Week 8 – nitrogen management

17 August

Nitrogen management is becoming more tactical. In the early 1990s, much emphasis was often placed on high amounts of nitrogen pre-drilled in the seedbed. In dry seasons, this practice resulted in poor yields and quality, because the crop did not have the capacity to grain fill all the shoots created in the massive early growth.

A move to increase the efficiency of nitrogen fertiliser use to improve production outcomes and reduce risk has followed, with many farmers opting to top-dress nitrogen or apply split applications.

This week, BCG asked Wimmera and Mallee farmers the following question:

1. **What lessons have you learnt about adding nitrogen to your crop?**
2. **As a result, what has been your strategy for applying nitrogen this year?**

Bernard Lindsay – Warracknabeal

Bernard and Simone Lindsay farm with Simone's parents, Neville and Judith Marshman, 15km north of Warracknabeal. As well as prime lamb production, 50 percent of their clay loam property is sown to wheat and barley, 15 percent to canola, 20 percent to beans and lentils, and the remainder as chemical fallow. As a rule of thumb, however, this season most canola and beans were replaced with wheat and barley.

1: "Over-application of urea is hard on the pocket and hard on the crop. Downgraded barley from malt to feed because of high protein is very costly.

For a number of years all wheat, barley and canola paddocks are tested for nitrogen (0-60cm) and topped up with pre-drilled urea to reach yields of 2.6-3t/ha of wheat and barley and 1.6t/ha for canola.

We have stuck with pre-drilling for logistical reasons and I also think top-dressing in our environment is risky with erratic rainfall to wash in urea. However, if the season was a decile 6 plus, the plan would be to top-dress crops as required.

Note: this has not happened while the current nitrogen strategy has been in place."

2: "This season we have stuck with the testing and pre-drilling. Most paddocks tested high in nitrogen due to good summer rains and high mineralisation, so no urea was applied to those paddocks.

At the moment we are monitoring the deciles, APSIM and consulting agronomists (John Stuchbery & Associates) whether we need to top up our N levels.

Unfortunately, we are running at about decile 3 to 4, so I think we have plenty of nitrogen cover at the moment."

Chris Kelly – Woomelang

Chris and Janice Kelly farm 1200ha 10 km north and 3km south of Woomelang. Their soils consist of mainly Mallee sandy loams. Almost half of their land is sown to wheat, with smaller percentages to barley, canola and field peas.

1: "For a decade or so, nitrogen in the form of urea became a 'silver bullet', or drug the farm had to have. In 1996 my neighbour and I were flying nitrogen on in August without any hard knowledge of soil N content or crop requirement for N. We just felt maximum input would be well-rewarded.

2: "In recent years, strategic use of N has definitely saved us a lot of money. By soil testing we benchmark instinctive soil knowledge and the Yield Prophet also complements this data through adding the crop modeling dimension. With these added tools, we can now entertain new strategies like canopy management, where N is applied at GS31 or simply do nothing with confidence.

However, despite all the latest advise to apply N at GS31, our sandy soil seems to yield better by applying N at seeding. So on 9 June, we spread urea on our sandy rises. They currently look an excellent colour and based on past success with this strategy, I am confident of good results on this soil type."

Colin Aikman – Underbool

Colin and Diane Aikman and their son Garth farm north and south of Underbool. Their soils consist of loamy flats and sandy rises. The Aikmans run some sheep, although they are eliminating sheep in favour of no-till cropping. They crop 70 percent of their land. Two thirds is sown to wheat, nearly a third to barley and a small amount to triticale.

1: "Over the years we have been quite comfortable with adding nitrogen to our crops sown on typical Mallee soils of sandy rises and loamy flats. Lessons learnt suggest that nitrogen usually benefits crop production but can cause lighter screenings in years with a drier finish."

2: "Our strategy for applying nitrogen this year has been based on soil test results, agronomist's recommendations and our experience. With the variable rate air seeder, rates are adjusted according to soil type at seeding time, then if needed, urea will be broadcast later in the crop."

Bernie Maher – Pira

Bernie Maher and his son Shane run a mixed family farm at Pira. They crop 50 percent of their Mallee loam land with wheat and barley and run sheep on the remaining area.

1: "Some years back the application of nitrogen to your cropping program was a cumbersome and fiddly task. The resultant cost recovery was, at best, doubtful.

However, with the introduction of MAP, this gave us the opportunity to see immediate results as the crop emerged and grew on. A strong clover presence in the pasture phases certainly assisted in seeing strong crop growth as well.

In today's cropping program, the availability of various made-to-order mixes and the later application of nitrogen to a growing crop have seen vast improvements in the yield of our crops in the Mallee region.

With the ever-increasing cost pressures, it has become vital to return as much as possible from each hectare sown, and nitrogen applications are a sure-fire winner.**"**

2: "An application of MAP at 60kg/ha over the total area is sown with the seed. A later application of sulphate of ammonia at 45kg/ha to the lighter soil areas to obtain strong plant growth and subdue later emergence of skeleton weed is producing excellent results."