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Nitrogen use on first crops after legume pasture

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NITROGEN USE ON FIRST CROPS AFTER LEGUME PASTURE

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Apart from the normal factors affecting response of cereals to nitrogen fertilisers, i.e. length of growing season, rainfall, soil type, etc., there are other factors which affect the response after a legume pasture. These factors include length of the previous legume phase and how good was the stand of legumes. Unfortunately for most of the trials in the past, involving the use of nitrogen on first crops after legumes, this information is not available.

Obviously the poorer the pasture prior to cropping the better chance there will be that a response to nitrogen will be obtained on the crop. Also, more nitrogen is added to the soil, the longer the legume pasture is grown. However a considerable amount of nitrogen can be built up in the soil from one year of legumes. There may also be differences between legume species in their ability to build up nitrogen in the soil. Again it would be expected that the legume most suited to the situation will grow best and would be more efficient in adding nitrogen to the soil. From results of past trials, it seems as though there is a greater chance of obtaining a profitable response to nitrogen after lucerne or lupins than after annual medics or subclover.

The results of 100 trials were considered to determine overall effects of nitrogen after legume pastures. Only 12 of these trials were located in Zone A and were all on subclover or annual medic country. Eight of these (67%) gave profitable responses to nitrogen. In Zone B there were 51 trials, of which 36 (70%) gave a profitable response to nitrogen. Nine of the trials giving a profitable response were after lupins or lucerne, while two of the trials not giving a profitable response were on crops following lupins or lucerne. There were 35 trials in Zone C, of which 21 (60%) gave a profitable response, including 5 after lucerne or lupins. Of the trials which did not show a profitable response, two were after lucerne.

It would seem that this number of trials would give a good indication of responses to nitrogen after legume pastures. However, there is scope for further investigation because many of the trials were concentrated in certain areas, while there were no trials in other areas.

The distribution of these trials is shown in Table 1.

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TABLE 1.

Advisory District	Number of Trials		
	Zone A	Zone B	Zone C
Geraldton	3	15 (including 8 at Smart Mingenew & 6 Chapman)	*
Three Springs	0	1	*
Moora	0	26 (incl. 19 Wongan R.S. and 2 Badgingarra R.S.)	0
Northam	1	9	5 (All at Avonda
Merredin	4 (one on Res.Stn.)	1	*
Narrogin	2	0	2
Lake Grace	0	1	0
Katanning	*	*	0
Jerramungup	*	0	1
Esperance	2 (1 at Salmon Gums Res.Stn.)	0	24 (21 on Esp. Do Res. Stn.)
Bridgetown	*	*	1
Albany	*	*	2

* None of this zone in the district.