Effect of deep ripping and aphid infestation on pasture production.

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Title: EFFECT OF DEEP RIPPING AND APHID INFESTATION ON PASTURE PRODUCTION FROM DEEP SANDY SOILS

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Personnel: Nutt BJ, Laslett MK

Location: East Chapman Research Annexe

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Site Details

Background
Since the mid 1960's the medic cultivar Harbinger has been sown onto deep yellow sandplain soils. Harbinger persists well on these soils however its performance is less than optimal, mainly because of susceptibility to damage by aphids and poor nodulation on these mildly acidic soils. Parabinga is a cultivar developed by the S.A. Department of Agriculture which displays some resistance to blue-green aphid attack. It has a similar maturity to Harbinger and should grow in any situation where Harbinger would be recommended.

Deep ripping can increase the early winter growth of ungrazed pastures, however these can hay-off early through lack of moisture. It is unknown how grazed pastures may respond. Also the benefit from using aphid tolerant medics has not been evaluated.

Aim
To determine the effect of deep ripping and aphid infestation on pasture production from deep sandy soils.
Treatment
Two medic cultivars [Parabinga (M. truncatula), Harbinger (M. littoralis)] x +/- Grazing x +/- Aphid control x Ripped / Normally cultivated soil.

Measurement
Plant establishment; Dry matter production; Seed yield; Root distribution over depth.

Results
There was a response to deep ripping in both cultivars in the first nine weeks after germination. After this, the response faded to insignificance. The lack of control of aphids on the Harbinger plots resulted in a 40% reduction in dry matter production. Control of aphids had no effect on Parabinga. The highest dry matter yield was 5.5 t/ha from Parabinga compared with 3.5 t/ha on the unsprayed Harbinger or 5.3 t/ha if the aphids were controlled. Seed yield was similar for all treatments.

There were large early responses in dry matter production to the deep ripping treatment, although there was no effect on seed yield. Aphid infestation drastically reduced the spring growth of Harbinger with little effect on Parabinga. On the ripped treatment Parabinga developed roots as deep as 140 cm.

Related Activities
87GE77

Publications
Division of Plant Industries Experimental Summaries 1988, 1989

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Research-Completed-Yes