



Precision Ag Trials

VRT of seed and fertiliser across land classes Buckleboo

Although PA tools have been available to Australian grain growers for many years, and the benefits have been well documented, it is estimated that less than 1% of grain growers utilise PA 'beyond guidance' in any form.

The objective of this GRDC/SPAA funded project is to increase the level of adoption of PA 'beyond guidance' by broadacre farmers. The project specifically aims to increase the level of adoption of variable rate (VR) by growers in the project to 30% by 2013. This goal will be achieved by demonstrating how to use PA tools to growers at a regional level and by increasing the skills of growers and industry in PA to a level where they can then use PA tools in their farming systems to achieve economic, environmental and social benefits.

Trials and demonstrations are conducted on growers' properties and are visited throughout the season using farm walks and workshops to discuss the advantages and disadvantages of PA techniques with the involvement of other regional growers.

This information sheet presents the outcomes of the SPAA trial **VRT of seed and fertilizer across land classes at Buckleboo** from season 2010.

Aims

- To compare the effects VRT on different soil types
- To compare rates of seed and fertiliser

Background

Each region has different soil types and weather patterns. Buckleboo is noted for its heavier loamy high pH red soils. Historically, blanket fertiliser applications has been used across all soil types.

Yield maps vary greatly according to seasonal conditions. Lower rainfall years or poor spring rainfall impact on the flats where high sub soil constraints of boron and salts mean little yield or nutrition is taken from this zone. Varying the rate of fertiliser and seed could play an important part in improving gross margins.

In 2009, nil fertiliser was used on the flats. No yield penalty was detected in that season, but money saved on input costs paid for PA equipment required.

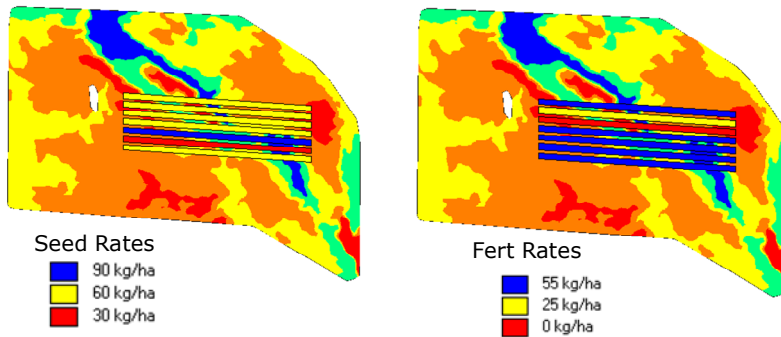
Reducing seeding rate in the poor areas may allow crops to fill in dry years.

About the trial

- Located 3km south west of Buckleboo Silo
- This paddock has a sandy rise diagonally through the middle with flats that have high boron constraints in the subsoil.

- A Morris Concept 2000 bar was used with a Morris VR box with liquid application used in applying zinc.
- Seeding rates of 30 kg/ha, 60 kg/ha and 90 kg/ha
- Fertiliser rates of 0 kg/ha, 25 kg/ha, 55kg/ha of 18:20 fertiliser was used.
- Fluid zinc was also used and a nil treatment strip included.
- See trial strip treatments across a zoned map.

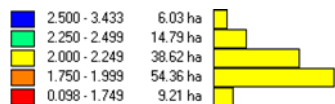
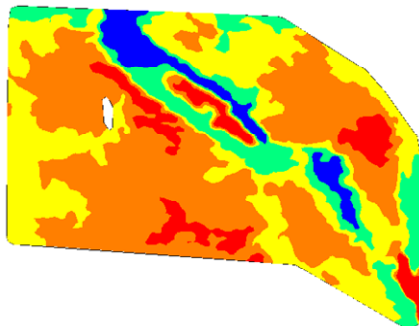
Trial Strip Treatments



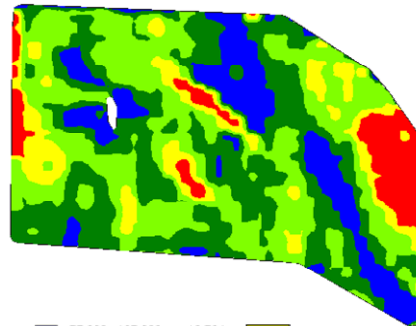
Results

Baldock Middle Paddock

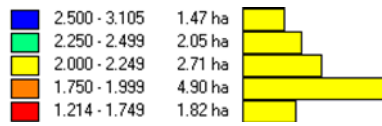
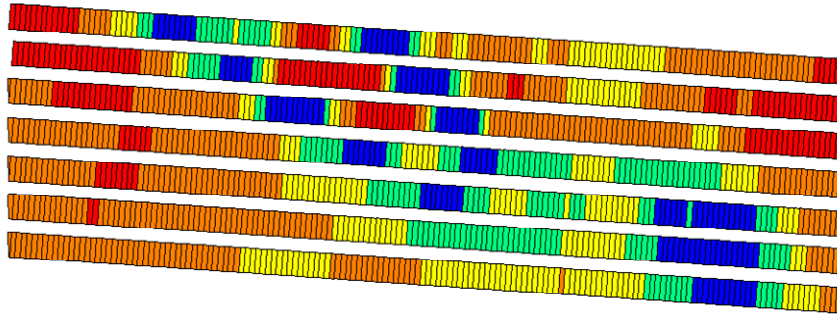
Wheat Yield 2010



