Register of Australian Herbage Plant Cultivars

B. Legumes
8. Lucerne
(a) *Medicago sativa* L. (lucerne) cv. Quadrella

Reg. No. B-8a-20

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Originators: R. A. Bray[A] and J. A. G. Irwin[B]

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Origin

Quadrella was derived entirely from Trifecta by selection for resistance to the leaf spot disease caused by *Stemphylium vesicarium*. About 1000 seedlings were screened under controlled glasshouse conditions for resistance to stemphylium leafspot (isolates 162 and 302) in 1985. From these, 100 seedlings rating in the most resistant classes 1 or 2 were selected, grown, and intercrossed. Seventy-two half-sib maternal lines were produced and screened for resistance. From each maternal line, one class 1 plant was selected, grown on, and intercrossed as before. The resultant progenies were tested for resistance in 1987. The parents of progenies with only moderate scores for resistance were discarded, leaving 52 final selections from Trifecta. The seed produced by intercrossing these plants forms the basis for Quadrella.

Quadrella was submitted for registration jointly by CSIRO Division of Tropical Crops and Pastures and the University of Queensland. CSIRO Division of Tropical Crops and Pastures will maintain breeders' seed. Recommended for registration by the Queensland Herbage Plant Liaison Committee. Granted Plant Variety Rights (Anon. 1990).

Morphological description

Quadrella is similar in most characteristics to its parent cultivar, Trifecta, but can be distinguished from it by being slightly less erect when grown as spaced plants. Quadrella also shows slightly less winter activity than Trifecta.

Agronomic characters

Quadrella has high levels of resistance to the stemphylium leafspot isolates 162 and 302 (Bray and Irwin 1989), the new virulent isolate UQ129 (J. A. G. Irwin unpublished data), and leptosphaerulina leafspot (I. D. Kaehne, R. W. Williams, J. A. Horsnell, E. T. Kobelt and B. M. Martin pers. comm.). Its colletotrichum resistance is as high as that of Trifecta, but the level of resistance to *Phytophthora* is slightly lower (Bray and Irwin 1989). However, the level of phytophthora resistance is sufficient for all but the most severely affected sites.

In a yield trial at Lawes (south-eastern Queensland) with 14 harvests over an 18-month period, Quadrella produced 95% of the yield of Trifecta, with no significant stand losses (R. A. Bray unpublished data). In another trial at Lawes, situated on an area known to be infested with phytophthora, Quadrella produced only 80% of the first-year yield of Trifecta (9 harvests). However, persistence over that period was 37% for Quadrella, compared to 26% for Trifecta (K. F. Lowe pers. comm.). Neither of these trials suffered significant losses due to stemphylium.

First-year seed yields of Quadrella have been extremely good, producing over 800 kg/ha (S. M. Martens pers. comm.).

Quadrella should be suitable for all areas in eastern and southern Australia where Trifecta has been successful, except in very limited areas of extreme phytophthora infestation. It should be particularly useful where stemphylium leafspot is a problem.

References

Anon. (1990). Lucerne (*Medicago sativa* L.) variety 'Quadrella.' *Australian Plant Varieties Journal* **3**, 18.

Bray, R. A., and Irwin, J. A. G. (1989). Recurrent selection for resistance to *Stemphylium vesicarium* within the lucerne cultivars Trifecta and Sequel. *Australian Journal of Experimental Agriculture* **29**, 189–92.