

Quality nutrition for growth

By Richard Maples

Knowing that Australian cotton farmers are already leading the world in farming methods, it is no longer a question of being in front, but rather how to stay there by farming 'smarter'.

Plant nutrition and insect control — equally challenging, but perhaps not always equally considered in crop production. Crop requirements will change with seasons — how effectively are you managing the components that directly affect yield and quality?

Have you looked closely at the nutritional requirements of your crop to maximise quality and yield in any given season? Outstanding results of recent seasons are proof that close attention to foliar nutrition to enhance plant performance works.

New varieties, different seasons — new challenges. But four steps remain constant:

- Plan;
- Implement;
- Monitor; and,
- Evaluate.

If you can't measure it — you can't monitor it

With Bollgard crops being considered "high retention", it is becoming more and more obvious that the timing of any in-field operation is critical. This includes cultivation, irrigation, PGR applications and nutrition. Quick monitoring techniques exist for the scheduling of irrigations and PGR applications, but current practises for plant tissue testing may take seven to 10 working days

(depending on the location of the farm) to get a result.

This may mean that an irrigation or a cultivation event has taken place in the field, and the optimum timing of any nutritional product application — both physically and physiologically — has been lost. This is especially true and critical in Bollgard crops.

With this in mind, Growth Agriculture, in conjunction with Nutrilab in Goondiwindi, developed a plant nutrition monitoring system that delivers a full leaf analysis to the grower within 48 hours — or they don't get charged! This service is available in the Namoi, Gwydir and Macintyre Valleys.

Growth Agriculture has been working closely with Wee Waa cotton farmers Paul and Lissa Swansbra for a number of seasons to develop a range of quality nutrient specific products, and determine their fit in the growing cycle of a cotton crop. Realising the importance of correct timing, and the unknown performance of Bollgard, Paul and Lissa embraced this quick turnaround testing service for a crop of Bollgard DP556 RR.

Five samples were taken throughout the growing season, starting from the eight leaf stage, and finishing at cut out. This was roughly at two-week intervals. "With the results being received within 48 hours, we were able to organise the sampling procedures around our management practices, or any adverse weather, and react accordingly. This meant that foliar applications were able to be timed with cultivations, or any sucking insect sprays." Paul said. "Basically it would save an extra pass across the field.

"We first realised that we might be on the right track when we had eight inches of rain following an irrigation in mid January. We virtually had no fruit shedding."

Oils ain't oils

The next step after recognising the nutritional requirements of the crop is to choose the right product for the job. A quality foliar fertiliser has to be:

- Safe to the plant;
- Cost effective;
- Highly compatible (easy to use);
- Used at low rates; and,
- Most importantly, it must be in a form that is readily available to the plant.

A good example of the last point is the use of foliar potassium sprays. Many forms of liquid potassium are on the market, with the most popular being potassium nitrate and potassium carbonate.

As Figure 1 demonstrates, the carbonate form of potassium is far more available through the leaf than



Paul and Lissa Swansbra on their Wee Waa property "Lammermoor".

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potassium nitrate. This is also reflected in the use rates — two to five litres per hectare for potassium carbonate (total K) as compared to 20–30 litres per hectare for potassium nitrate.

This means a lot less product to handle, and particularly when dealing with aerial application with low water volume, the potassium carbonate is a lot safer to the plant.

FIGURE 1: Availability of potassium

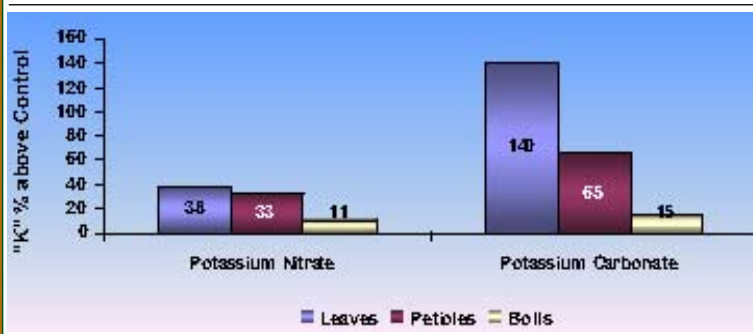
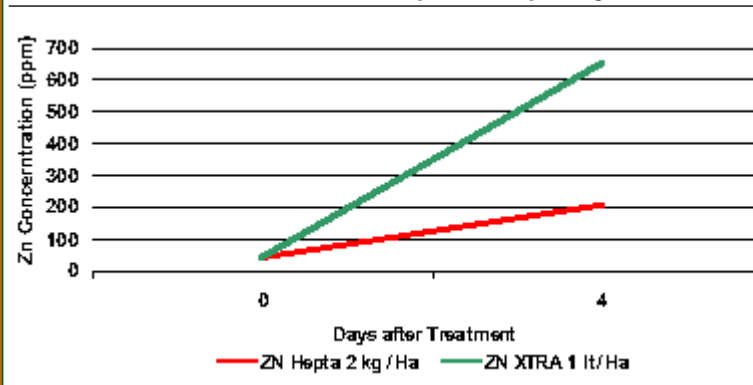


FIGURE 2: Zinc XTRA Vs zinc sulphate hepta hydrate



A similar example is the use of foliar zinc. Many farms use zinc sulphate hepta hydrate dissolved in water, but it is often very difficult to dissolve, it is incompatible with many insecticides, and can cause leaf burning. Growth Zinc XTRA can safely deliver much more zinc to the plant at lower rates, without causing any leaf burn.

Paul and Lissa agree that while they have tried a lot of liquid fertilisers, they stick to the Growth range of products because “we know that they work.”

“Another advantage of doing regular testing is that we can monitor the effects of the latest product applied. You can see where your money is going. The result of each test is presented on a single table, so you can follow the progress of the crop on a single piece of paper. It makes decision making easier.

“Growth Agriculture have gone down the path of having single nutrient products that are compatible with each other, so you can tailor make them to apply exactly what your nutrition tests are telling you to apply.”

The result

Paul and Lissa agree that Bollgard is the way of the future and that good crop nutrition is a big part of making it successful.

They also believe that correct timing on Bollgard is not only necessary — it is absolutely essential. Irrigation timing and PGR applications have to be spot on, but correct and timely nutrition can add the cream to the top.

“Correct monitoring and timing is not something you should think about, you should just get it done. With the nutrition program we followed, we were able to not only get visible results, we also got the picking results. The program enabled a genuine contribution to yield and quality, and therefore profitability,” Paul said.

The end result of the nutrition work at “Lammermoor” this season was that the Bollgard crop was the highest yielding on the farm — 10.4 bales per hectare. 