

Agronomic management of field peas on acid soils.

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Field peas are adapted to a wide range of soils. However, on the more acidic soils, their yield is less reliable (1). Such soil types are common in the high rainfall cereal belt of N.S.W., and with field pea popularity increasing, it is inevitable some production will be attempted on them.

In 1987, a range of fertilizer, inoculation, seeding rate and fungicide treatments were applied to Dundale field peas grown on an acid soil in the Cowra-Greenethorpe region of central western N.S.W. The objective was to identify strategies which may improve their performance.

Methods

Dundale was sown on 1 June 1987 into a light textured, grey loam with a long cereal cropping history. Soil analysis revealed a pH(CaCl₂) of 4.2, 12% exchangeable Al, CEC of 2.4 cmol/kg and a P level of 37 mg/kg. The Control (treatment 2 - see figure 1) received 16 kg P/ha as single Mo super, sown with 90 kg seed/ha (resulting in 43 plants/ sq. m.) and inoculated at sowing using water injection. Single treatment variations were imposed on this and included: minus Mo; 8 or 15 kgN/ha; 0, 8 or 24 kgP/ha; 17, 31 or 55 plants/sq.m.; and inoculation Methods and fungicide applications.

Inoculation Methods compared slurry and water injection with or without lime pelleting (treatments 1, 2, 3, 4 and 5 - see figure 1). Fungicide treatments aimed to quantify the effects of the disease ascochyta blight on these soils, and included P-pickle T (PPT) applied as a seed dressing (1.5 g/kg seed), or as a seed dressing plus 5 foliar sprays (1kg PPT/ha) (treatments 6 & 7 - see figure 1).

Results and discussion

No inoculation resulted in a 40% reduction in yield (figure 1). These plants had very few or no nodules, were yellow and stunted. Lime pelleting (treat. 4 & 5) significantly improved yield by 8 %, as did PPT seed dressing + foliage sprays (treat. 7).

There was no response to Mo, or up to 15 kgN/ha, however, there was a significant (8 %) response from using up to 8 kg P/ha (figure 2). Significant yield increases (10%) also resulted from increasing the plant population from 43 to 55 plants/sq.m.

It is concluded that successful inoculation of field peas on these soils was the single most important factor, however, lime pelleting, P fertilizer, PPT foliage sprays and increasing the plant density can further boost yields.

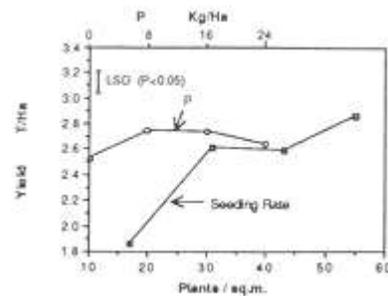
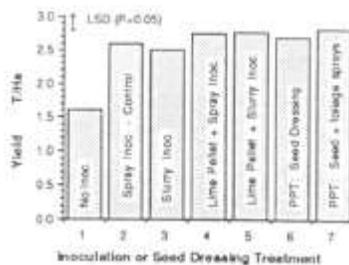


Figure 1. Inoculation and fungicide Figure 2. Fertilizer and plant Treatments population effects

1. Simmons, K. V. (1989), Field peas. Agfact P4.2.9, NSW Dept. of Agriculture and Fisheries.