

# Register of Australian Herbage Plant Cultivars

## B. Legumes

### 9. Annual Medics

#### a. *Medicago litoralis* Rhode. (strand medic)

##### cv. Harbinger AR

Reg. No. B-9b-2

Registered January 1988

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#### Origin

Harbinger AR was derived from a backcrossing program designed to produce a Harbinger (*M. litoralis*) type annual medic with good resistance to both spotted alfalfa aphid (*Therioaphis trifolii* (Monell) fm *maculata*, S.A.A.) and blue green aphid (*Acyrtosiphon kondoi* Shinji, B.G.A.).

In this program Harbinger was the recurrent parent while a barrel medic (*M. truncatula*) line resistant to both S.A.A and B.G.A., SA 10419, was the aphid resistant donor. For each backcross, parent plants from progeny of the previous cross in the sequence were selected on the basis of resistance to both S.A.A. and B.G.A. These were then crossed with Harbinger and the process repeated. Some 40 F<sub>2</sub> single plants were selected for dual aphid resistance from the third backcross (94% Harbinger genotype). Progeny tests were used to isolate three families (Z-212, Z-243 and Z-244) which were pure breeding across a range of tested characters. Further testing of these lines failed to reveal significant differences and these were then bulked for seed production. Originated by A.W.H. Lake and M.J. Mathison.

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 by the South Australian Department of Agriculture. Harbinger AR is expected to replace Harbinger, so that production of certified Harbinger seed will be progressively phased out as basic seed of Harbinger AR becomes available. Registered January 1988.

#### Morphological description

Harbinger AR is very similar to its recurrent parent Harbinger, in terms of general appearance, growth form and morphological characteristics. Distinction between the two in the field situation is generally not possible. While morphological differences may be detected under some circumstances, these are not reliable in terms of cultivar distinction, as variation caused by environmental effects is usually much greater than that attributable to genotypic differences. The morphological description of Harbinger contained in the Register of Australian Herbage Plant Cultivars is therefore also directly applicable to Harbinger AR.

#### Agronomic characters

Harbinger AR has good resistance to both S.A.A. and B.G.A. The aphid resistant donor parent of Harbinger AR (SA 10419) is a sister line to the cultivar Sephi and its resistance levels to both aphids is comparable to those in that cultivar. In a glasshouse experiment, S.A.A. killed all seedlings of Harbinger within two weeks of infestation, while similarly infested plants of Harbinger AR showed no symptoms of damage over the same period. If S.A.A. populations are confined on Harbinger AR plants aphid mortality is high and multiplication rates very low or zero, while on Harbinger, S.A.A. multiplies rapidly and has low mortality. In similar experiments, Harbinger was generally not killed by B.G.A., but was severely damaged, while Harbinger AR plants sustained little or no damage. Aphid multiplication rates were correspondingly high on Harbinger and low on Harbinger AR.

Small plot tests of the component lines of Harbinger AR in N.S.W., Vic., S.A. and W.A. have confirmed their similarity in the field over a range of environments. Further, under aphid free conditions, these lines have been comparable to Harbinger in most measured characters including herbage, pod and seed yield. Harbinger AR is rated similarly to Harbinger in terms of resistance to major insect pests other than aphids; both are susceptible to red-legged earthmite, lucerne flea and sitona weevil. Their flowering patterns are similar. A maximum difference of three days between the

two cultivars for time to first flower was recorded at Merredin. W.A. in 1986. Most direct comparison place their respective times to first flower within one or two days of each other, or generally from 90 to 100 days after a May sowing. As with Harbinger, Harbinger AR flowers at about the same time as both Parabinga and Cyprus, or between one and two weeks earlier than Paraggio, Sephi or Jemalong barrel medics, depending on both sites and season.

Harbinger AR is well adapted to alkaline sands and loams of more than 225 mm annual rainfall common in the lower rainfall cereal zones of South Australia, Victoria and south western New South Wales. In these and other situations it can be regarded as an aphid resistant direct replacement for Harbinger.

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