4.2 High Input Cropping Trial

Researchers

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Site
Gnarwarre

Background
With the relatively high rainfall of the district, there is some belief that nutrition and other agronomic inputs may be too low, thereby limiting the potential yield of a crop. This is a long term rotation trial, undertaking an economic and agronomic evaluation of a high input treatment versus a district practice treatment.

In 1999 the site was sown to peas, having come out of Barley the previous year.

Sowing Date : 18th June 1999
Sowing Rate : 150 kg/ha
Variety Sown : Jupiter Pea

RESULTS

	H.I.B.	H.I.F.	D.P.B.	D.P.F.
Yield (T/Ha)	2.1	3.7	1.8	3.3
Price ($/Tonne)	250.00	250.00	250.00	250.00
Total Returns	**525.00**	**925.00**	**450.00**	**825.00**
Variable Costs				
Seed (150 kg/ha)	63.00	63.00	63.00	63.00
Herbicide				
2 Litres/Ha Treflan	19.50	19.50	19.50	19.50
350 ml/ha Verdict	11.55	11.55	11.55	11.55
200 ml/ha Bladex 500 EC	9.00	9.00	9.00	9.00
Insecticide				
3.5 kg/ha Mesurol	25.06	25.06	25.06	25.06
Fertiliser				
200 kg/ha Grain Legume Super	74.40	74.40	74.40	74.40
100 kg/ha Superphosphate	24.00	24.00		
Machinery				
Scarrifying (2 passes)	36.00	36.00	36.00	36.00
Treflan incorporation	18.00	18.00	18.00	18.00
Sowing & Fertilising	18.00	18.00	18.00	18.00
Pre-drilling superphosphate	18.00	18.00		
Insecticide application	7.00	7.00	7.00	7.00
Verdict application	7.00	7.00	7.00	7.00
Bladex application	7.00	7.00	7.00	7.00
Contract Work				
Harvesting	55.00	55.00	55.00	55.00
Cartage	32.00	46.40	34.40	46.40
Total Variable Costs	**424.51**	**438.91**	**384.91**	**396.91**
Gross Margin	**100.49**	**486.09**	**65.09**	**428.09**

H.I.B. (High Input Beds) H.I.F. (High Input Flat)
D.P.B. (District Practice Beds) D.P.F. (District Practice Flat)

DISCUSSION

It could be said that the High Input treatment performed marginally better than the District Practice treatment in terms of yield and gross margin. The crop grown on the flat has also significantly outyielded the crop grown on the beds for both the High Input and District Practice treatments. This can mostly be explained, by the poor establishment of the peas on the beds versus the flat. This was due mainly to a rounding of the beds and poor seed depth control, along with the poor flow of seed through the combine, when sowing into the more friable soil on the beds. The total gross margin (Income less variable costs) over the 4 years that the trial has been operating is given in the following Table.

GROSS MARGIN ANALYSIS OVER 4 YEARS

	High Input Flats	High Input Beds	District Practice Flats	District Practice Beds
Canola 1996	$516	N/A	$1072	N/A
Wheat 1997	$535	N/A	$717	N/A
Barley 1998	$94	$13	$212	$91
Peas 1999	$486	$100	$428	$65
Total Gross Margin	**$1,631**	**$113**	**$2,429**	**$156**
Average Gross Margin	**$408**		**$607**	

The following Table gives the average returns and average costs for the High Input and District Practice Treatments over the last 4 years.

AVERAGE VARIABLE COSTS VS RETURNS

	Average Variable Costs	Average Returns	Costs/Returns %
High Input Flats	$503	$910	55.3%
District Practice Flats	$349	$956	36.5%

The following Table gives the amount of rainfall occurring between May and November inclusive, for the trial site over the last 4 years.

MAY – NOVEMBER RAINFALL

Year	May – November Rainfall (mm)	Annual deficit May – November rainfall over long term average (mm)	Cumulative May – November deficit over long term average (mm)
1996	269	72	72
1997	317	24	96
1998	303	38	134
1999	248	93	227
Long term average	**341**		

The following Table gives the nutrient input into the trial over the last 4 years from organic and inorganic fertiliser application (excluding the N contribution by the peas).

NUTRIENT APPLICATION

Nutrient	High Input	District Practice
Nitrogen	514	138
Phosphorus	202	91
Potassium	72	2
Sulphur	436	20

Much of the nutrient was supplied by way of gypsum (2.5 T/Ha) and fowl manure (2.5 T/Ha) in the first year to the high input treatment.

OVERALL DISCUSSION

1. The District Practice treatment generated a much higher average gross margin than the High Input treatment ($607 vs $408) over the last 4 years.
2. The beds performed worse than their flat counterparts in 1999.
3. The District Practice treatment has been much more efficient in producing income relative to costs, by comparison to the High Input treatment.
4. Over the 4 years of the trial, the deficit May – November rainfall of **227mm** would have contributed significantly to the relatively poor performance of the high input treatment compared to the district practice.

This trial will be continued for at least another 6 years to obtain some long term data.