



CottonInfo nitrogen management trials: Namoi

Nitrogen Fertiliser Use Efficiency in the Namoi Valley – ‘Riverway’ Boggabri
 Geoff Hunter, CottonInfo RDO

Trial Aim

The aim of this trial was to examine Nitrogen Fertiliser Use Efficiency, through the effect on yield of different rates of nitrogen (N) fertiliser. Replicated trials were also carried out across other cotton growing regions by the Regional Development Officers.

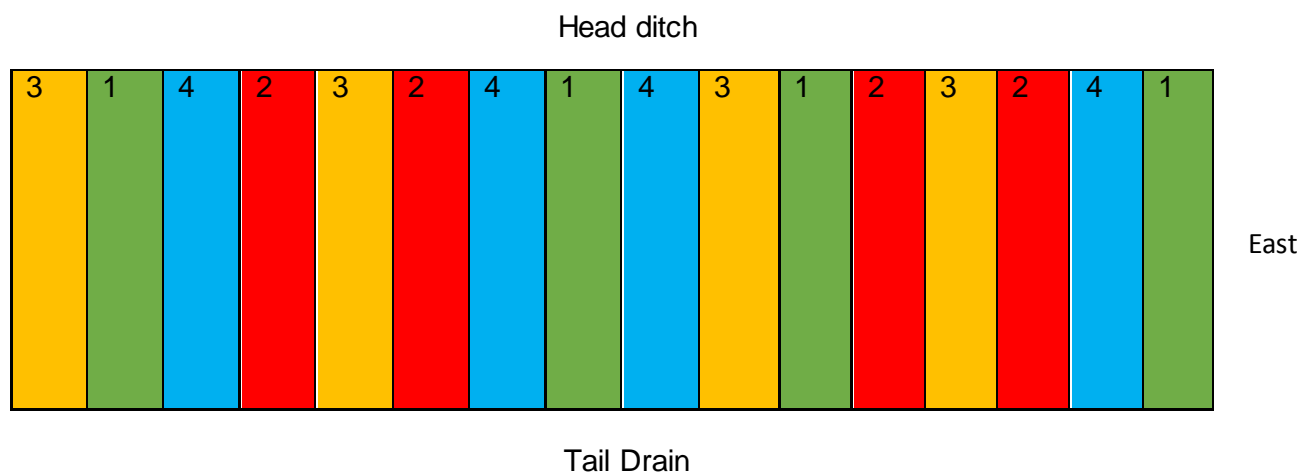
Trial Details

- Location: “Riverway” Boggabri owned by Peter and Georgia Watson with Steve Madden as their consultant.
- Soil type: Brown Medium Clay vertosol.
- Rainfall: Sep-Mar was 194 mm
- Planted: 24 October 2014 and watered up. Fertilizer pre-plant excluding Nitrogen consisted 100kg MAP, 30L/Ha Flophos and 80 kg Potassium Nitrate.
- The first defoliation was 25 March after crop cut-out naturally and experienced some senescence but the second defoliation on 4 April was all that was needed for a very effective result.
- Two over the top Roundup sprays were applied for weeds plus a mirid and mirid/ mite combination spray.
- Variety: Sicot 74BRF with Cruiser Extreme as a seed treatment.
- Picked: 15 April 2015.
- Irrigations: A total of eight irrigations and around 7.9ML/ha was used including watering up.

Treatments:

	Pre plant (Anhydrous ammonia)	1st Application Nitrogen as Urea 5/12/14	Total
T1	160	0	160
T2	160	50	210
T3	160	100	260
T4	160	150	310

