8.2 Legume Rhizobia Trial

Researchers
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Location
Streatham

Aim
To demonstrate the need for innoculation with rhizobia in a range of crop legumes.

Method
Plots – 6 m X 50 m for each treatment. Replicated sampling carried out within each plot.
Each variety sown with and without innoculum (commercial rhizobia strain) on 8.6.99. Sowing rate 120kg/ha. pH (calcium chloride) 4.7
Sown with a Shearer combine except for aquadulce beans which were broadcast and harrowed.
Sprayed on 9.6.99 with Diuron, Simazine and Fastrac, and again on 19.7.99 to control grass and cereal weeds.
Harvested on 20/1/00 with a standard open front header. Seed from each plot was bagged and weighed. Notes and observations supplied by George Burdette.

RESULTS

Crop	Variety	+-Rhizobia	Kg/ha	$/ha Gross	Comments
Faba Beans	Aquadulce	Yes	2250	$540	20% crop lost – pods too close to ground. Approx 60 kg/ha on ground
		No	1416	$340	Visibly poorer crop
	Ascot	Yes	1125	$278	Very short plants. Pods close to ground ~25% still on plant~75 kg/ha on ground
		No	1125	$278	No effect from rhizobia
Lupins	Ludet	Yes	1291	$226	~25 kg/ha on ground. Early heliothus damage. Sown 6 – 8 weeks too late
		No	917	$160	Sown 6 – 8 weeks too late
	Lucyanne	Yes	1000	$175	~45kg/ha on ground. Bitter. Some heliothus damage
		No	875	$153	
	Wonga	Yes	1000	$175	No seed on ground
		No	500	$88	Significantly lower yielding than innocuated plot
Peas	Parafield	Yes	1875	$375	Lodged ~150 kg/ha on ground
		No	1666	$333	Lighter crop supported by silver grass so less seed lost
	Paravic	Yes	1416	$283	Lodged – up to 50% of yield lost
		No	1583	$316	Lighter crop so less left behind
	Glenroy	Yes	2791	$558	Lodged ~50kg/ha on ground
		No	1291	$258	Significantly lower yielding
	Excel	Yes	2041	$510	Good standability~100 kg/ha on ground
		No	1208	$302	Significantly lower yielding

SUMMARY

In all but Paravic and Ascot, the innoculated crop yielded better than the uninnoculated crop. In fact, the average gross return for the innoculated crops was $346 per hectare, versus $247 per hectare for the uninnoculated crops. This represents an extra return of $99 per hectare.

It is therefore recommended that in all cases, legume crops should be innoculated with the correct strain of rhizobia prior to sowing. It is very cheap insurance against the bacteria not being present in the soil.

(Next year it is planned to trial a variety of rhizobia strains on a smaller number of the most promising legumes for this district.)