

Register of Australian Herbage Plant Cultivars

B. Legumes

1. Clover

Trifolium repens L. (White Clover) cv. Mink

Reg. No. B-1a-8

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Origin

Mink is a spring–early summer-active white clover cultivar developed for temperate and subtropical dairy pastures with annual rainfall >750 mm. Mink is based on 8 parents selected from persistent and productive genotypes collected in northern Victoria, originating from cv. Irrigation.

Irrigation was developed from an ecotype that originated in the irrigation districts of northern Victoria (Drake 1942; Oram 1990). Results from evaluation of a range of white clover cultivars across a number of test sites in Victoria indicate that Irrigation has good persistence and herbage yield (Clark *et al.* 1991). Studies by Clark and McFadden (1997) indicated that Irrigation has high stolon density. Irrigation had one of the highest seed yields in comparison with a number of other commercial cultivars when evaluated at Neuarpuur, western Victoria (Clark *et al.* 1992).

In spring 1989, white clover samples (plant cores each about 5 cm in diameter) were taken from old pastures on 42 farms in north-central Victoria. The sampled pastures had white clover populations that were sown to Irrigation 20–55 years previously and had not been renovated since. A total of 120 plant cores were randomly sampled from each farm. Each core was taken from a different white clover plant (Lee *et al.* 1993a). The plant cores were used to establish a spaced-plant nursery of 5000 plants at the Pastoral and

Veterinary Institute, Agriculture Victoria, Hamilton (37°49'S, 142°04'E, altitude 200 m; mean annual rainfall 688 mm). The soil type of the spaced-plant nursery was a duplex with a clay-loam surface derived from basalt.

The 5000 plants formed the base population for the development of Mink. The plants were assessed for growth vigour, leaf density, leaf size and stolon density. In 1991, 150 genotypes were selected from the nursery and polycrossed under isolation using bees (Lee *et al.* 1993b). The 150 half-sib families produced were then evaluated together with 3 check cultivars, Haifa, Irrigation and Kopu, at Kyabram, Timboon and Hamilton, over 3 years. The Kyabram site was irrigated. Across-site performance was assessed on seasonal herbage yield with an emphasis on spring dry matter production, plant habit, leaf size, stolon density, stolon branching, plant width and flower number. Eight superior parents were identified and polycrossed in 1996 using bees under strict isolation in crossing cages, to produce the synthetic one generation seed (Venkatanagappa 1996).

Mink has provisional Plant Breeders Rights status in Australia and New Zealand and is currently being evaluated in the Australian Pasture Plant Evaluation Committee (APPEC) merit testing trials. The breeder seed for this cultivar will be maintained by the breeder at the Pastoral and Veterinary Institute, Agriculture Victoria, Hamilton.

Morphological description

The leaf size of Mink is medium–large and falls between that of cvv. Sustain and Huia. The leaf density of Mink is significantly ($P<0.05$) higher than cv. Aran, but similar to Sustain, Kopu and Pitau. Plant height, based on petiole length, is significantly ($P<0.05$) taller than Huia, Demand, Prestige, Tahora and Prop. Stolon thickness is similar to Huia and Demand. The internode length is significantly ($P<0.05$) longer than Prop and shorter than Sustain. Mink flowers earlier than Prop, but later than Pitau and Huia. The number of florets per inflorescence is similar to Prop and Sustain and floret length is similar to that of Sustain.

Agronomic characteristics

Mink is a spring–early summer-active cultivar with good winter dry matter production. Cultivar evaluation trials, sown at commercial planting rates of 5 kg/ha, at Heywood, Victoria, in autumn 2000, indicate that Mink has a similar seedling density to Haifa and Sustain.

From autumn 1997 to winter 2000, Mink was evaluated at Mutdapilly in Queensland, Hamilton and Terang in Victoria, and Christchurch in New Zealand. Cattle grazed the Mutdapilly and Terang sites and sheep grazed the Hamilton and Christchurch sites. The Mutdapilly and Christchurch sites were irrigated over summer. In spring 1999, Mink produced 50% more dry matter than Haifa and Tamar at Mutdapilly. At Terang, the spring 1999 dry matter production of Mink was not significantly ($P>0.05$) different from that of Aran, Haifa, Sustain or Kopu. On average across 3 testing sites (Mutdapilly, Hamilton and Christchurch), the winter 1999 dry matter production of Mink was similar to Kopu and Sustain but significantly ($P<0.05$) higher than Aran, Ladino, Prop and Tahora. The average dry matter production of Mink across the years 1998, 1999 and sites Mutdapilly, Hamilton and Christchurch, was significantly ($P<0.05$) higher than Irrigation (M. Z. Z. Jahufer unpublished data).

The average summer stolon survival (number/m²) of Mink in the years 1997 (1st year), 1998 (2nd year) and 1999 (3rd year), and across the sites Mutdapilly, Hamilton, Terang and Christchurch, was significantly ($P<0.05$) higher than Aran, Kopu, Ladino, Sustain, Tamar and Waverley and similar to Demand, Haifa, Pitau, Prop and Tahora (M. Z. Z. Jahufer unpublished data).

Measurements of seed yield components at Hamilton, Victoria, indicated that the seed yield of cv. Mink was similar to Tamar (M. Z. Z. Jahufer unpublished data).

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