumed at Esperance, Western Australia in 1979, and it was included in sets of selected serradella genotypes distributed in 1980 and 1982 for testing across southern Australia (Gladstones 1984).

Submitted by the Western Australian Department of Agriculture, which will maintain breeders' seed, and recommended for registration by the Western Australian Herbage Plant Liaison Committee. Registered February 1988.

#### Morphological description

Eneabba closely resembles cv. Uniserra but is darker green and slightly less erect in the pre-flowering stages. It is similar in colour to Pitman but more erect in the pre-flowering stages, and has greater apparent seedling vigour. Pods and seed are as for Pitman and Uniserra. The seeds are about 180 000/kg in hull, or about 360 000/kg dehulled.

#### Agronomic characters

At Perth, Western Australia early May sowing, Eneabba flowers on average 107 days from sowing, i.e. 12 days later than Madeira, 2 days later than Uniserra, 7 days earlier than Tauro and 20 days earlier than Pitman. It sets a heavy crop of seeds and tends to mature more quickly than either Madeira or Tauro; its earliness compared with Tauro is therefore greater than the 7 day difference in flowering time suggests. Hard-seededness is only moderate, similar to that of Pitman and Uniserra (Bolland 1985). Aluminium tolerance is as for Pitman (Drew 1987).

The outstanding agronomic feature of Eneabba is its early winter vigour compared with other serradella cultivars (expecting, perhaps, Madeira). In visual assessments across Australia of growth and regeneration for up to 5 years under a variety of grazed and ungrazed conditions, it has nearly always been clearly superior to Uniserra.

Eneabba is too early-maturing for areas to which Pitman is adapted, i.e. the high-rainfall south-coastal areas of Western Australia, the south-east of South Australia, Western Victoria, and most of the medium-high rainfall areas of central and southern New South Wales. However, in the short winter-season area of south-east Queensland it has ranked overall a close second to the earlier-flowering Madeira (Lloyd 1987); in the relatively wet 1986 spring it was the most productive strain in the environment (D.L. Lloyd 1987 unpubl. observations.)

L.J. Hamilton (pers. comm.) considers Eneabba to be the best-adapted of the experimental lines in East Gippsland, where Pitman fails because of the dry spring. Regeneration and recovery after grazing have been better than those of Tauro and Uniserra.

In the third year of two trials on dry sandy rises of the high-rainfall west coastal plain of Western Australia, Eneabba was outstandingly the best serradella at Harvey (Caroline Peek, pers. comm.) while with Uniserra it was one of the only two successful strains at Serpentine (L. English, pers. comm.). In both trials it was clearly better than either Pitman or Tauro. Madeira was not included.

Following a successful establishment year, Eneabba and other strains of equal or earlier maturity were able to regenerate with good density after one wheat crop at Merredin, in the low-rainfall wheatbelt of Western Australia (M.A. Ewing, unpubl. data.)

Eneabba should be a useful serradella on acid to neutral sandy soils in areas of southern Australia too dry for Pitman and marginally too dry for Tauro, e.g., in Western Australia, on the west coastal plain from Eneabba northwards and perhaps in some medium-rainfall inland areas. As a cultivar with complementary hard-seededness and maturation patterns, and good early vigour, it may be especially useful for mixing with Madeira in these and drier areas, and with Tauro on the drier edge of that cultivar's range.

### Acknowledgements

Eneabba was tested as part of an interstate collaborative testing scheme for serradellas. The main field trials in Western Australia were conducted by M.D.A. Bolland (Esperance), L. Cransberg (Albany) and M.A. Ewing (Merredin); in South Australia by A.D. Craig (Kybybolite); in Victoria by L.J. Hamilton (Bairnsdale) and S.G. Clarke (Hamilton); in New South Wales by R.D. Freebairn (Coonabarabran) and T.P. Drew (Trangie); and in Queensland by D.L. Lloyd (Toowoomba).

Initial pure seed production was by T.O. Albertsen and J.S. Gladstones (Western Australian Department of Agriculture). Breeding and initial evaluation of Eneabba were assisted financially by the Wheat Industry Research Committee of Western Australia and the Australian Wool Research Trust Fund. The original mutagen treatment of the seeds was by Dr. C.M. Francis, then of the Institute of Agriculture, University of Western Australia, within which the remaining breeding was also conducted.

### References

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