**Plots are 16m wide with 4 replications of each treatment.*

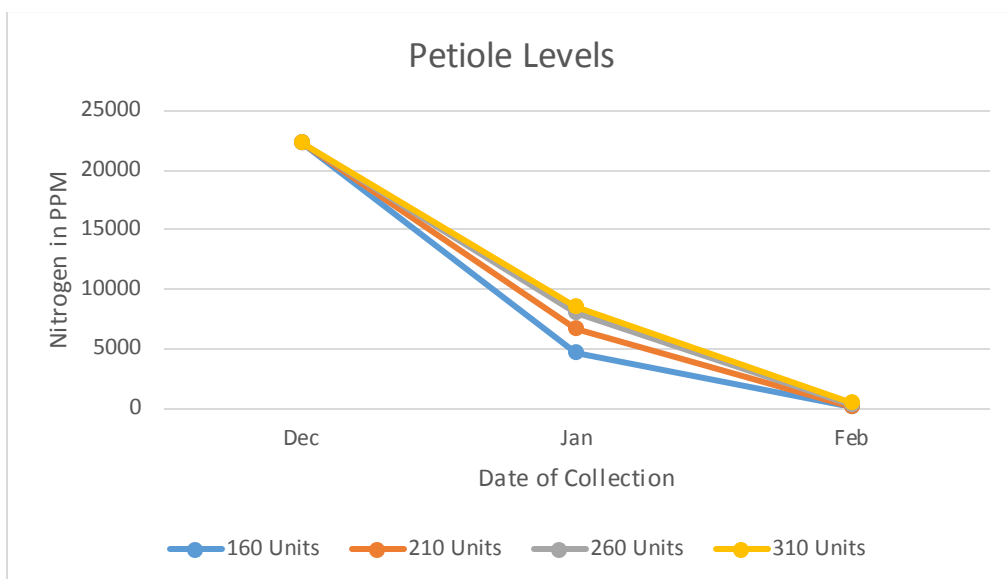
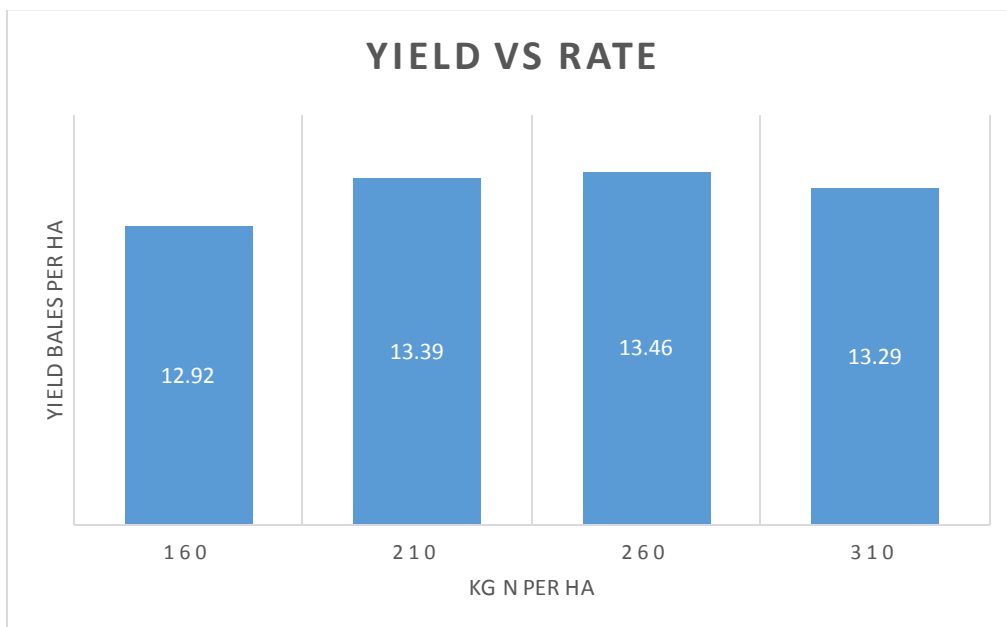


