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GRASSES

Ryegrass

a. *Lolium perenne* L. (perennial ryegrass)

cv. Martlet

(Reg. No. A-2a-10)

Origin

Martlet was bred from Tasmanian No. 1 by recurrent selection for mid-season maturity, high tiller density, good autumn and winter production, freedom from crown rust (*Puccinia coronata* Corda) infection and persistence under grazing in Tasmanian agricultural environments. Several thousand plants, grown as spaced plants from seedheads collected at random from the base population of Tasmanian No. 1, were selected on a maternal line basis, most emphasis being on high autumn to early spring productivity. Progenies of 60 selected plants that had been crossed in various combinations were examined as spaced plants and the 15 best mother plants entered into a polycross. The polycross progenies were examined as close spaced plants for productivity, disease freedom and time of flowering over two years.

Eight plants were selected phenotypically from the best families as parental plants for a second polycross, the progenies being tested for 3 years in mixed grass/clover swards under rotational grazing by sheep at high and medium rainfall sites (Elliott Research Station and Cressy Research Station, respectively). Six progenies displayed satisfactory production, rust freedom and persistence. The final comparisons were of 4 synthetic populations, based on combinations of 4 mother plants and 2 half-sib progenies of the second polycross and one plant selected phenotypically from the previous generation on the basis of its ideal plant habit. The synthetic on which Martlet is based used all 7 sources.

The initial breeding work was conducted by G. J. Martin and the final selection of mother plants to establish the synthetic population to produce breeders' seed was done by J. A. Carpenter, both of the Department of Agriculture of Tasmania.

The name of this cultivar alludes to the breeder, Mr. G. J. Martin, Martlet being the fourth herbage cultivar selected by him and also being a heraldic charge used as a mark of cadency for a fourth son.

Submitted by the Department of Agriculture of Tasmania, which will maintain breeders' seed. Recommended for registration by the Tasmanian Herbage Plant Liaison Committee. Registered November 1986.

Morphological description

Martlet is of mid-season maturity, flowering 4 days later than Tasdale. Tillers are more prostrate, leaves of vegetative tillers are narrower but the blades of the flag leaves are 0.5 mm broader than those of Tasdale and Tasmanian No 1. Individual plants are more highly tillered than those of Tasmanian No. 1. Martlet has more tillers, is less prostrate and has fewer reproductive tillers at maturity than Victorian. Approximately 490 000 seeds per kilogram; the radicles of seedlings do not fluoresce under ultraviolet light.

Agronomic characters

Comparisons of Martlet with cultivars recommended for use in Tasmania has been carried out at the 2 sites used to test polycross progenies as well as at 7 low rainfall sites in Tasmania. Martlet has persisted as well as Tasdale, Grasslands Nui, Ellett and Victorian under grazing at medium to high rainfall sites but was not as persistent as

Victorian at the driest site (Sandford, light soil) or following severe infestation with root-feeding cockchafers (*Adoryphorus couloni* Burmeister).

In 1985 and 1986, Martlet swards were less infected with crown rust and stem rust than Tasmanian No. 1 and Tasdale swards were, but more infected than swards of Grasslands Nui and Ellett. This ranking of infection contrasts with that found in 1974–76, when the polycross progenies from the parental plants used in Martlet, and Tasmanian No. 1, were superior to Grasslands Nui in freedom from rusts.

Seedling vigour of Martlet closely parallels that of Tasmanian No. 1 and Tasdale and is slightly less than that of Ellett. Limited tests indicate that 62% of plants will potentially be infected with ryegrass endophyte (*Acremonium loliae* Latch, Christensen and Samuels).

Herbage production from Martlet has not differed significantly from that of other cultivars recommended for Tasmania at low and medium rainfall sites; its rankings for autumn and winter production have generally been higher than other cultivars, except where it has not persisted well due to drought or insect attack. At Cressy (660 mm rainfall), Martlet has been superior to Tasdale in autumn and summer production, but not different to the most productive cultivar, Ellett. At Elliott (1170 mm rainfall), Martlet has been the most productive cultivar from autumn to early spring, producing 16% more dry matter than Ellett and 19% more than Tasdale. Spring production has been similar to other cultivars at all except 1 site. Trial results have confirmed the results of polycross progeny trials and the expected performance of genotypes derived from Tasmanian No. 1.

Seed production from a first year stand has been good.

The cultivar is expected to replace others in the medium to high rainfall zones of Tasmania.

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Breeders

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Gamba grass

Andropogon gayanus Kunth

cv. Kent
(Reg. No. A-20a-1)

Origin (4,10)

CSIRO conducted preliminary trials on *A. gayanus* at the Katherine Research Station from 1946, using two introductions, C.P.I. 2312 supplied in 1931 by C. P. Taylor from Zaria in Nigeria and C.P.I. 9207 supplied by Ramos de Otero, Division of Agrostology, Deodora, Brazil in 1944 as var. *squamulatus*. The original source of C.P.I. 9207 in Africa is not known.

Residual material of gamba grass from these introduction trials was grown by Mr