

# Register of Australian Herbage Plant Cultivars

## B. Legumes

### 8. Lucerne

#### a. *Medicago sativa* L. (lucerne)

##### cv. Wakefield

Reg. No. B-8a-12

Registered April 1980

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#### Origin

Bred by Ian D. Kaehne of the Northfield research Laboratories, South Australian Department of Agriculture, by selecting over two generations for resistance to spotted alfalfa aphid (*Therioaphis trifolii* (Monell) *f. maculata*) in the progeny of a second-generation population having Afghan ecotypes and non-dormant cultivars as parents. The Commonwealth Plant Introductions 17247, 24806 to 24809, 42904, 53033 and 53034 were crossed with a large number of non-dormant cultivars including Hunter River, Paravivo, Siro Peruvian, African, Demnat and C.P.Is 12533, 16605, 30224, 32052, 32062 to 32064, 32685, 33323, 33387, 34080, 37474 and 37475. One hundred and fifty F<sub>1</sub> plants from crosses between the Afghan and non-dormant parents were space-planted and interpollinated in the field. Some 1000 seedlings of this progeny were screened for resistance to the spotted alfalfa aphid and 20 resistant survivors were interpollinated to produce c.3000 seedlings which were again screened for resistance to spotted alfalfa aphid. Of these, 150 highly resistant plants were selected, transplanted into an isolation cage and breeders' seed was produced by interpollination among them.

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. Registered, April 1980.

#### Morphological description

Wakefield is broad crowned and prolific, producing stems with a high expression of axillary branching and associated leafiness. The stems are semi-erect to erect and a significant portion of the population initiates new shoots in semi-procumbency, becoming more erect with development. The crown structure is similar to Hunter River but in older stands many plants have broader, more prolific crowns. The crown is not exposed. Flowering is a few days earlier and more profuse than in Hunter River. The flowers are generally light blue ranging to purple. Wakefield has smaller seeds than Paravivo and Siro Peruvian, being comparable to Hunter River. The seedlings range from moderately to highly vigorous and many express strong tillering soon after establishment.

#### Agronomic characters (1, 2)

Wakefield is resistant to the spotted alfalfa aphid and, although it cannot be regarded as resistant to blue green aphid (*Acythosiphon kondoi* Shinji), it is more tolerant than Hunter River. A small portion of the population has resistance to blue green aphid equivalent to Springfield (1). The unselected second-generation population from which Wakefield is derived is more persistent and productive than Hunter River under continuous intense grazing pressure by sheep (2). The urgent need for aphid-resistant cultivars has precluded the extensive field testing of Wakefield before registration. However, it is considered unlikely that selection for aphid resistance has markedly affected the grazing tolerance or other characteristics of the population.

In observations on the parent clones at Northfield, S.A., and visual ranking for winter seedling vigour and winter growth in field trials, the late autumn and winter production of Wakefield exceeds Hunter River and approaches that of the non-dormant cultivar Paravivo. In the spring and summer of its first year in an irrigated trial at Mannum, S.A., Wakefield has been equivalent to, or higher yielding than, most introduced aphid-resistant cultivars, and significantly higher yielding than Hunter River.

Wakefield is a spotted alfalfa aphid-resistant alternative to Hunter River and Paravivo for grazing in areas that are severely affected by spotted alfalfa aphid and only slightly affected by blue green

aphid. It is moderately winter active and is also suitable for irrigated hay-production. It is not recommended for heavy soils and areas severely infested with root-damaging pathogens.

### **References**

1. Kaehne, I.D. (1979). Personal communication. S.A. Dep. Agric., Adelaide.
2. Kaehne, I.D. (1978). The performance under intensive continuous grazing of second generation bulk populations derived from crosses between wild and exotic alfalfas and cultivated non-hardy varieties. Report of the 26<sup>th</sup> Alfalfa Improvement Conference, S. Dak. State. Univ., pp. 47-8.