

# CALCIUM PRE-SEEDING TRIAL

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## AIM

To assess the effectiveness of liquid calcium products on yield in wheat.

## BACKGROUND

With declining soil pH becoming an ongoing problem and the cost of remedial lime applications in dry year's expensive, can banding liquid calcium at seeding alleviate in the short term, any production decline due to the lack of available calcium? Calcium also promotes root growth early in a plants life which enhances its ability to access other nutrients and water, thus helping with the establishment and development of the crop. Three products were trialed; Calsap which is a calcium carboxylate, Calbud is a calcium carbonate and Calcinit a calcium nitrate. Although not the same chemistry, as there is increasing solubility from Calsap, to Calbud with Calcinit being the most soluble, they all supply calcium into the system.

## TRIAL DETAILS

	Site
<b>Property</b>	Rhys Carson, Great Northern Highway, Binu
<b>Soil type</b>	Red Loam
<b>Sowing date</b>	28,05,10
<b>Seeding rate</b>	Westonia @ 55kgs/ha Seeding with a 50ft dbs, knife points with a splitter
<b>Fertiliser (kg/ha)</b>	30l Agflow, 20l UAN, 10l Water, 1.5l Balance 1 + Humates @ 10kgs/ha
<b>Paddock rotation</b>	2007 Wheat, 2008 Canola, 2009 Wheat
<b>Herbicides</b>	27,05,10 Glyphosate 1 litre 22,06,10 Cadence 115gms + LVE Agritone 450mls 06,07,10 Foliar
<b>Growing Season Rainfall</b>	May to October 185mm

## TRIAL DESIGN.

Treatment #	Seeding	Area
1	Control	4 ha
2	Calsap 5l/ha	4 ha
3	Calbud 2l/ha	8 ha
4	Calcium Nitrate 10kgs/ha	Rest of paddock

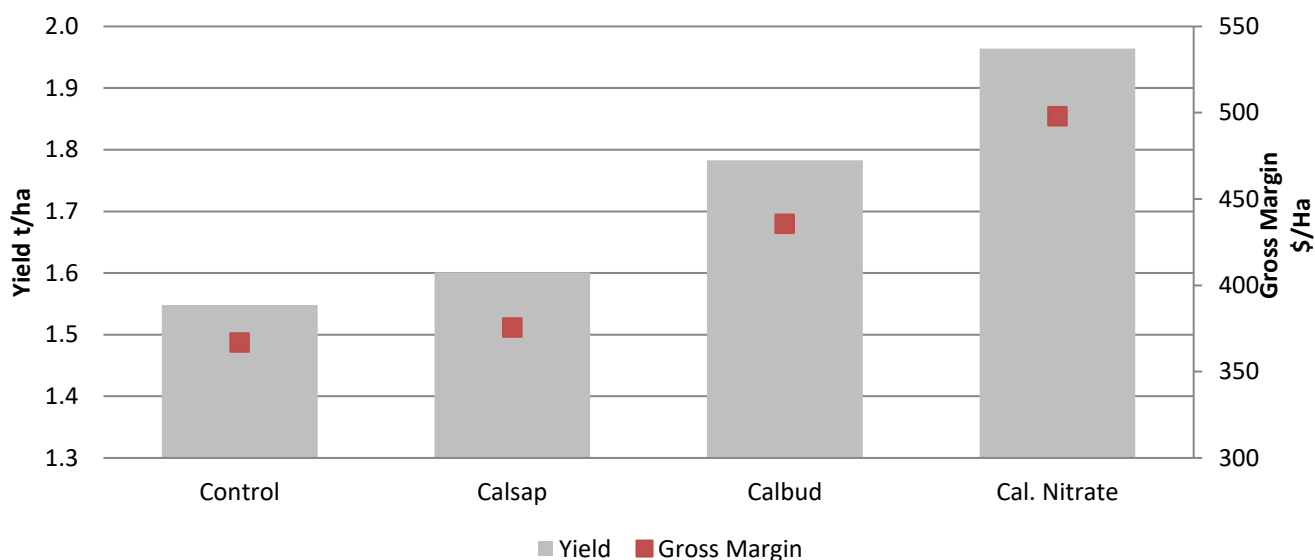
Nutrients Applied (kgs/ha)	Control	Calsap	Calbud	Calcinit
Nitrogen	10.40	10.40	10.50	12.00
Phosphorus	5.30	5.30	5.30	5.30
Potassium	0	0.10	0	0
Sulpher	1.90	1.91	1.90	1.90
Calcium	0	0.30	0.40	1.90
Magnesium	0	0.03	0.10	0
Boron	0.01	0.01	0.02	0.01
Copper	0.04	0.04	0.04	0.04
Zinc	0.09	0.09	0.09	0.09
Manganese	0.04	0.04	0.04	0.04
Iron	0.01	0.01	0.01	0.01

## RESULTS

TREATMENT	YIELD (T/HA)	COST OF PRODUCT (\$/HA)	COST (\$/HA)	RETURN (\$/HA)	GROSS MARGIN (\$/HA)	DIFFERENCE FROM CONTROL (\$)
CONTROL	1.548	0	144.00	510.84	366.84	0
CALSAP	1.601	8.65	152.65	528.33	375.68	8.84
CALBUD	1.783	8.74	152.74	588.39	435.65	68.81
CALCIUM NITRATE	1.964	6.00	150.00	648.12	498.12	131.28

Gross margins were calculated using wheat price as delivered WUP1 @\$330/t

**Graph 1 Yields & gross Margins per Hectare**



## DISCUSSION

The trial was undertaken to evaluate the ability of a product to alleviate, in the short term, a pH deficiency by providing available calcium band with the seed at seeding. A secondary aim was the influence of calcium early in the season on root development.

The Calcinit treatment was a last minute addition to the trial and did not have the calcium and nitrogen levels adjusted to match the other treatments. Whether the response was due to nitrogen was unknown. Further work will see the calcium and nitrogen levels being balanced between the treatments

A dry season with sporadic rainfall and a dry September and October left yields ranging from 1.5t to 1.9t. All of the treatments looked good throughout the season with root development on all of the treatments showing an improvement over the untreated control but there was no discernable visual root difference between the treatments. There was also no difference in leaf development between any of the four plots.

Calcinit provided the best return on investment with a \$131 increase per hectare over the untreated control and a \$62 increase per hectare over the Calbud.

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