Results

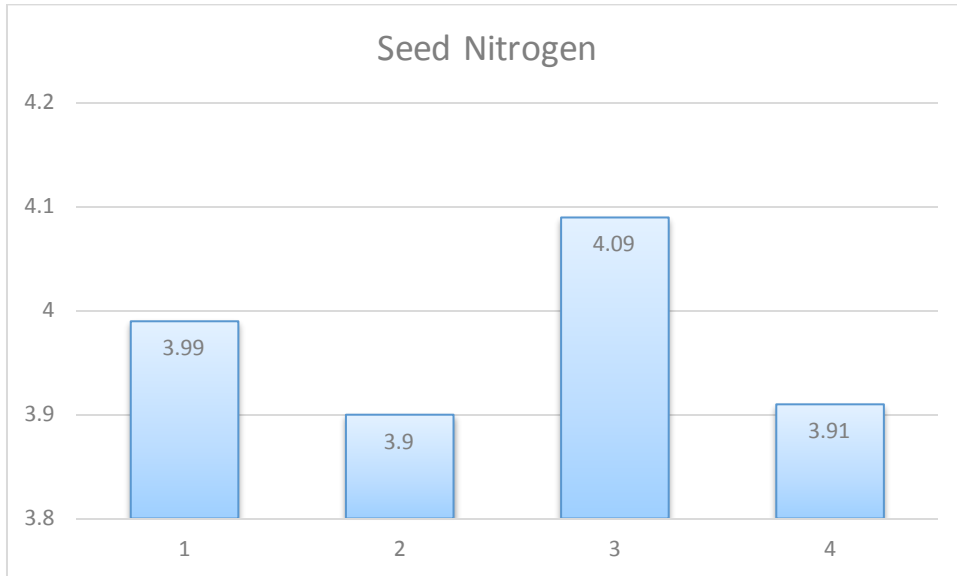
The crop was planted and watered at 12.5 seeds per metre with 9.14 per metre established on 24 November. The crop experienced some early thrips damage with some very hot and dry weather which resulted in the first irrigation on 14 November. Hot and humid conditions occurred around 10 December which followed the one and only in-crop application of N on 5 December.

The crop was 12-13 nodes at 5 December, 19 nodes on 6 Jan, 21 nodes on 19 Jan and sitting around 6-7 NAWF. 9 Feb saw the crop approaching cut-out with 3-5 NAWF and 97cm in height with no differences between treatments. Boll counts on 19 Feb numbered 136/m for Treatment 1, 147/m in 2, 155/m in 3 and 149/m in treatment 4. There was a noticeable difference in the extra greenness and lushness of the crop in treatment 4 which was the higher N strip.

Pre-season soil tests showed very low N levels and post season tests showed 78 Units N for Treatment 1, 114 Units for treatment 3 and 87 Units for Treatment 4 down to 90cm.



Petiole tests at cut-out showed very low levels however the crop did not appear to lack any nutrients late in the season. Seed Nitrogen was taken and showed some variation across the treatments. As a guide 3.9 percent N is the ideal level for Sicot 74 BRF and it is estimated that for each increase of 0.1 percent over 3.9 percent it will equate to approximately 23 units of N over applied. The results are shown in the graph below.



Conclusion

This crop had ideal conditions through January and February which set this crop up for good yields. Like the Bellevue crop boll numbers were not overly high but they were a consistent size and weight throughout the plant. Soil type appeared to be quite consistent but we saw large variations in yield not only in the trial area but throughout the rest of the field with estimates putting yield at well over 14 bales per ha in places. Water timing was excellent and run times were short.

So again as with the other trial yield was not statistically different showing that N is not the limitation on yield and that economically the best return was for the application of 210 units nitrogen.

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Nitrogen Fertiliser Use Efficiency in the Namoi Valley – ‘Bellevue’ Narrabri

Geoff Hunter, CottonInfo RDO

Trial aim

The aim of this trial was to examine Nitrogen Fertiliser Use Efficiency, through the effect on yield of different rates of Nitrogen fertiliser. Replicated trials were also carried out across other cotton growing regions by the Regional Development Officers.

