

Register of Australian Herbage Plant Cultivars

B. Legumes

9. Annual Medics

(b) *Medicago littoralis* Rhode (strand medic) cv. Herald

Reg. No. B-9b-3

Registered 29 April 1997

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Australian Journal of Experimental Agriculture, 1997, 37, 609–10.

Origin

Herald was selected from a back-crossing program designed to produce a strand medic with high levels of resistance to both spotted alfalfa aphid, *Therioaphis trifolii* Monell f. *maculata* (SAA), and bluegreen aphid, *Acyrtosiphon kondoi* Shinji (BGA). Harbinger strand medic was the recurrent parent and the *M. truncatula* Gaertn accession SA 10419 (Anon. 1985) was used as the aphid-resistant donor parent. Original seed of SA 10419 was supplied and is maintained by the Australian Medicago Genetic Resource Centre (SARDI, Waite Research Precinct, Adelaide, South Australia). Progeny of the interspecific hybrid were selected for resistance to both SAA and BGA and crossed back to Harbinger. This process was repeated twice, with progeny from the third back-cross (94% Harbinger genotype) selected in standard glasshouse trials for dual aphid resistance.

A field selection phase was used to test the performance of 5 back-cross lines against the similarly aphid-resistant Harbinger AR strand medic. Trials were conducted on mallee sands and loams in all mainland southern states and included a range of medic cultivars and lines over a number of years. The line Z-245 (Herald) was selected as demonstrating the most consistently superior performance over Harbinger AR.

The breeding of Herald was part of the National Annual Medic Improvement Program (NAMIP). Major collaborators in its development included R. Latta (Agriculture Victoria), D. J. Gillespie, C. Revell and B. Nutt (Agriculture Western

Australia), R. Young (New South Wales Agriculture) and R. J. Saunders (SARDI).

Herald was submitted by NAMIP collaborators through SARDI and recommended for registration by the South Australian Herbage Plant Liaison Committee. Breeder's seed will be maintained by SARDI. An application for plant breeder's rights to this cultivar (application no. 94/212) has been accepted by the Plant Breeders Rights Office (Anon. 1994) and the cultivar described (Anon. 1996).

Morphological description

Herald closely resembles the morphological description of Harbinger (Oram 1990), and Harbinger AR (Lake and Mathison 1989), but is readily distinguished from both of these cultivars, firstly in that its pods coil in a clockwise direction, which is opposite to that of Harbinger and Harbinger AR and secondly, in having a prominent obovate or rhombate dark brown blotch of variable dimensions on each leaflet, which usually extends from the lower to about the mid-upper part of the leaflet. This mark fades with the onset of warmer weather, and usually disappears near the end of the growing season. Additionally, Herald has purple flecking on the underside of the leaflet, which is either rare or absent in Harbinger and Harbinger AR.

Agronomic characters

The resistance of Herald to both SAA and BGA is equivalent to that in Harbinger AR, in contrast with the susceptibility of Harbinger to both of these pests. In common with Harbinger and Harbinger AR, Herald has moderate resistance to cowpea aphid, *Aphid craccivora* Koch, and is susceptible to sitona weevil, *Sitona discoideus* Gyllenhal, redlegged earth mite, *Halotydeus destructor* (Tucker), and lucerne flea, *Sminthurus viridis* (L.).

Data from Western Australia and South Australia indicate that, on average, Herald flowers 4 days earlier than Harbinger AR and at the same time as Harbinger. Depending on the time of sowing and locality, this is generally between 70 and 95 days after sowing.

Herald was selected to replace Harbinger AR because of its improved agronomic performance that was consistently demonstrated in 50 experiments conducted over 8 seasons and at a diverse range of sites in New South Wales, South Australia, Victoria and Western Australia. Average herbage and seed yields were respectively 14 and 20% greater than those of Harbinger AR.

Seedling regeneration data suggest that Herald is softer seeded than Harbinger AR and about the same or slightly softer

than Harbinger, with between 5 and 10% of seed softening on average over the first summer after seed set.

Laboratory tests have confirmed its compatibility with the commercial Group AL inoculant strain (WSM 826) and field studies have shown that it fixes nitrogen adequately with indigenous rhizobial strains (Ballard and Charman 1996; J. Howieson unpublished data).

As with Harbinger and Harbinger AR, Herald is best adapted to alkaline sands and loams with 275–400 mm annual rainfall. In these situations, it can be regarded as an agronomically superior, aphid-resistant replacement for these 2 cultivars.

Acknowledgments

Herald was bred and selected under the auspices of NAMIP with the principal funding support of the South Australian Government and Grains Research and Development Corporation. The support received for NAMIP projects from the International Wool Secretariat, New South Wales Agriculture, Agriculture Victoria and Agriculture Western Australia is also gratefully acknowledged, as is the technical and scientific support of NAMIP collaborators and staff.

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