Register of Australian Herbage Plant Cultivars

B. Legumes
1. Clover
Trifolium subterraneum ssp. *subterraneum* (Katzn. *et* Morley) Zohary and Heller (sub clover) cv. Karridale

Reg. No. B-1d-24
Registered April 1985

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Origin

According to breeding records, Karridale originated as an F4-derived selection from the cross Midland B/Nangeela/Dinninup, made in 1973 at the University of Western Australia Field Station, Shenton Park, as part of the National Subterranean Clover Improvement Programme (7,17). The Midland B/Nangeela parent was one of a series of crossbreds developed at the University of Western Australia from a cross made in 1969. However, some doubt attaches to this pedigree, as none of the supposed parents has resistance to clover scorch, which is one of Karridale's principal characteristics. It may have come from an accidental admixture of seed from a parallel cross, or from natural outcrossing in an early generation; alternatively resistance may have been due to transgressive segregation. The similarity of isozyme patterns to those of Dinninup heightens the likelihood of the latter alternative. Field testing was done under the code name MND 7.2.2. Breeding was by C.M. Francis and J.S. Gladstones, with field and glasshouse screening for disease and insect resistance by D.L. Chatel and D.J. Gillespie, all of the Western Australian Department of Agriculture. Field testing was by D.A. Nicholas (Western Australian Department of Agriculture), E.C. Wolfe and B.S. Dear (New South Wales Department of Agriculture), K.F.M. Reed (Victorian Department of Agriculture) and P.E. Beale (South Australian Department of Agriculture). Initial pure seed increase was by C.J.B. Sykes (Western Australian Department of Agriculture).

Submitted by the Western Australian Department of Agriculture and the University of Western Australia, and recommended for registration by the Western Australian Herbage Plant Liaison Committee. The Western Australian Department of Agriculture will maintain breeders' seed. Registered, April 1985.

Morphological description (9)

Karridale has rounded leaflets and prominent, rounded leaflet crescent markings inherited from its Nangeela grandparent (1,4). The crescent comprises a yellow-green central area with strong white arms on either side, curving towards the base of the leaflet. In winter or under some other conditions restricting growth, course purplish red flecking is variably prominent, especially just above and below the crescent, together occasionally with purplish brown pigmentation outlining the crescent. Stipule veins purplish red, usually with a moderately prominent transverse bar of the same colour. Leaflet upper surfaces more or less hairless. Petioles sparsely hairy, stems moderately hairy, peduncles moderately appressed-hairy; all robust with moderately brownish purple pigmentation where exposed to the sun. Growth vigorous, semi-prostrate early but erect post-flowering. Calyx green apart from occasional light purplish brown pigmentation of the teeth. Corolla white with fine pink veins. Seeds medium sized, about 130,000 per kg., black. Seedlings erect, unifoliate leaf moderately hairy, with a small and inconstant crescent spot in the centre. Karridale is very similar to cv. Green Range (2), but differs in the following visible characters when grown at Perth under the same conditions: 1. Flowering is 6-9 days later;2. Leaflets are more rounded and less indented, and the crescent more rounded, with the central spot less pointed and not reaching as close to the leaflet margin;3. The stipules are on average a little less pigmented;4. The leaflet upper surfaces are less hairy, with those produced before flowering more or less hairless;5. Growth of spaced plants is often a little more erect.

Electrophoretic patterns of seed enzymes for Karridale are different from those of cvv. Nangeela and Green Range, which are morphologically similar to Karridale (3,5).

Agronomic characters (8,14,15,18)

Karridale flowers and matures in mid season, about the same time as cv. Mount Barker and 6-9 days after cvv. Green Range and Woogenellup. At Perth flowering occurs about 136 days after early May sowing. Formononetin content is very low, less than 0.1%. Hardseededness is moderately low, similar to or slightly

higher than that of cv. Woogenellup and significantly higher than that of Mt. Barker (10,13,18). Burr burial is similar to that of cvv. Green Range and Woogenellup and greater than that of cv. Mt. Barker (14,18).

Karridale has good resistance to clover scorch, *Kabatiella caulivora* (Kirchn.) Karak. Its resistance to the complex of clover root rot organisms prevalent in Western Australia, *Pythium*, *Rhizoctonia* and *Fusarium*, is above average; slightly inferior to that of cvv. Daliak, Dinninup and Junee, slightly better than that of cvv. Woogenellup and Mt. Barker (8). It is only moderately tolerant of blue-green aphids (*Acyrthosiphon kondoi* Shinji) (8), but appears to have better than average resistance to red-legged earth mites, *Halotydeus destructor* (Tuck.) (13). Tasmanian data (12) suggest a moderate degree of resistance to subterranean clover red leaf virus. Nodulation in field trials has been regularly satisfactory. Controlled tests of nitrogen fixation (16) have indicated that Karridale is compatible with present commercial strains of *Rhizobium*. Karridale is a robust, showy cultivar which has performed consistently well in trials across high rainfall areas of southern mainland Australia, giving good winter and very good spring production (14,15). It is seen as a direct replacement of cv. Mt. Barker, and perhaps for cv. Woogenellup in the wetter part of that cultivar's range.

References

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