

# Register of Australian Herbage Plant Cultivars

## B. Legumes

### 1. Clover

#### *Trifolium pratense* L. (red clover) cv. Redquin

Reg. No. B-1b-4

Registered April 1979

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#### Origin

Redquin was derived by selection for low formononetin content (1) from the Chilean cultivar, Quinequeli (2). The selection program was conducted at the Institute of Agriculture, University of Western Australia by Dr C.M. Francis in cooperation with Mr J.W. Read and Mr G.G. Drummond of the New South Wales Department of Agriculture.

Redquin was recommended for registration by the New South Wales and Western Australian Herbage Plant Liaison Committees and was submitted jointly by the New South Wales and Western Australian Departments of Agriculture.

Breeders' seed is maintained by the Division of Plant Industry, New South Wales Department of Agriculture. Registered, April 1979.

#### Morphological description

The morphology of Redquin is similar to Quinequeli. It is a short-lived perennial with a dense habit similar to Grasslands Hamua. Numerous tillers with 10-15 internodes develop from a low crown but unlike Grasslands Hamua the development of laterals along the tillers is rare. Leaflets are generally ovate to obovate, in contrast to the elliptical-oblong leaves of Grasslands Hamua or its low formononetin derivative Redwest. The leaf margins of Redquin are notched or entire. The leaf markings may be absent or vary from a light green central spot, to a distinct angular crescent. Both leaflet surfaces are hairy.

The petiole is grooved and hairy with weakly visible dark green veins. Stipules are large and membranous, adnate to the petiole for 75% of the stipule length. The stipules have a distinct membranous margin devoid of veins and their shape is generally more oval than those of Grasslands Hamua. Stipule veins are branched towards the margin and dark green to purple in colour. The free end of the stipule tapers to a dark green point. Apart from hairs on this point, stipules are glabrous.

The purple pink inflorescence forms a dense head and flowering occurs c. 3 weeks later than Hamua. The yellow to purple seeds number c. 550 000 kg<sup>-1</sup>.

#### Agronomic characters (3,4)

Redquin is suited to a temperate environment and grows in soils with pH 5-7. Best growth occurs during the period from early spring to late autumn.

The production of Redquin has been compared with the production of other red clover cultivars by the NSW Department of Agriculture (3). At Shoalhaven Heads, on the NSW coast, Redquin had equal herbage production to Quinequeli and produced significantly higher yields than Grasslands Hamua during the autumn - winter period.

Redquin was also more productive than Grasslands Hamua in two experiments at an altitude of 700 m (Fitzroy Falls and Sutton Forest). At Fitzroy Falls the production of Redquin was 3.6 and 0.7 ha<sup>-1</sup> (DM) for the period from establishment in spring to late summer and during autumn respectively. The difference in yield between Quinequeli and Redquin for these periods was not significant, but the Redquin yield was 25% and 72% greater than the yield of Grasslands Hamua during the spring to late summer period and during autumn respectively. At Sutton Forest the yield of Redquin was 6.1 t ha<sup>-1</sup> (DM), 25% more than Quinequeli and 67% more than Grasslands Hamua during the spring to autumn period. Under grazed conditions persistence of original plants is equal to, or better than Grasslands Hamua.

The formononetin content in the leaves is 0.09% (dry weight basis) compared to 0.85% for the Quinequeli parent. This is less than the concentration considered to have an adverse effect on reproductive performance of the ewe (4). Being a cross-fertilized species, relative isolation from existing high formononetin cultivars is necessary. Only basic or breeders' seed should be used to establish stands for seed production.

Redquin will be an important low-oestrogen legume for improving winter production in temperate coastal or tablelands environments where rainfall is moderate to high. It would also be a suitable cultivar for irrigation areas.

### References

1. Francis, C.M., and Millington, A.J. (1965). Varietal variation in the isoflavone content of subterranean clover; its estimation by a micro-technique. *Aust. J. Agric. Res.* **16**, 557-64.
2. Raul Avendano T. (1965). La variedad Quinequeli y su evaluacion con respecto a algunos treboles cosados corrientes. *Agricultura Tecnica* **25**, 167-71.
3. N.S.W. Department of Agriculture, Annual Research Report 1977-78; South and South West Regional Research Directorate, June, 1978.
4. Neil, H.G., and Fels, H.E., and Francis, C.M. (1969). Control of clover infertility in sheep. *J. Agric. West. Aust.* **10**, 257.