

Register of Australian Herbage Plant Cultivars

A. Grasses

8. *Setaria*

Setaria sphacelata (Schum) Stapf ex Massey (*setaria*) cv. Solander

Reg. No. A-8a-5

Registered July 1985

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Origin

Solander was selected from a population derived from crosses between frost tolerant accessions CPI 32930 and CPI 33452 and the more robust frost susceptible accessions CPI 19915, CPI 16413 (an offtype) and var. *splendida* CPI 15899. The accessions contributed 16,34,18,24 and 8% of the germplasm of the F1 generation respectively. Selection for winter yield and winter greenness was imposed during F2 and F3 generations; the selected parents for each generation were intercrossed in isolation. Three F4 populations were sown as swards at two sites in comparison with existing cultivars. Seasonal yields and components of seed production were measured over several seasons. All three populations were markedly superior in seed production to the frost tolerant cultivar Narok (2). One population was selected on the basis of high seed production following a further trial in which the superior seed production attribute was confirmed. (3).

Submitted by the breeder J.B. Hacker, CSIRO, Division of Tropical Crops and Pastures, Queensland, and recommended for registration by the Queensland Herbage Plant Liaison Committee. Stocks of breeders' seed will be maintained by the CSIRO Division of Tropical Crops and Pastures. Registered in July 1985.

Morphological description

Robust leafy perennial with flowering stems to 1.8 (-2.0)m tall. Leaves bluish green, largely basal but some cauline, up to 17mm wide, 0.55m long, more or less erect in a flowering sward, glabrous or with a few long hairs on the upper surface towards the base of the blade. Leaf sheaths glabrous or sparsely hairy, strongly flattened on vegetative tillers. Inflorescence 60-260mm long, the bristles chestnut-coloured or grey; stigmas purple or sometimes white. Not readily distinguished from cv. Narok, from which it differs primarily in the much higher frequency of plants with grey-bristled inflorescences (c. 50% compared to <10% in Narok). Chromosome number $2n = 4x = 36$.

Agonomic characters (1,2,3)

Summer dry matter yield equals or exceeds that of the commercial cultivars, Nandi, Narok and Kazungulu (6.0 to 8.0 t DM/ha from November to April inclusive in south-eastern Queensland). Winter yield equals that of Narok and during two winters negligible leaf damage occurred following frosts of -2.0 and -3.5°C, when Nandi and Kazungulu suffered 60-70% leaf kill (1). The particular merit of Solander is its superior seed production (2). Narok has poor seed production due to low density and proportion of flowering tillers. The proportion of flowering tillers in Solander is twice that of Narok leading to a doubling of seed production (2,3). This advantage is largely independent of season of harvest, age of stand and level of applied nitrogen fertiliser (2). The improvement in proportion of flowering tillers in Solander has not resulted in a decrease in percentage of leaf.

References

1. Hacker, J.B. (1983). Seed production of frost tolerant setaria synthetics. Ann. Rep. Div. Trop. Crops and Pastures, CSIRO, Brisbane. 1982-3., p.46.
2. Hacker, J.B. (1984). Seed production of *Setaria sphacelata* cvv. Narok and Solander. Ann. Rep. Div. Trp. Crops and Pastures, CSIRO, Brisbane. 1983-4, p. 50.
3. Hacker, J.B. (1985). Breeding tropical grasses for ease of vegetative propagation and for improved seed production. In: Proc. XV Int. Grassland Congr., Kyoto, Japan pp. 251-2. (Science Council of Japan: Nishi-nasuno).