

Register of Australian Herbage Plant Cultivars

B. Legumes

8. Lucerne

a. *Medicago sativa* L. (lucerne)

cv. Springfield

Reg. No. B-8a-11

Registered April 1980

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Origin

Selected by I.D. Kaehne for resistance to heavy seedling infestation by the spotted alfalfa aphid (*Therioaphis trifolii* (Monell) f. *maculata*) in two germplasms, 2A and 2B, bred by Dr M.W. Dunbier, DSIR, Christchurch, New Zealand from crosses between CUF 101 and bacterial wilt resistant clones (1)

These germplasms are resistant to blue green aphid (*Acyrtosiphon kondoi* Shinji) (1). Sixty-four clones resistant to SAA were selected from c.300 seedlings in the field under isolated conditions to produce breeders' seed. None of the parent clones is susceptible to blue green aphid.

Submitted by the South Australian Department of Agriculture and recommended for registration by the South Australian Herbage Plant Liaison Committee. Breeders' seed will be maintained at the Northfield Laboratories, South Australian Department of Agriculture. Registered, April 1980.

Morphological description

Springfield is intermediate in erectness between Hunter River and the extremely erect cultivars African, Paravivo and Siro Peruvian. Its leafiness is comparable to Hunter River but it generally has taller stems and a significant portion of its plant population expresses strong axillary branching. It develops a moderately broad crown with a capacity for prolific shoot production, and by the second year its crown approaches the appearance of Hunter River. Seedling growth is as rapid as Paravivo and Siro Peruvian. It has blue to purple flowers and tightly whorled seed pods.

Agronomic characters (2, 3)

Springfield is highly resistant to field infestation by spotted alfalfa aphid and blue green aphid and in glasshouse and field tests its seedling resistance to both aphids is equal or superior to a comprehensive range of aphid-resistant cultivars and germplasms (2, 3). Although the urgent need for resistant cultivars has precluded long-term field testing of Springfield before registration, in the spring and summer of its first year in an irrigated trial at Mannum, S.A., it has the highest yield in comparison with an extensive range of introduced aphid-resistant cultivars. From observations at Northfield, S.A., Springfield is ranked as very winter active, having both winter regrowth and winter seedling vigour equivalent to Paravivo and Siro Peruvian. The high yielding potential of Springfield is further amplified when its resistances confer advantage over varieties susceptible to either aphid. In two dry land trials it has expressed excellent persistence through a prolonged summer drought in its first year.

Springfield is expected to be useful as a highly winter-active hay, fodder or pasture lucerne in well-drained sites prone to infestation by spotted alfalfa aphid or blue green aphid. Its longevity and resistance to overgrazing are unknown, but with good management it should be adapted to areas which have been suitable for Hunter River, African, Siro Peruvian and Paravivo, and it should be an acceptable alternative winter-active aphid-resistant cultivar for cooler lucerne-growing areas.

References

1. Dunbier, M.W., Ellis, T.J., and Burnett, P.A. (1978). Production of aphid-resistant lucerne cultivars for New Zealand. Proc. Lucerne Aphid Workshop, Tamworth, N.S.W. Dep. Agric., Sydney, pp. 204-209.
2. Kaehne, I.D. (1979). Personal communication. S.A. Dep. Agric., Adelaide.
3. Williams, A. (1980). Personal communication. Vic. Dep. Agric., Melbourne