

Annual pasture legume growth on acid soils I the performance of yellow serradella (*Ornithopus compressus* cv. Toro)

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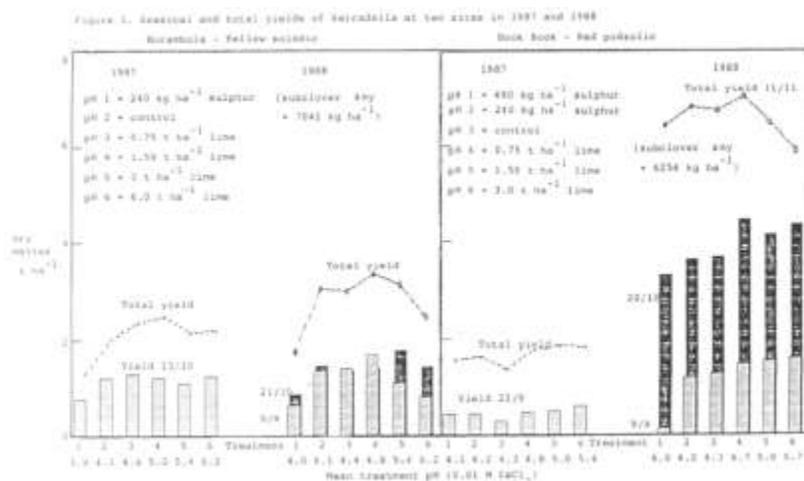
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Yellow serradella (*Serradella*) has a reputation for good production and persistence on acid free-draining soils in Western Australia and north western New South Wales. Elsewhere there is little published data on its performance. The characteristics of serradella make it a potentially useful species for acid soils in the winter effective rainfall zones of New South Wales. Two years' evaluation of yellow serradella on two soil types is summarised.

Methods

Serradella was included in two factorial (6 pH levels x 3 species) experiments near Wagga Wagga. The sites were Book Book, a red podzolic with a site average surface (0-10 cm) pH (in CaCl₂) of 4.5, and Borambola, a yellow solodic subject to winter waterlogging with an average site pH (0-10 cm) of 4.1. Subterranean clover and barrel medic were also included in the experiment. Each treatment had four replicates. Varying amounts of lime and sulphur were thoroughly incorporated in the top 10 cm 9 weeks before sowing (first week in June 1987). Basal trace and minor elements were applied before sowing. Dry matter yields were estimated by a Vickery pasture probe; separate calibrations were undertaken for each yield measurement.

Results and discussion



Serradella and subclover yields at Book Book indicate that serradella has a growth potential comparable with subclover, although total production tends to be dominated by late spring growth. At Borambola there is a major constraint to growth. Winter growth at both sites in 1987 showed symptoms of nitrogen deficiency and nodulation of seedlings was sparse despite inoculation. Most plants grew out of their nitrogen deficiency in spring. Nitrogen deficiency was also evident at Borambola in 1988 where plant growth across all treatments was patchy, reflecting the success or otherwise of nodulation. Plant weight of healthy plants was three times greater than that of nitrogen-deficient plants. Healthy plants had more nodules in total and more large nodules. Higher soil Mn levels and/or waterlogging may also be implicated in the poorer performance at Borambola. The dry matter yield response surface to soil pH treatment indicates that serradella can respond to lime but growth is suppressed by higher lime rates.