

Register of Australian Herbage Plant Cultivars

A. Grasses

2. Ryegrass

Lolium perenne L. (perennial ryegrass) cv. Martlet

Reg. No. A-2a-10

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Origin

Martlet was bred from Tasmanian No.1 by recurrent selection for mid-season maturity, high tiller density, good winter and autumn 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 seed heads collected at random from the base population of Tasmanian No.1, were collected 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 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 three 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 four synthetic populations, based on combinations of four mother plants and two 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 of which Martlet is based used all seven 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, Tasmania. The name of the cultivar alludes to the breeder, Mr. G.J. Martin, Martlet being the fourth herbage plant 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, Tasmania, which will maintain breeders' seed. Recommended for registration by the Tasmanian Herbage Plant Liaison Committee. Registered in 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 blades of the flag leaves are 0.5mm 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, less prostrate and has fewer reproductive tillers at maturity than Victorian. Approximately 490,000 seeds/kg; the radicles of seedlings do not fluoresce under ultraviolet light.

Agronomic characters

Comparisons of Martlet with cultivars recommended for use in Tasmania have been carried out at the two sites used to test polycross progenies as well as at two 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 were Tasmanian No.1 and Tasdale swards but more infected than swards of Grasslands Nui and Ellett. This ranking of infection contrasts with that found in 1974-76, when 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 ranking 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 (660mm rainfall), Martlet has been superior to Tasdale in autumn and summer production, but not different to the most productive cultivar, Ellett. At Elliott (1170mm 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 one 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.

Acknowledgments

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Breeders

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