

Evidence based Agriculture – Getting value from on farm trials

Every grower has thought, “If I change how I grow that crop I may be able to get a better result in that field”. It is human nature to be looking for ways to do things better and to **prove** through trials that a practice change is **practical** and **profitable**.

Growers are the on ground researchers and they have a detailed knowledge of their fields. They also have plenty of questions that they would like to be answered. For on farm trials to be worthwhile the research question being asked must be thought through carefully and be relatively simple and not be a complex multi factored question.

Some examples of simple questions could be

- Can I get a yield increase from applying 2t/ha of gypsum?
- What rate of Nitrogen maximises yield in that field?
- Will product x give me an economic return?

This leads to trials in fields but we need to be careful how trials are designed so after analysing the results the statement can be made - The treatment has made a significant difference or The treatment has made no significant difference. A no response result is still a result and the question has been answered if the trial has been set up correctly.

A common oversight with trials is not to leave a control or nil strip in the same field. A nil strip in another field will not pass the science test. A true comparison in the same field needs to be part of the trial design.

A single strip of a treatment can be a starting point and analysed for differences but can be prone to differences in soil conditions confounding the result. It is safer to do multiple strips and controls across the field. **Replication** of the strips gives a lot more confidence in the results being from the treatment and not just a chance event.

In some cases the trial may be asking questions on what is the best rate to apply, so different treatments or rates are included in the trial design. It is best not to have too many treatments so keep it to a maximum of 2 or 3 rates and a control. These treatments need to be **randomised** across the field so one treatment is not favoured over another.

Fertiliser rate trial

		North									
Buffer		Rep 3			Rep 2			Rep 1			Buffer
		0	200	100	100	0	200	0	100	200	
rows	20	24	24	24	24	24	24	24	24	24	24
		South									

Trial example showing replicated and randomised treatments

The field chosen should be a field with known relatively stable yields in the past. Recent soil nutrient tests should be available if doing fertiliser trials. Treatment size should fit in with your planting machinery widths so could be 12 or 24, 1m rows wide.

Use physical markers so you know where the trial is come harvest. It can also be geo referenced so the use of technology can be harnessed.

A bale trailer can be used to record treatment weights, turnout estimated for the field and the treatment area calculated to give yield /ha. Hand samples may need to be taken from round modules for quality information.

Help is around if you need to set up on farm trials next season. Any plans should be discussed with your crop advisor. What is developing for the 2020/2021 season is a number of Precision ag service providers who will be able to assist in locating management zones or treatments in fields and with the use of calibrated yield maps be able to analyse trials for significance.

The Irrigation Research and Extension Committee (IREC) will also be assisting the on farm trial process by providing templates for trial designs and helping to connect different growers carrying out similar trials.

If you need to discuss any cotton trial ideas please contact me.

Regards

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