Register of Australian Herbage Plant Cultivars

A. Grasses
8. Setaria
Setaria sphacelata (Schum) Stapf ex Massey (setaria) cv. Nandi

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Origin

Nandi originated from a naturally occurring ecotype in the highland Nandi district of Kenya, collected by D.C. Edwards of the Kenya Department of Agriculture (1, 2). In trials at the Kitale Grasslands Research Station it performed well but was rather variable. A selection programme at Kitale resulted in the commercial release of an improved leafy, vigorous, and late-flowering form (1). An introduction of 18 kg of seed (C.P.I.28709) of this line by CSIRO from Kenya Seed Co., Kitale, in March 1961, and a subsequent commercial mother seed introduction from Kenya by Mr. J. Redup of Terranova Tropical Pastures Pty. Ltd. in 1964, have formed the basis of commercially available seed now used in Australia.

Morphological description (2, 5,et al.)

A tussocky perennial with very short rhizomes and erect culms up to 1.5 m high at flowering, it forms broad, slightly spreading tufts which may become a complete sward under grazing. Tillers are markedly compressed at the base, the sheaths of the basal leaves being broad and sharply keeled. Leaves are broad, glabrous, and thin, and, when grown on fertile soils, the distal half of the blade has a tendency to "hang over"; a few hairs may be found on the upper surface of the blade near its junction with the leaf sheath. Leaf sheaths are usually glabrous; the ligule is a circle of short fine hairs; auricles are absent. The inflorescence is a spike-like panicle of variable length up to 23-25 cm, usually orange-brown or brown tinged with green. Each spikelet is surrounded by an involucre of 6-10 persistent scabrous brownish bristles. The spikelets are awnless, 2.5-3.0 mm long, with two florets, the upper fertile, the lower imperfect or neuter; the lower empty glume is smaller than the upper; the stigmas are white. The empty glume and sterile floret fall with the seed. The fertile lemma and palea completely and tightly enclose the caryopsis to form the seed which is light greenish brown, broadly ellipsoidal, very convex on lemma side, flat on palea side, small, 2.7 mm long and 1.1 mm broad, 1.2 to 1.8 million per kg (9). Seedlings are yellowish green, flat at the base with a purple blotch on the basal leaf sheath. Chromosome number 2n = 18(4).

Agronomic characters (1, 3, 5, 6)

Adapted to a wide range of soils in subtropical areas with a rainfall of above 760 mm per annum. It is probably not as well adapted to the more shallow soils and lower rainfalls as Kazungula. Growth commences early in spring and continues at low autumn temperatures. Compared with most other summer-growing grasses it is relatively frost-tolerant; it will make some growth in winter if frosts are not too severe. It is, however, more sensitive to frost than Kazungula; repeated and heavy frost can kill above-ground portions and even kill the stand. It tolerates waterlogging.

It flowers earlier than Kazungula, between one to two months after the commencement of rain in spring; it can flower continuously throughout the season if ungrazed and become very "stemmy"; heavy grazing largely suppresses flowering and vegetative growth is maintained with good yield. Like most other varieties of the species it is largely cross pollinated. It seeds well (up to 112 kg per ha).

Its slow establishment from seed relative to other grasses allows good legume establishment and it combines well with white clover, Greenleaf and Silverleaf desmodium, and Siratro. It combines better with legumes than Rhodes grass and its earlier growth and better autumn yields make it suitable for out of season production of green feed (6). It competes effectively with Rhodes grass, green panic, paspalum, and blue couch in coastal districts and responds markedly to fertilizer nitrogen on most soils.

When adequately fertilized on hill land it can withstand heavy grazing pressure of 2 cattle beasts per acre per annum and maintain virtually a pure stand. Nandi contains the lowest oxalate content of a number of setaria cultivars tested (7).

Under hot humid conditions the leaf disease *Piricularia trisa* can seriously retard growth in ungrazed stands. No other diseases have been reported in Australia and it is free from the blunt disease *Tiletia echinosperma* which can devastate seed crops in its country of origin (1).

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