N * K * Fungicide

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Purpose: Investigate responses to N and K, effects on leaf disease and interactions with a foliar fungicide

Location: Dandaragan

Soil Type: Deep Pale Grey Sand

Soil Test Results:

Depth (cm)	pH	EC	OC	Nit N	Amm N	P	PBI	K	S
0-10	5.8	0.03	0.8	8	1	12	5	23	6
10-20	5.1	0.01	0.4	2	<1	7	3	18	2
20-30	4.6	0.01	0.2	2	<1	7	2	<15	2
30-40	4.6	0.01	0.1	2	<1	12	5	<15	1
40-50	4.4	0.01	0.1	2	<1	18	9	15	1

Rotation: 2015 – Wheat, 2014 – Canola (RR), 2013 Wheat

Growing Season Rainfall (April- October 2016): 497mm

BACKGROUND SUMMARY

To see the difference in different applications of nitrogen and potassium fertilisers, as well as look at the effects of wheat yield from leaf disease and how interactions with a foliar fungicide (Prosaro) from Bayer CropScience affect yield.

TRIAL DESIGN

Plot size: 20M

Crop type and varieties used: Mace

Seeding rates and dates: 40kg/ha – 18th may

Fertilizer rates and dates: MOP – 12th April, 100l/ha Flexi-N – 29 Jun, 70l/ha Flexi-N – 10 Aug.

Herbicide rates and dates: 2L/Ha Ultra, 2.5l/ha Boxer Gold, 2l/ha treflan, 300ml/ha Iorsban, 1% Response (18th may)

Other applications/ treatment rates and dates:125ml/ha alphacypermethrin (19 Jul), 300ml/ha Prosaro, 150ml/ha alphacypermethrin + 1% oil (10th Aug)

RESULTS/STATISTICS

	Treatment								Harvest	
Trt	IBS (kg/ha)	Banded (L/ha)	Banded (kg/ha)	Z21 (L/ha)	Z39 (L/ha)	N	P	K	Yield (t/ha)	Protein (%)
1	-	-	72 Agstar Extra	-	-	10	10	0	1.10	9.3
2	-	30 Flexi-N	72 Agstar Extra	100 Flexi-N	70 Flexi-N	95	10	0	1.70	10.3
3	-	-	100 K-Till Extra Plus	-	-	10	10	13	1.29	10.2
4	-	30 Flexi-N	100 K-Till Extra Plus	100 Flexi-N	70 Flexi-N	95	10	13	2.01	9.9
5	-	50 Flexi-NK	100 K-Till Extra Plus	100 Flexi-N	70 Flexi-N	91	10	18	1.90	10.4
6	-	-	100 K-Till Extra Plus	-	-	10	10	13	1.13	9.9
7	-	30 Flexi-N	72 Agstar Extra	100 Flexi-N	70 Flexi-N	95	10	0	1.60	10.5
8	-	30 Flexi-N	100 K-Till Extra Plus	100 Flexi-N	70 Flexi-N	95	10	13	1.75	10.7
9	100 MoP	50 Flexi-NK	100 K-Till Extra Plus	100 Flexi-N	70 Flexi-N	91	10	68	2.18	9.4
								Prob	<0.001	0.004
								LSD	0.20	0.79

*Shaded treatments were treated with fungicide

OBSERVATION/ DISCUSSION/ MEASUREMENTS

Unfortunately, crop was only sown at 40kg/ha, half the intended seeding rate. Low seeding rate and sever sub-soil compactions resulted in relatively low yields.

There were only low levels of yellow leaf diseases.

The site responded to N and K. With fungicide applied, there was a 0.7t/ha response to 85 kg N/ha (trt 3 v 4), and a 0.5t/ha response to 68kg K/ha (trt 2v9).

There was a significant response to fungicide at the high rate of N, but only with K applied. This suggests the benefits of fungicide are greatest where nutrient deficiencies are overcome.

Hectolitre weights were 74-77 kg/l and screening less than 5%