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GRASSES

Digitaria*Digitaria smutsii* Stent (digit grass)

cv. Premier

(Reg. No. A-23a-1)

Origin

Derived from material introduced as C.P.I. 38869 from A. Ford and Co. Pty. Ltd., Johannesburg, South Africa in 1965. Although the exact origin of the material introduced as C.P.I. 38869 is not known, *D. smutsii* occurs most commonly in the Transvaal, Orange Free State and northern Cape regions of South Africa (Chippindall 1955). The species is generally restricted to more fertile soils in summer rainfall areas receiving 400-1000 mm average annual rainfall. Following evaluation in a number of environments by the CSIRO Division of Tropical Crops and Pastures and the Queensland Department of Primary Industries, it was recommended for registration by the Queensland Herbage Plant Liaison Committee. Registered April, 1987.

Morphological description

D. smutsii is a robust, tufted perennial with an oblique rhizome; lowest leaf sheaths densely hairy at the base, upper ones glabrous or with a few scattered, tubercle-based hairs; culms erect to 150 cm or more tall, many-noded, usually branched, nodes and internodes glabrous; ligule 2-3.5 mm long, membranous, rounded; leaves expanded, up to 60 cm long, 6-12 mm wide, glabrous, shortly setaceously acuminate, culm leaves shorter, those of the innovations longer and narrower. Racemes 4-10, sessile, solitary, digitate or the lower ones subdigitate, often spreading, up to 15 cm long, the lowermost often shortly compound at the base,

arranged in whorls on a central axis up to 7 cm long, axils of the lower racemes shortly pubescent, rhachis triquetrous, narrowly winged. Spikelets binate, appressed, somewhat congested, narrowly ovate-lanceolate to lanceolate-elliptic, about 3.5 mm long; lower glume very short, membranous; upper glume 2 mm long, lanceolate, 3-nerved, hairy, hairs protruding; sterile lemma alternately glabrous and hairy between the 7 equidistant, smooth nerves, the marginal hairs protruding, fruit gradually acute upwards, greyish-brown to brownish-purple (Henrard 1950; Chippindall 1955).

Premier digit grass grown at Samford, Queensland, differed in the following morphological characters. Culms to 130 cm with 5 nodes; ligule length 3 mm; culm leaves up to 30 cm long and 11 mm wide, basal leaves up to 45 cm long and 7 mm wide, often with a few hairs in the axils and glaucous on the under side; racemes 9-14 (usually 10) from 7 to 17 (usually 11) cm long in 3 or more whorls on a common axis up to 4 cm long. Spikelets 3-3.5 mm long, lower glume up to 0.5 mm long; 3.3 million seeds per kg.

Agronomic characters

Many accessions of *D. smutsii* have been evaluated in Queensland and northern New South Wales over the past 30 years. An accession was released in the Inverell district in the mid 1950's and by 1969 was regarded as one of the best summer grasses in the region (V. N. Gidley, personal communication). It was outstanding in the 1965 drought, performing well on "trap" soils of the Ashford area (solodized soils derived from mudstone), red brown earths of the Bingara district, and deep sandy soil at Gravesend.

In Queensland, *D. smutsii* has performed well on soils ranging from sandy loams to cracking clays in environments as diverse as those found at Augathella, Beerwah, Gatton, Leyburn, Meandarra, Narayen, Samford and Southbrook (Strickland 1974; Strickland and Haydock 1978; W. J. Scattini, personal communication). Comparison of the better accessions of *D. smutsii* with other *Digitaria* species and other genera in the 1960's and 1970's led to the release of cv. Premier. It had the best overall performance in a cutting trial at four sites (Narayen clay loam, Narayen sandy loam podzolic, Samford sandy loam meadow podzolic, and Beerwah sandy gleyed podzolic), acceptable quality and good fire, frost and insect resistance. It is also low in soluble oxalate content (Jones and Ford 1972).

It is particularly well adapted to inland environments with lower rainfall and severe winter frosts, where production of green leaf in winter is a feature of its performance. Although Premier leaves are damaged by frost, it will continue to produce new leaf in the winter if moisture is available. This has been reflected in the performance of crossbred lambs grazing Premier digit grass in winter on a shallow, sandy surfaced duplex soil at Leyburn, Queensland. The lambs on Premier gained an average 3.5 kg/head more than their counterparts on native pasture over the period May to July (W. J. Scattini, personal communication).

Beef production from Premier digit grass and from Biloela and Molopa buffel grasses sown with siratro, or *Stylosanthes fruticosa* CPI 40615 in 0.4 ha unreplicated plots at Narayen was compared by grazing 1 or 2 beasts per paddock over summer months (L. J. 't Mannetje, unpublished data). The mean live weight gain over 4 years did not differ significantly between treatments even though the digit grass plots contained less legume.

A subsequent investigation at Mt Cotton showed that Premier was compatible with a range of commercial legumes and more compatible with siratro than Nandi setaria, Basilisk signal grass, Rodd's Bay plicatum and pangola grass (Filet 1979).

The foliage of Premier digit grass is generally disease free, but seed heads may be infected by a false smut (*Ephelis* sp.), particularly in periods of prolonged wet weather. Benomyl fungicide, applied as a spray to the plants or soil, reduces the incidence of diseased heads but is not fully effective (R. J. Jones, unpublished data). Potential seed yields exceed 200 kg/ha but there is a spread of flowering and seed drop over a period

of 3-4 weeks in November and March. Header yields at Gatton have exceeded 90 kg/ha in each period.

Selector

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