Trial details

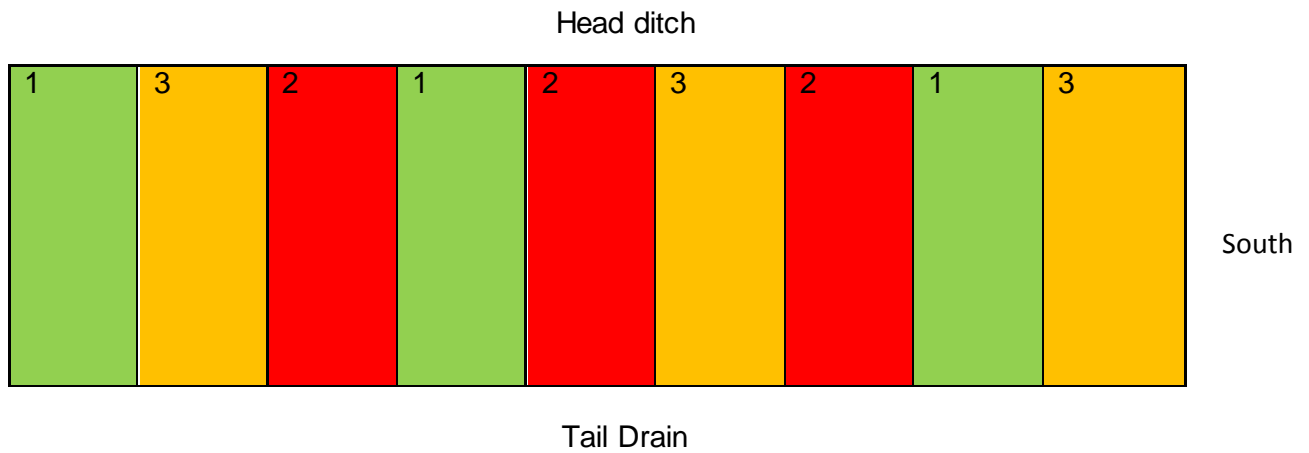
- Location: “Bellevue” Narrabri owned by Darren and Leanne Eather with Hugh Urquart as their consultant.
- Soil type: Brown Medium Clay vertosol with large variance throughout field
- Rainfall: Sept- Mar was 304 mm
- Planted: 24 October 2014 and watered up.
- Variety: Sicot 74BRF
- Picked: 21st May 2015 with three defoliations being required mainly due to untimely rain which affected efficacy.
- Pre-plant soil tests were put into NutriLogic and this indicated that for a yield of 12 bales per Hectare an application of between 155kg and 172 kg of Nitrogen, 15kg of Phosphorus and 20kg of Potassium was needed. The soil was not limited by sodicity or salinity although in some small areas in season a Zinc deficiency was observed.
- Irrigations: A total of 8 irrigations and around 6.8ML/ha was used including watering up.



Treatments:

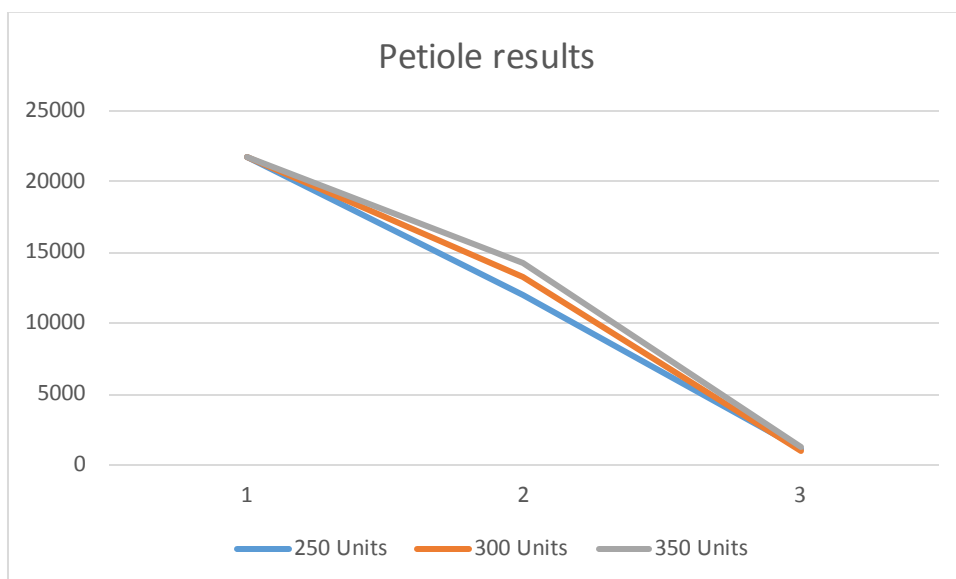
	Pre plant (Anhydrous ammonia)	First application 10/12/14	Second irrigation (N26) 21/12/14	Third irrigation (N26)	Total
T1	160	50	20	20	250
T2	160	100	20	20	300
T3	160	150	20	20	350

