Practice for Profit

Aim: To determine optimal input packages for noodle wheats in Buntine.

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Company: Agritech Crop Research

Farmer: Liam Carter
Location: Main Trial Site, West Buntine

Background: Agritech Crop Research conducted this trial on behalf of the Liebe Group in order to determine the profitability of four levels of crop management inputs. These levels of input were applied to noodle wheat varieties Arrino and Calingiri. Arrino was chosen for its disease susceptibility, with Calingiri being a longer season variety well adapted to the local environment with better disease resistance.

- Low input treatments are based on a farmer delivering grain to the bin at the lowest possible cost, regardless of seasonal conditions.
- District average inputs are based on what is thought to be common grower practice in the Liebe Group area.
- High input treatments simulate a paddock with high yield potential matched with increased management inputs to maximise yields and profitability.
- The Active treatments are dependent on seasonal conditions and are determined by the Liebe R&D Committee.

The trial is intended to run over 10 seasons with this being the fourth year. In 2001, under moisture stress and 2003, under excellent moisture conditions, the most profitable treatment has been the low input option. The trial was not harvested in 2002 due to severe moisture stress.

Grain quality samples were still being processed at the time of publication. An Economic analysis of all treatments will be conducted as soon as these are available.

Trial Details:

Plot size and replication	4 m x 2.5m, 3 replications
Soil type	Loamy sand
Sowing date	3rd June 2004
Conditions at sowing	Friable seed bed, wet conditions
Machinery	Knifepoint minimum tillage
Seeding rate	50, 70 and 100 kg/ha
Fertiliser	Various – as per treatment list
Herbicides and Insecticides	Roundup Max, various as per treatment list
Paddock History	2003 = Lupins

Results:

Table 1: Crop Vigour (1-9) 40 DAS and Crop Counts (/m row) 40 DAS Analysis of Variance.

No.	Treatment	Rate	Timing	Crop Vigour (1-9) 40 DA-S		Crop Counts (per m row) 40 DA-S	
				ARRINO	CALINGIRI	ARRINO	CALINGIRI
1	LOW INPUT	50 kg/ha		7.2 c	6.3 d	36.5 d	27.8 f
	Glean	10 g/ha	IBS				
	DAP	50 kg/ha	sidebanded				
	Diuron	35 0 mL/ha	Z13-Z15				
	LVE MCPA	40 0 mL/ha	Z13-Z15				
2	DISTRICT INPUT	70 kg/ha		8.0 b	7.0 c	42.3 c	31.5 e
	Premis	10 mL/10 0 0 kg	with seed				
	Trifluralin	1. 5 L/ha	IBS				
	Logran	35 g/ha	IBS				
	Agstar	10 0 kg/ha	sidebanded				
	Urea	50 kg/ha	IBS				
	2,4-D Amine	1 L/ha	Post Em				
3	HIGH INPUT	100 kg/ha		8.7 a	8.2 b	49.9 a	44.7 b
	Real	15 mL/10 0 0 kg	with seed				
	Trifluralin	1. 5 L/ha	IBS				
	Logran	35 g/ha	IBS				
	Agstar	14 0 kg/ha	Sideband				
	Urea	80 kg/ha	IBS				
	Giant	60 0 mL/ha	Z13				
	Triad	50 0 mL/ha	Early Stem Elong.				
	MOP	80 kg/ha	Z12				
	Coptrel	25 0 mL/ha	Z57				
4	ACTIVE MANAGEMENT	50 kg/ha		7.3 c	7.2 c	41.1 c	32.3 e
	Trifluralin	1. 5 L/ha	IBS				
	Agstar (5.75 units P)	42 .3 kg/ha	Sideband				
	LVE MCPA	1. 2 L/ha	Z13				
	Flexi-N	80 L/ha	Z13				
LSD (P=.05)				0.4500		1.8900	

C V	3.4200	2.8100

Table 2: Head Counts (/m row) 132 DAS and Grain Yield (t/ha) Analysis of Variance.

No.	Treatment	Rate	Timing	Head Counts (per m row) 132 DA-S		Crop Yield (t/ 166 DA-S	
				ARRINO	CALINGIRI	ARRINO	CAL
1	LOW INPUT	50 kg/ha		44.3 d	36.4 e	1.310 c	1.4
	Glean	10 g/ha	IBS				
	DAP	50 kg/ha	sidebanded				
	Diuron	350 mL/ha	Z13-Z15				
	LVE MCPA	400 mL/ha	Z13-Z15				
2	DISTRICT INPUT	70 kg/ha		65.4 a	48.3 cd	2.185 a	1.9
	Premis	100 mL/100 kg	with seed				
	Trifluralin	1.5 L/ha	IBS				
	Logran	35 g/ha	IBS				
	Agstar	100 kg/ha	sidebanded				
	Urea	50 kg/ha	IBS				
	2,4-D Amine	1 L/ha	Post Em				
3	HIGH INPUT	100 kg/ha		65.7 a	50.4 bc	1.931 ab	1.9
	Real	150 mL/100 kg	with seed				
	Trifluralin	1.5 L/ha	IBS				
	Logran	35 g/ha	IBS				
	Agstar	140 kg/ha	Sideband				
	Urea	80 kg/ha	IBS				
	Giant	600 mL/ha	Z13				
	Triad	500 mL/ha	Early Stem Elong.				
	MOP	80 kg/ha	Z12				
	Coptrel	250 mL/ha	Z57				
4	ACTIVE MANAGEMENT	50 kg/ha		55.7 b	43.5 d	2.144 a	1.6
	Trifluralin	1.5 L/ha	IBS				
	Agstar (5.75 units P)	42.3 kg/ha	Sideband				
	LVE MCPA	1.2 L/ha	Z13				
	Flexi-N	80 L/ha	Z13				
LSD (P=.05)				5.8900		0.4343	
CV				6.5600		13.6700	

Crop Vigour

All input treatments displayed excellent plant health and vigour with only slight differences evident. Arrino tended to show greater vigour than Calingiri.

Plant and Head Counts

High Input treatments showed significantly better establishment as reflected in plants/m row. This is a direct relationship to the higher seeding rates used on the High Input treatments. Plant density of Arrino was consistently higher than Calingiri.

Increased plant counts and more nitrogen on the high input treatments resulted in larger numbers of heads/m row.

Yield

In the Calingiri treatments the District Input (1.917 t/ha) and High Input (1.995 t/ha) treatments yielded the highest. This, however, was not statistically greater than the Active Management treatment at 1.616 t/ha. The Low Input treatment yielded the least at just 1.417 t/ha.

For Arrino there was again no statistical difference between the District Input, High Input and Active Management treatments with yields ranging from 1.931 to 2.185 t/ha. The Low Input treatment yielded significantly less at just 1.310 t/ha.

In comparing the two varieties, in the Low, District Input and High Input treatments there was no significant difference in the yield of either variety. In the Active Management treatments Arrino (2.144 t/ha) yielded significantly more than Calingiri (1.616 t/ha).

Summary:

- District Input, High Input and Active Input treatments produced the highest yields in both Arrino and Calingiri. The Low Input treatments yielded the least in both varieties.
- There was little difference between Arrino and Calingiri with both yielding similarly across the range of Management Levels.
- The decision as to which Management Levels to apply will be finalised once grain quality data is available and an economic analysis conducted.

Technically reviewed by: Ashley Bacon