Progress with faba beans in south-east South Australia

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Faba beans (Vicia faba L.) were identified in the mid 1970's as the legume crop with potential to becomea grain crop inSouth Australia (1). Following the release of the small seeded cultivar Fiord in 1981, the faba bean area in South Australia increased from virtually nil to an estimated 30,000 ha in 1986. The majority of the initial commercial expansion of faba beans occurred in the higher rainfall, South-East area of the state because of the high yields obtained and the crops ability to tolerate water-logging. The severe incidence of the foliar diseases chocolate spot (Botrytis faba), rust (Uromyces viciae-fabae) and ascochyta (Ascochyta fabae) since 1983 has slowed the continuing expansion in the higher rainfall areas. A broad bean, probably an Australian strain of an Aquadulcie cultivar, began to be more widely grown commercially in 1986 because of its higher yields, higher price and reputed better tollerance to foliar diseases and water-logging. This paper reports on the research progress with faba beans in the South East of South Australia.

Experiments have shown that to optimise potential yields, the cultivar Fiord needs to be sown over 160 kg/ha seed to achieve target densities of at least 30 to 35 plants per square metre (2). The broad bean also requires populations of 24 to 30 plants per square metre (2), but these seeding rates (over 400 kg/ha) become commercially unrealistic. Delayed sowing of faba beans results in reduced height, dry matter production, flowering duration, and in the absence of foliar diseases, reduced grain yield (2, 3, 4). In higher rainfall areas, the incidence of foliar diseases is increased by early and dense sowings, and the higher grain yield potential cannot be achieved without disease control (2). The compromise between sowing date, seeding rate and the ability to control foliar diseases with fungicidal seed dressings and foliar sprays is being assessed. In the South-East, sowing in late May to mid June seems preferable (2), this being 4 to 6 weeks after the opening rains, and later than in the drier areas of the state (3).

The main problem with the small seeded cultivar Fiord in the South-East is its susceptibility to foliar diseases, short season and low podding height. Higher yielding replacement lines from the Waite Institute breeding programme are not apparent yet (2). The current broad bean is difficult to handle commercially, may be too long season, and produces seed too small for market requirements. Larger seeded, higher yielding broad beans may become available from the breeding programme. Resistance to foliar diseases is still to be achieved.

Faba beans are highly responsive to both phosphorus and zinc applied at seeding, especially when in combination (5). Manganese deficiency has been commercially observed. Nodulation at low soil pH sites (< 6.0) is poor and delayed relative to more alkaline soils. Grain yield has been increased by the application of lime at one low pH site, and by inoculating at another because of slightly improved nodulation (2). Water-logging and hard pan layers also appear to reduce nodulation and plant growth.

In conclusion, faba beans have considerable future in the higher rainfall area of southern Australia. Research is continuing into the main problem of foliar diseases, as well as nodulation and plant nutrition.

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