## Narbon bean - a grain legume with potential

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Narbon bean (Vicia narbonensis) is a plant very similar in appearance to faba beans (V. faba) (1), but with weaker stems and a tendril at the apex

of upper leaves. Seeds are similar in size and shape to peas, either dimpled or smooth, and range in colour from tan to black. The species probably originated in the southern Europe/Mediterranean regions, (Narbonensis was a southern province of Gaul in the Roman Empire), and has been used in those areas as a green manure, forage and hay crop. There are several references to its grain being consumed by humans and cattle, but its use and importance appear very minimal today.

Taxonomy of the species is debated. While some systematists divide the species into several subtaxa, others recognise five closely related species in the V. narbonensis aggregate: V.narbonensis, V. galilaea, V. hyaeniscyamus, V. johannis and V. serratifolia. Some of these species are further divided into varieties. V. narbonensis as used in this paper refers to the aggregate.

There is a breeding project on V. narbonensis as a forage crop in Turkey, and a hybridization program in Britain has attempted to transfer resistance to aphids and diseases from several Vicia species, including V. narbonensis, to V. faba. Viable progeny have not been produced. Research programs in the Victorian Mallee (2), in Western Australia (3), and in South Australia (4) have evaluated narbon beans as an alternative grain legume crop. There appears to be little other current research on narbon beans in the world.

Narbon beans have yielded well in trials in low rainfall (<375 mm) areas

of Victoria (2) and S.A.. Yields are also good in areas of higher rainfall, but the crop is prone to lodging in some situations. Once thought to be resistant to the foliar diseases which affect faba beans, narbon beans in 1986 suffered serious damage from chocolate spot (Botrytis fabae). Sub. clover Red Leaf Virus and Alfalfa Mosaic Virus have been identified in field trials in S.A., but are not expected to be major constraints on commercialisation of the species.

Narbon beans tolerated frosts which killed other grain legumes in a trial in Iraq, and grew on to yield more than 2 t/ha of grain. (R.C. Reeve, personal communication). In a glasshouse test they showed good tolerance (equal to faba beans and superior to lupins, peas, chickpeas and lentils) to high levels of soil boron. (A.J. Rathjen, personal communication).

The protein content of narbon beans is around 257,, similar to peas and faba beans. Amino acid composition of the protein is similar to that of peas.

One line of narbon bean has been fed to animals in S.A., and was found suitable for sheep (5) but unpalatable to pigs (R.L. Davies, personal communication). Feeding studies will continue with other lines.

Few of the 180 lines of narbon bean introduced into S.A. have been fully evaluated. Commercialisation will depend on finding markets for the crop and demonstrating its superiority over other legume crops in one or more niches. One such niche may be low rainfall areas.

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