

Mintaro subterranean clover

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Pasture type and use

Mintaro is a new mid season *Trifolium subterraneum* ssp. *brachycalycinum* cultivar released as an alternative to the cultivar Rosedale for use in long term pasture phases (3–5 years) on neutral to alkaline soils. As an annual pasture legume, Mintaro can be used for high quality pasture feed for grazing by livestock and regenerates annually from seed. It can also be conserved as forage or hay.

Origin

Mintaro is a cross between Rosedale and an experimental line CPI 70100 made by P. Nichols in Western Australia with further selection at Turretfield Research Centre in South Australia by C. deKoning. Evaluated under the code BM031 it was selected following field testing by the National Annual Pasture Legume Improvement Program (NAPLIP).

Area of adaptation

Mintaro is adapted to environments with a medium length growing season which extends until late October to mid November. It is suited to soils ranging from loams through to soils with a high clay content where cultivars such as cv. Clare or cv. Rosedale might normally be grown. These include sodic soils in southern NSW.

All sub clovers are best suited to a temperate Mediterranean-like climate with a 6–7 month autumn–winter–spring growing season with dry summers.

Flowering

Under conditions at Turretfield Research Centre, Mintaro flowers approximately 115 days after a mid May sowing, which is similar to cv. Rosedale but 12

days earlier than Clare and 21 days earlier than cv. Antas.

Minimum average rainfall

Mintaro is suited to regions which receive at least 500 mm annual rainfall in southern NSW and 700 mm in northern NSW.

Hard seed

Mintaro is moderately hard-seeded. Germination test data show that Mintaro had a hard seed level of 48% compared to 36% for Clare and 63% for Rosedale.

Insect tolerance

In field trials, Mintaro has shown similar susceptibility to red-legged earth mite (RLEM) and blue-green aphids as most other sub clover cultivars, although cv. Clare appears to have a higher level of tolerance to RLEM. New sowings should be monitored closely and appropriate insect control undertaken where necessary to protect new seedlings.

Disease tolerance

Mintaro and Rosedale have moderate resistance to race 1 clover scorch disease (*Kabatiella caulivora*), the most common strain in Australia (cv. Clare is moderately susceptible and cv. Antas highly susceptible). Mintaro has a high level of resistance to race 2 clover scorch, a virulent strain found in WA.

Powdery mildew has been observed on Mintaro when conditions are suitable.

Leaf and flower markings

Mintaro has a small pale central crescent on leaflets with two distinct white arms, classified as C1A1 using the standardized scoring system (see the Agfact *Subterranean clover in NSW – identification and use*).

Anthocyanin flecking on the leaves is absent or very weak. Petioles and stolons (runners) are moderately hairy. Stipules express moderate red pigmentation under sward conditions and shading. Flowers are white with no red pigmentation on the calyx tube.





Rhizobia and nitrogen fixation

Mintaro nodulates readily with rhizobia present in the soil where sub clover has been grown recently. In acidic soils and newly sown areas, seed should be inoculated with commercial group C inoculant.

Mintaro will biologically fix approximately 25 kg N/t dry matter produced. A 6 t herbage yield per annum can therefore be expected to add about 150 kg N/ha to the soil.

Seed production

As is typical of all members of the *brachycalycinum* sub species, Mintaro is a poor burr burier. Burrs are borne on the end of long peduncles which seek out cracks or stones for favourable microniches in which to hide the burrs.

Seed is cream in colour and relatively large with an average individual seed weight of 8.7 mg.

Seed of Mintaro is protected under the Plant Breeders Rights Act 1994 (PBR), and seed can only be sold with agreement from the licensee (PlantTech/Seedmark).

Companion species

Mintaro can be sown alone or in mixtures with perennial grasses, lucerne or other annual legumes.

A seeding rate of 5–7 kg/ha is suggested when Mintaro is sown as the only legume in a pasture mixture. This rate can be reduced when sown as a mixture with other legumes.

Advantages

- More hard-seeded than Clare – this gives increased protection from seed reserve depletion due to germination occurring in response to false breaks.
- From studies in NSW
 - autumn–winter herbage production of Mintaro was 25% greater than Rosedale.
 - herbage yields of Mintaro in spring were 23% greater than Rosedale.
 - seed production of Mintaro was 19% greater and seedling regeneration 50% higher than Rosedale.

Further reading

See Agfact *Subterranean clover in NSW – identification and use*.

www.dpi.nsw.gov.au/reader/past-varieties/p2516a.htm

Acknowledgements

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