Summit Vigour® in Wheat

Aim: To evaluate the benefits of drilled potassium when used in conjunction with higher phosphorous applications.

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Location: **MUNGLINUP**

Background:

Potassium usage on cereal crops has risen dramatically over the past 5 years due to its profitable contribution to grain yield and quality. It has also been shown to have beneficial effects on leaf disease, drought and frost tolerance. From past trials conducted by Summit Fertilizers, drilled potassium has proved to be the most efficient way to spend your potassium dollar, as young plants can access the nutrient immediately. Summit Vigour® contains potassium in every granule and can be safely drilled with wheat. The purpose of this trial is to determine the efficiency of drilled potassium when used as Vigour® compared to top-dressed MOP. The efficiency of drilled potassium when used with high rates of P is also evaluated. Two liquid NPK (VigourFLO) treatments are also compared.

Trial Details:

Plot size and replication	2.2 * 20m, 3 reps Randomised Complete Block
Soil type	Sand
Sowing date	24th May 2003
Conditions at sowing	Moist
Machinery	Harrington Point with Gumbo Boot
Seeding rate	70kg Yipti Wheat
Fertiliser	Various + Basal 60kg N with UREA. 100kg Gypsum across all treatments
Herbicides and Insecticides	SpraySeed 2 L/ha Trifluralin 1.5 L/ha Logran 35 g/ha Chlorpyrifos 1 L/ha SpraySeed 2 L/ha MCPA 500 1.2 L/ha
Paddock History	2002 = Canola,. 2001 = Wheat, 2000 = Canola

Soil Test results:

Depth (cm)	P (ppm)	K (ppm)	Cu (ppm)	Zn (ppm)	S (ppm)	PRI	pH
0 – 10	26	80	0.7	0.6	6	5	5.3

Results.

Table 1. Wheat grain yield response (t/ha) to potassium applied with the seed, banded or top-dressed.

No.	Treatment	Rate	Timing	Yield (t/ha)
1	UTC			2.025 c
2	Urea	120 kg/ha	topdressed IBS	2.948 b
	Vigour	100 kg/ha	with seed	
3	Urea	114 kg/ha	topdressed IBS	3.049 ab
	Vigour	150 kg/ha	with seed	
4	Urea	109 kg/ha	topdressed IBS	3.017 ab
	Vigour	200 kg/ha	with seed	
5	Urea	117 kg/ha	topdressed IBS	3.155 ab
	MAPSZC	52 kg/ha	with seed	
6	Urea	107 kg/ha	topdressed IBS	3.057 ab
	MAPSZC	102 kg/ha	with seed	
7	Urea	117 kg/ha	topdressed IBS	2.958 b
	MOP	60 kg/ha	band	
	MAPSZC	52 kg/ha	with seed	
8	Urea	117 kg/ha	topdressed IBS	2.998 ab
	MOP	30 kg/ha	topdressed IBS	
	MAPSZC	52 kg/ha	with seed	
9	Urea	117 kg/ha	topdressed IBS	3.213 a
	MOP	60 kg/ha	topdressed IBS	
	MAPSZC	52 kg/ha	with seed	
10	Urea	117 kg/ha	topdressed IBS	3.002 ab
	MOP	120 kg/ha	topdressed IBS	
	MAPSZC	52 kg/ha	with seed	
11	Urea	107 kg/ha	topdressed IBS	3.221 a
	MOP	60 kg/ha	topdressed IBS	
	MAPSZC	102 kg/ha	with seed	
12	Urea	123 kg/ha	topdressed IBS	2.975 ab
	VigourFLO	51.5 L/ha	with seed	
13	Urea	116 kg/ha	topdressed IBS	3.007 ab
	VigourFLO	103 L/ha	with seed	
LSD (P=.05)				0.2545
CV				5.0800

Figures followed by the same letter do not significantly differ (lsd = 5%)

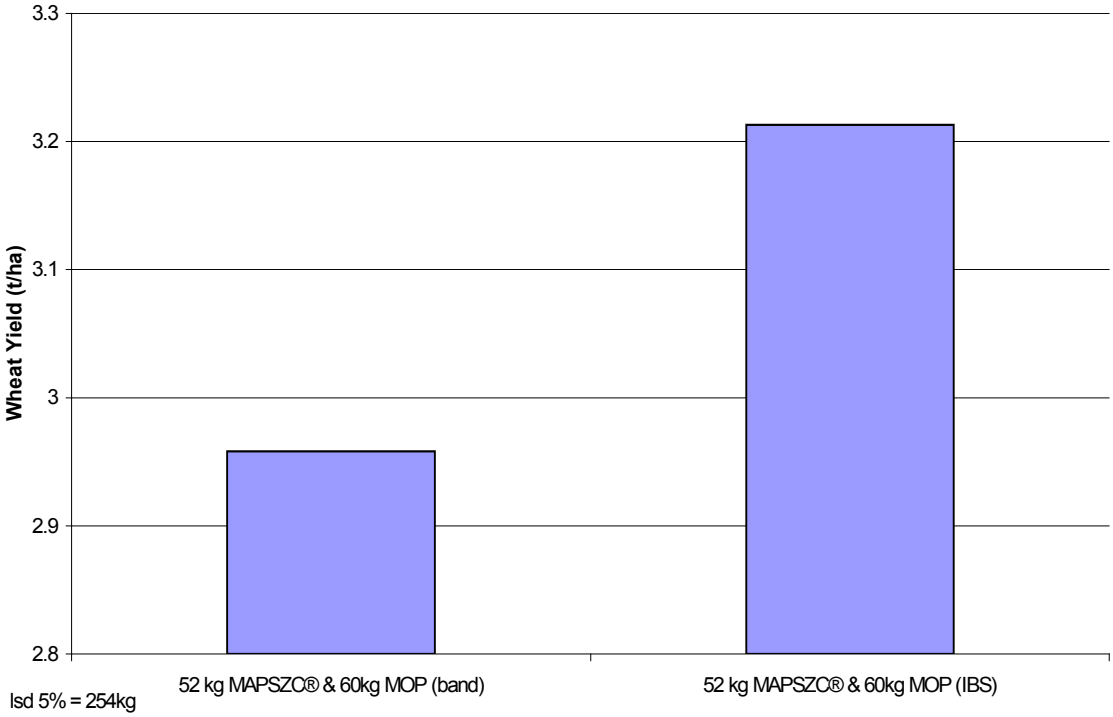

Figure 1. Wheat grain yield (t/ha) response to potassium supplied below the seed (band) and top dressed immediately before seeding (IBS).

There was no response to potassium or phosphorous at this site. MAPSZC® applied at 102 kg/ha with 60kg MOP applied IBS was the highest yielding plot, however this was not significantly (lsd = 5%) different from 52 kg/ha MAPSZC® applied with the same rate of MOP (Table 1).

Top-dressed MOP applied at 60 kg/ha produced significantly more grain yield than the same rate of MOP banded below the seed (Figure 1). This may have been to reduced plant emergence from banded potassium. Placement of MOP is important as it is toxic to germinating plants when put in the seed row at high rates. There was no reduction in yield with increasing rates of Vigour® placed near the seed.

There were no advantages to using a liquid fertilizer source at this site.

Summary:

- There was no potassium or phosphorous response at this site.
- Banded potassium significantly reduced yield (lsd = 5%) from the same rate top-dressed.
- Seed placed potassium supplied as Vigour® was safe at rates up to 200kg/ha