Perennial pasture legumes in the Murrumbidgee Valley

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White clover (Trifolium repens) is a major component of irrigated summer pastures providing high quality feed for animal industries along the river systems of south-western N.S.W. The most popular variety, cv. Irrigation, suffers depressed growth in both winter and summer due to the effects of temperature extremes. In a quest for a more productive alternative, eleven perennial legumes were compared to cv. Irrigation on a representative soil type in the Murrumbidgee Valley.

Methods

Six varieties of white clover (T.repens), four varieties of red clover (T.pratense), and one variety each of strawberry clover (T.fragiferum) and lucerne (Medicago sativa) were compared in a replicated small plot field experiment on Gogeldrie clay (Ug5.28). Plots were irrigated as part of the general farm routine, resulting in some periods of water stress.

Dry matter samples were taken from all plots whenever lucerne basal bud regrowth had commenced. Plots were then "crash" grazed with sheep to remove excess plant material and control weed growth. Cutting intervals ranged from three weeks (mid-summer) to 11 weeks (mid-winter), with eight cuts in all.

Results and discussion

Seasonal dry matter yields of the most productive varieties over 12 months (December-November) are presented in figure 1. lucerne, white clover and red clover all showed promise in terms of yield as replacements for cv. irrigation. However, red clover plots were destroyed by heavy grazing before winter growth could be measured, highlighting the need for careful grazing management of this species. The winter active lucerne, cv. Maxidor ii, provided good winter growth and was also particularly productive during summer. Although Cvv. Tamar And haifa white clovers showed greater productivity than cv. irrigation in the first two years, especially during winter, moisture stress and high temperatures reduced their summer growth in subsequent years.

Figure 1. Seasonal production of perennial legumes under irrigation on Gogeldrie clay.