

Register of Australian Herbage Plant Cultivars

A. Grasses

10. Pennisetum

Pennisetum clandestinum Hochst. et Chiov. (Kikuyu grass) cv. Crofts

Reg. No. A-10c-3

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Origin

Crofts was recognised as a possibly useful clone by H.J. Geddes, while Director of Syney University Farms, at Camden, in 1972. It was grown at Richmond (lat. 34°S) and Mitchell's Island, near Taree (32°S), in 1974-5, where it appeared more cold tolerant than common kikuyu and other subtropical grasses; it has since been evaluated in clipped swards at sites from lat. 32° to 36°S and in grazed swards at Camden since 1976. Submitted for registration by the Department of Agronomy and Horticultural Science, University of Sydney. The Department will be responsible for maintaining the breeders' stock of vegetative material. Registered January 1983.

Morphological description

Crofts is a stoloniferous, rhizomatous perennial, taller and having more upright, narrower leaves and thinner, leafy shoots than cv. Whittet or common kikuyu. Morphological differences between Crofts and Whittet are most apparent under cool temperatures – swards can be readily identified visually at Bega (lat. 37°S) – and the differences are larger than any differences between Whittet and common kikuyu. Leafy shoots are commonly 20-50cm long, round, 2mm diameter at the basal internode; sheaths are 1-5cm long, pale, almost membranous. The ligule is a dense rim of white cilia of even (2mm) length. Leaves are light green in colour, linear, 5mm wide at the ligule, commonly 25 (10-30)cm long. The inflorescence is morphologically indistinguishable from that of cv. Whittet. It is a cluster of 2-4 shortly stalked spikelets which protrudes about 1cm from the uppermost leaf sheath. Crofts may flower throughout the year; it produced viable seed under normal cutting or grazing management (7).

Agronomic characters

Crofts yields 20-40% more dry matter than Whittet or common kikuyu in the establishment year (3). In subsequent years it significantly outyields Whittet and common kikuyu at all levels of fertility tested (0, 40 and 120kgN/ha after each harvest) throughout the season at Bega, N.S.W. and outyields other kikuyus in one third to one-half of harvests at Camden (34°S) and Taree (9,10). Its total seasonal yield exceeds that of Whittet by 70-80% at Bega and by about 15% at Camden and Taree (10). It shows the same (linear or quadratic) responses to nitrogen fertiliser as do other kikuyus (9,10) but responds more positively to nitrogen than does Burton Bermuda grass (1). In monoculture and in grass/lucerne and grass/white clover mixtures at Camden Crofts outyields paspalum and Burton Bermuda grass (2,6); under commercial grazing management Crofts yields up to twice as much dry matter each season as paspalum or couchgrass due to Crofts maintaining a higher percentage of sown grass in the sward (> 90% from December to July compared with 85 to 30% for paspalum), commencing growth one month earlier in spring and having a higher growth rate throughout the season (4,5,7,11). The peak growth rate recorded for Crofts is 170kg/ha/day over 6 weeks in January (4). These results suggest that Crofts is well suited to relatively cool mid-latitude locations at moderate to high fertility. Crofts is susceptible to the disease "kikuku yellows" (12), which is caused by an unidentified fungus, but this disease at present does not occur at 32°S or higher latitudes in N.S.W.

In vitro dry matter digestibility (IVDMD) of leaf or leafy stem ranges from 65% in early summer to 49% in autumn (6); leafy stem IVDMD exceeds that of leaf lamina, commonly by 5 digestibility units (6). Digestibility values are the same as for cv. Whittet and common kikuyu (1,7). Nitrogen and phosphorus concentrations are commonly 2-4% and 0.2-0.6% of dry weight respectively; they do not differ between Crofts and other kikuyus (4,7). Concentrations of N, P, K, Ca, Mg and Na vary seasonally and, except for K, concentrations are typical of those found in subtropical grasses, Crofts and other kikuyus being notable only in having low levels of Ca (0.2-0.4%) (10).

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