

Register of Australian Herbage Plant Cultivars

B. Legumes

11. Serradella

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

cv. Madeira

Reg. No. B-11a-6

Registered March 1988

Published in the Australian Journal of Experimental Agriculture 29:304-5 (1989)

Origin

Collected by C.M. Francis, Department of Agriculture, Western Australia, and C. Gomez Pitiera, Instituto Nacional Investigaciones Agrarias, Badajoz, Spain, on July 5, 1979 at Pico Dos Barcelos, near Funchal, Madeira. Latitude 32°37'N, longitude 16°54'W; altitude 250 m; annual rainfall approximately 500 mm; growing on friable chocolate-brown loam derived from basalt, pH 6.5; no current grazing. Tested under the collector's code number MC2.

It was included in a 1981 distribution of 32 lines and a 1982 distribution of 100 selected serradella lines for testing across southern and eastern mainland Australia (Gladstones 1984). Originators, J.S. Gladstones and M.D.A. Bolland, Western Australia Department of Agriculture, and D.L. Lloyd, Queensland Department of Primary Industries.

Submitted by the Western Australian Department of Agriculture and the Queensland Department of Primary Industries, and recommended for registration by the Western Australian and Queensland Herbage Plant Liaison Committees. The Western Australian Department of Agriculture will maintain breeders' seed. Registered March 1988.

Morphological description

Madeira is more erect and lighter green than cvv. Pitman and Tauro, especially in the early growth stages and when ungrazed. Well-grown leaves have up to 15.5 leaflet pairs, leaflets up to 12 x 5 mm; bracts with 4.5-5.5 leaflet pairs, peduncles 30-45 mm; inflorescences with 3-5 florets and pods; 30-45 x 3 mm, curved to nearly straight, clearly segmented into up to 11 single-seeded segments. Seeds about 175 000/kg in hull, or 350 000/kg de-hulled.

Agronomic characters

Madeira flowers early, about 95 days at Perth (85 at Toowoomba) with mid-May sowing i.e. about 10 (12), 18 (30) and 32 (53) days earlier than cvv. Uniserra, Tauro and Pitman respectively. The pods are sufficiently segmented to break up into single-seeded segments when fully mature and dry, but usually less readily than those of cv. Tauro and especially cvv. Uniserra and Pitman. They tend to remain intact on the mature plants until strongly disturbed.

Madeira has been outstanding in trials on sandy surfaced soils in south-east Queensland. At Leyburn, in a marginal climatic environment west of the Condamine River, its regeneration and dry matter production in trials sown between 1981 and 1985 have been superior to that of cvv. Uniserra, Pitman and Tauro, and the line DP6 (another promising early-flowering line). Madeira possesses more early vigour than cvv. Uniserra, Pitman and Tauro and in the more favourable environment of the Granite Belt (where late-flowering cultivars are successful), it produces more dry matter in the early spring than the other cultivars. Early growth is quite erect, but the plant adopts a prostrate habit under grazing. Seed production in Queensland studies has been high and 2.8 t/ha cleaned pod was recovered from a seed increase area after vacuum harvesting in 1986. No direct data are available on hard-seededness. Measurements of field regeneration suggest that hard-seededness is sufficiently higher than in Pitman, and possibly Tauro, to cause poor second-year regeneration in cool south-coastal areas of Western Australia (Cransberg 1987); nevertheless regeneration has been excellent in south-east

Queensland. Madeira has poor tolerance of aluminium toxicity (Drew 1987), and may not, therefore, be successful on highly acid soils.

Madiera should fill an urgent need in the marginal temperate environment of south-east Queensland, on sandy-surfaced soils with surface pH 5.5-6.5, for a pasture legume to alleviate the winter/spring protein deficit for animals. It could also fill that role in similar niches in northern New South Wales, and would appear to be a logical choice for trial on non-calcareous sandy soils in medium to low rainfall areas of Australia with uniform or winter-dominant rainfall.

Acknowledgments

Madiera 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) and L.Cransberg (Albany); in South Australia by A.D. Craig (Kybybolite); in Victoria by S.G. Clarke (Hamilton); in New South Wales by T.P. Drew (Trangie); and in Queensland by D.J. Lloyd (Toowoomba).

Initial pure seed production was by T.O. Albertsen and J.S. Gladstones (Western Australia Department of Agriculture).

The introduction and initial evaluation of Madiera were assisted financially by the Wheat Industry Research Committee of Western Australia and the Australian Wool Research Trust Fund.

References

1. Cransberg, L. (1987). Western Australia. Serradella selection programme. *Serradella Newsletter* No **1**.
2. Drew, T.P. (1987). New South Wales. Serradella aluminium tolerance experiment. *Serradella Newsletter* No. **1**.
3. Gladstones, J.S. (1984). Selection of serradella genotypes for Australian agriculture. *Australasian Plant Breeding and Genetics Newsletter*. **34**, 58-62.