

Narbon bean (*vicia narbonensis*) - a potential grain legume for the Victorian Mallee

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There is a need to develop a grain legume crop suited to low rainfall and alkaline soil conditions such as those in the Victorian Mallee and which will act as a break crop for cereal diseases such as take-all and cereal cyst nematode. Lupins and field peas are used for this purpose but they have had limited farmer adoption. Lupins have unpredictable yields and are limited by the need to sow early and their inability to grow well on soils of pH higher than 8.6. Field peas often yield satisfactorily but high spring temperatures terminate flowering, farmers experience difficulty in harvesting the crop and the light stubble left after harvest is an erosion hazard. Chickpeas are another possible crop but low yields and wilt-like diseases have prevented further development in the Mallee.

Narbon bean (*Vicia narbonensis*) appears to be adapted to alkaline soils in low rainfall conditions. The plant is a thick stemmed, erect annual (40-90 cm in height) (1). The leaves consist of 1-3 pairs of broad leaflets and have tendrils which mesh with surrounding plants. Up to six purple flowers form at the leaf axils and develop into large pods containing 4-8 seeds similar in size and appearance to the field pea. Its phenological development is being studied at the Mallee Research Station with a view to obtaining more information on its performance in 330 mm rainfall zone. Preliminary results from 1983 are presented.

Method

Lines of narbon bean were sown at four times in 1983 to obtain data regarding flowering and suitability to alkaline soils. Large field plots also were sown and seed yields recorded.

Results and Discussion

Table 1: Results for the First Time of Sowing (29 April)

Cultivar	Date first flower	Date last flower	Seed yield (g/m row)	1,000 seed weight (g)	Plant height (cm)
Narbon bean - 140003	27 Aug	21 Sep	184	195.5	70
- 140004	15 Aug	21 Sep	170	269.8	70
- CPI 14115	15 Aug	21 Sep	190	190.6	70
Field pea - Dundale	20 Jul	3 Oct	160	191.2	40
Lupin - Unicrop	8 Aug	22 Sep	-	182.6	88

The data indicates that these three accessions of narbon bean flower during late August and throughout September, row yields are similar to field peas and 1,000 seed weights are comparable with field peas and lupins. At harvest, plant height was 70 cm and the lowest pods were set at between 20 and 30 cm from ground level and could therefore be easily direct harvested.

Field plot yields for field peas (cv. Buckley) and lupins (cv. Unicrop and narbon bean (line 140004) were 2.13, 2.10 and 1.75 t/ha, respectively on a site with pH 7.8. The average grain yield of field pea and lupin from 1977 to 1983 at Walpeup is 1.51 and 1.01 t/ha on soils with a pH higher than 8.0. It was estimated that yield was reduced by 40% in narbon bean due to pod shattering and the true seed yield was estimated to be 2.90 t/ha. The shattering characteristic of narbon bean has been described as delayed (1). A non-shattering type is required and selection will be attempted in 1984.

Narbon bean appears to be suited to low rainfall and alkaline soil conditions and could therefore be a suitable grain legume for inclusion in cereal rotations.

1. Lawrence, R. C. N. 1979. Aust J. Exp. Agric. Anim. Husb. 19, 495-503.