*Plots are 24m wide

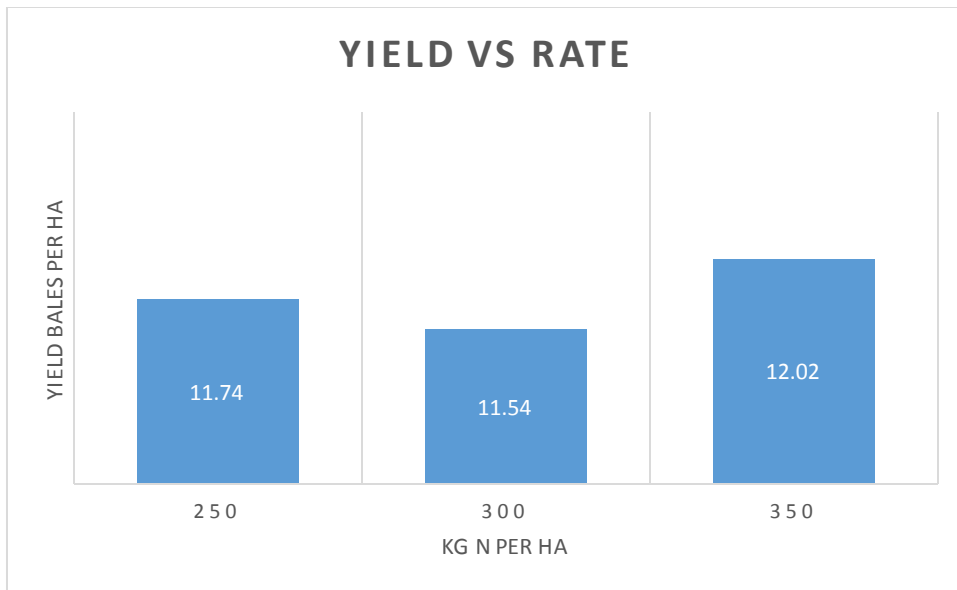


Results

The crop established well after being planted then watered up on 24 October. Seeds were placed at 12.5 per metre with establishment counts of 10.22 per metre counted on 24 November. Leaf and Petiole samples were taken on 19 December and 27 February and petiole samples only were taken on 21 January for each treatment. The levels for these tests are shown below.



The trial was picked on 21 May after a fair bit of rain which started in early April which did not seem to affect quality but may have impacted yield. The total weight of 6 round modules from each treatment was recorded and also an accurate area which enabled a translation to yield based on the field average of 43.5 percent turnout. Yield versus Nitrogen rates can be seen with the graph below.



Statistically, there was found to be no significant difference between yields for each treatment. Seed N percentage testing was not undertaken in this trial. Post picking soil tests were done and it showed that the treatments with 250kg of Nitrogen held 66.4 units in the soil to 90cm the 300kg treatment had 48.9 units and the 350 kg treatment had 80.3 units left.

Conclusion

The crop grew vigorously all through the season and looked the best of the trials in the Namoi. Retention was always high and although boll numbers of 140 per metre at cut-out were not necessarily high they were of a good and consistent size throughout the plant.