

# Register of Australian Herbage Plant Cultivars

## B. Legumes

### 1. Clover

*Trifolium subterraneum* ssp. *yanninicum* (Katzn. et Morley) Zohary and Heller (sub clover) cv. Yarloop

Reg. No. B-1d-13

Registered prior to December 1971

Published in the 2<sup>nd</sup> Ed. of the Register of Australian Herbage Plant Cultivars, 1972.

#### Origin

First observed in the Yarloop-Cookernup district of Western Australia by Mr. J.M. Riegert of "Summerfields", Yarloop (4). Seed was distributed by him during the late 1930s. It was also called "Albino" and "White seeded" subterranean clover (4) and synonymous with Riegert's White as described by Yvonne Aitken and F.R. Drake (1). It had come into prominence as a commercial cultivar by 1939. First certified in 1947 in Western Australia, in 1951-52 in South Australia, and in 1962-63 in New South Wales.

#### Morphological description (1,4,7,9,15)

Cv. Yarloop differs from the cultivars of the subspecies *subterraneum* in being almost glabrous, having longer petioles and stipules, fewer sterile flowers, larger pods, and larger and light-coloured seeds. The pods are also leathery. The calyces of the fertile flowers become transversely wrinkled, fully cover the pod and constitute the greater part of the burr. The white corollas do not have pink veins.

Other features of this cultivar are: as spaced plants form few (5-11) runners with long internodes; produce two laterals per runner and the laterals may branch twice. Its habit is rather erect. Leaflets are comparatively large and yellowish green on long petioles; no central pale area but two narrow white arms near leaflet margin; occasional anthocyanin flecking along lower midrib. Stipules green with pink-red veins and sometimes blotched with red, glabrous. First flower at about 7th node. Calyx tube green with faint red band above and pinkish lobes, glabrous. Pod large, leathery, and included in large fine-netted delicate calyx. Seed ovoid-asymmetric to oval with cotyledonary lobe much larger than radicle lobe, slightly laterally compressed, cream to amber or pale brown, large, approximately 99,000 per kg. Burr contains only 1-3 seeds. Seedlings as in Mt. Barker but hypocotyl green to faintly brown; cotyledons without anthocyanin markings; juvenile leaf with few anthocyanin flecks and usually small basal wedge; 1st trifoliate leaf with base widely cuneate, tip truncate and emarginate, leaf markings as in older leaves but fainter (16). The root system shallow compared with other varieties (8).

#### Agronomic characters (4,7,13-15)

Yarloop is early-maturing, commencing to flower about the end of August, some 10-15 days after Dwalganup and a little before Bacchus Marsh. It requires a rainfall of 480 mm (4) or 300-400 mm in the April-October period (10). Usually quoted as requiring 6.5-month growing period in the eastern States but only 5.5 months required in Western Australia (14).

It is quick-growing in the early part of the season; it produces well in autumn and is particularly vigorous in early winter. Its spring growth is not as good and it wilts relatively quickly under moisture stress (8). It is also said to be more susceptible to frost than most other varieties. It will grow on both well-drained and waterlogged soils. Its outstanding feature is its ability to tolerate low-lying heavy clay soils and shallow surface water for long periods. It is therefore most useful in higher rainfall areas and in heavy winter waterlogged clay soils or under irrigation.

Its rate of seed development is rapid like that of cv. Geraldton and it burns its burrs relatively readily. The seeds have a high level of physiological dormancy. At maturity there is a moderate to high level of hard seed which falls during summer to give a moderate to high level of permeable seed in autumn.

Yarloop is similar in its rhizobial requirements to cultivars of the subspecies *subterraneum*; it nodulates satisfactorily with Rhizobium strains CC2480a, WU95, and WU290 which are contained in Australian inoculant "C".

Probably more resistant to leaf rust than Mt. Barker (12) and slightly to moderately resistant to clover stunt virus (6). It appears highly susceptible to clover anthracnose or clover scorch (*Kabatiella caulivora*), a disease of increasing importance in Western Australia (15).

Oestrogenic potency high (2,3,5,11)

## References

1. Aitken, Yvonne, and Drake, F.R. (1941). Studies of the varieties of subterranean clover. *Proc. R. Soc. Vict.* **53**(N.S.)II, 342-93.
2. Davies, H. Lloyd, and Bennett, D. (1962). Studies on oestrogenic potency of subterranean clover in south-western Australia. *Aust. J. Agric. Res.* **13**, 1030-40.
3. Davies, H.L., Rossiter, R.C., and Maller, R. (1970). The effects of difference cultivars of subterranean clover (*Trifolium subterraneum* L.) on sheep production in the south-west of Western Australia. *Aust. J. Agric. Res.* **21**, 359-69.
4. Elliott, H.G., and Gardner, C.A. (1947). Yarloop white seeded subterranean clover (*Trifolium subterraneum*). *J. Dep. Agric. West. Aust.* **24**, 228-31.
5. Francis, C.M., and Millington, A.J. (1965). Wether bioassay of annual pasture legumes. III. The oestrogenic potency of dry sub clover pastures and leaf blade and petiole in green state. *Aust. J. Agric. Res.* **16**, 23-30.
6. Grylls, N.E., and Peak, J.W. (1960). Varietal reaction and genetic resistance of subterranean clover (*Trifolium subterraneum* L.) to subterranean clover stunt virus infection. *Aust. J. Agric. Res.* **11**, 723-33.
7. Higgs, R.D. (1960). Yarloop subterranean clover. *J. Dep. Agric. S. Aust.* **63**, 283-4.
8. Humphries, A.W., and Bailey, E.T. (1961). Root weight profiles of eight species of *Trifolium* grown in swards. *Aust. J. Exp. Agric. Anim. Husb.* **1**, 150-2.
9. Katznelson, J., and Morley, F.H.W. (1965). A taxonomic revision of Sect. Calycomorphum of the genus *Trifolium*. I. The geocarpic species. *Israel J. Bot.* **14**, 112-34.
10. McMaster, G.S., and Walker, M.H. (1966). The distribution of subterranean clover in New South Wales. *Agric. Gaz. N.S.W.* **77**, 428-34.
11. Millington, A.J., Francis, C.M., and McKeown, N.R. (1964). Wether bioassay of annual pasture legumes. II. The oestrogenic activity of nine strains of *Trifolium subterraneum* L. *Aust. J. Agric. Res.* **15**, 527-36.
12. Peterson, S. (1954). Rust in subterranean clover. *Agric. Gaz. N.S.W.* **65**, 597-602, 605.
13. Quinlivan, B.J. (1962). The certified strains of subterranean clover in Western Australia. *J. Agric. West. Aust.* **3**(4th Ser.), 113-25.
14. Quinlivan, B.J. (1966). Personal communication. West Aust. Dep. Agric., Perth.
15. Quinlivan, B.J., Francis, C.M., and Poole, M.L. (1968). The certified strains of subterranean clover. *J. Dep. Agric. West. Aust.* **9**(4th Ser.), 161-77.
16. Stratton, P.K. (1960). Subterranean clover varieties. Seedling identification. *J. Agric. Vict. Dep. Agric.* **58**, 599-601.