Historical LandsAT imagery

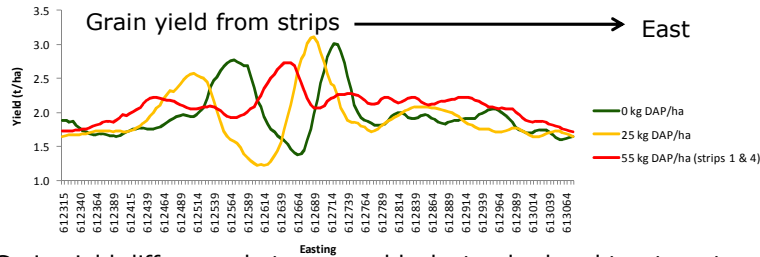


Trial Strip Yields

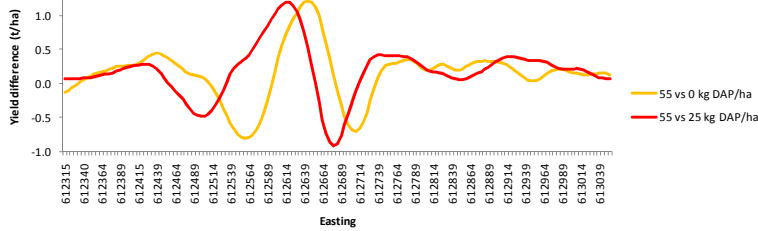


Fertiliser Trial Results

Fertiliser trial yield results

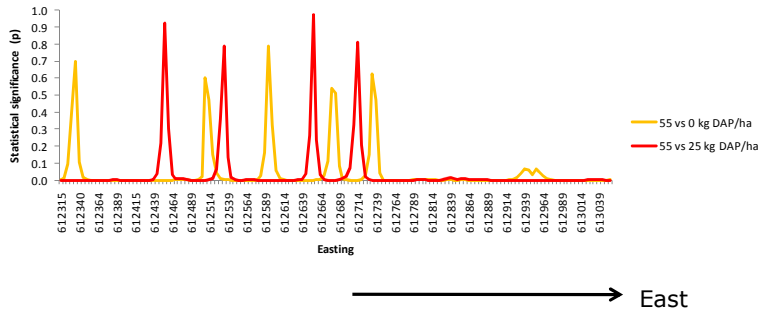


Grain yield difference between paddock standard and treatments



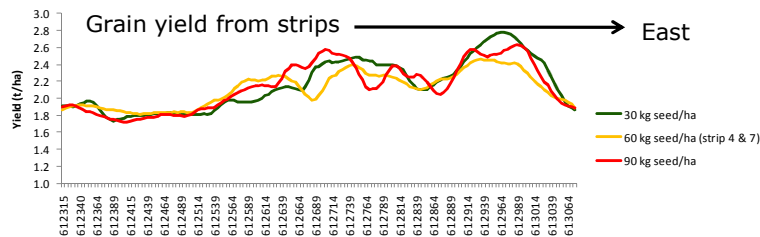
Fertiliser trial yield results

Significance of grain yield difference ($p < 0.05$)

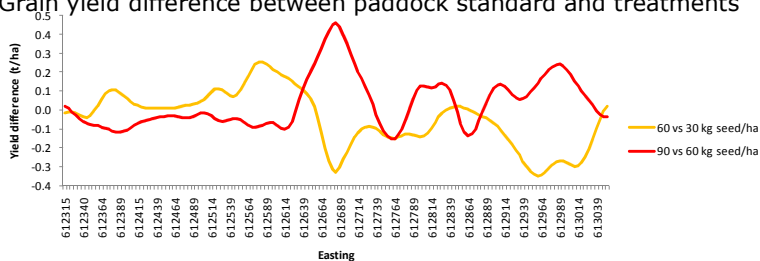


Seeding Trial Results

Seed rate trial yield results

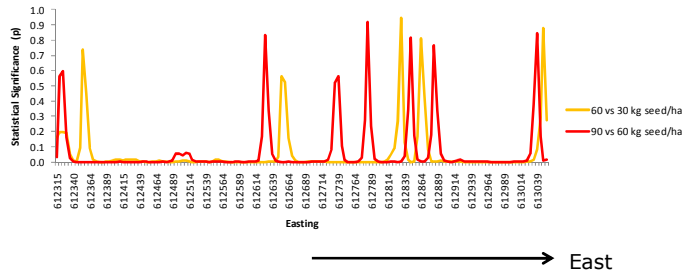


Grain yield difference between paddock standard and treatments



Seed rate trial yield results

Significance of grain yield difference ($p < 0.05$)



Those involved

- Graham and Heather Baldock are the property owners and were responsible for sowing and reaping the trial.
- Sam Trengrove was involved in data collection/ analysis/services.
- Trials coordinator and FSG contact Linden Masters Minnipa Ag Centre.

Grower/Regional feedback

Yield maps vary greatly due to seasonal conditions on the Baldock property.

Using VRT allows redistribution of fertiliser into more responsive areas and in the heavier boron prone sub soil region allows the opportunity to cut rates. Previous work done in this area has shown reducing seeding rates in the poor zone allows a better grain fill during poor seasons.

In 2009, nil fertiliser on a high-yielding wheat crop shows no effect, however in 2010, nil fertiliser affected yield.

Graeme emphasized “Using VRT to vary fertiliser and seed application is proving successful for us, but reducing seed rates too much leads to poor competition against weeds. As a result of this trial seed rates will be increased in known high density weed areas.”

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For more information

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