"Canola Agronomy, 2015"

Jeff Braun, Agrilink Agricultural Consultants Pty Ltd, jeffbraun@bigpond.com

Key Outcomes:

- Diamond canola produced the highest yields in the trial at 2.84 t/ha.
- Applying large amounts of nitrogen resulted in a decline in yield, however this was not statistically significant.
- The application of a plant growth regulator to 44Y87 resulted in significantly lower yields.

Trial Objectives: To determine 1) the varietal yield potential of three early sown canola varieties with differing herbicide tolerance traits and 2) to determine if nitrogen is a limiting factor for canola yield potential in the Mid North environment

Trial Duration: 2015
Location: Navan
Farmer Co-operators: Pat & Mary Connell
Soil Type: Red Clay Loam
Paddock History: 2014 – Faba Beans
2013 - Wheat

Monthly Rainfall:

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
69.5	4	1	70	52	23	56.5	82.5	30.5	9	80.5	36.5

- **Yield Limiting Factors:** Frost, Below average spring rainfall
- **Type of Trial:** Replicated small plot trial
- **Trial Design:** Randomised Complete Block Design, 4 replicates

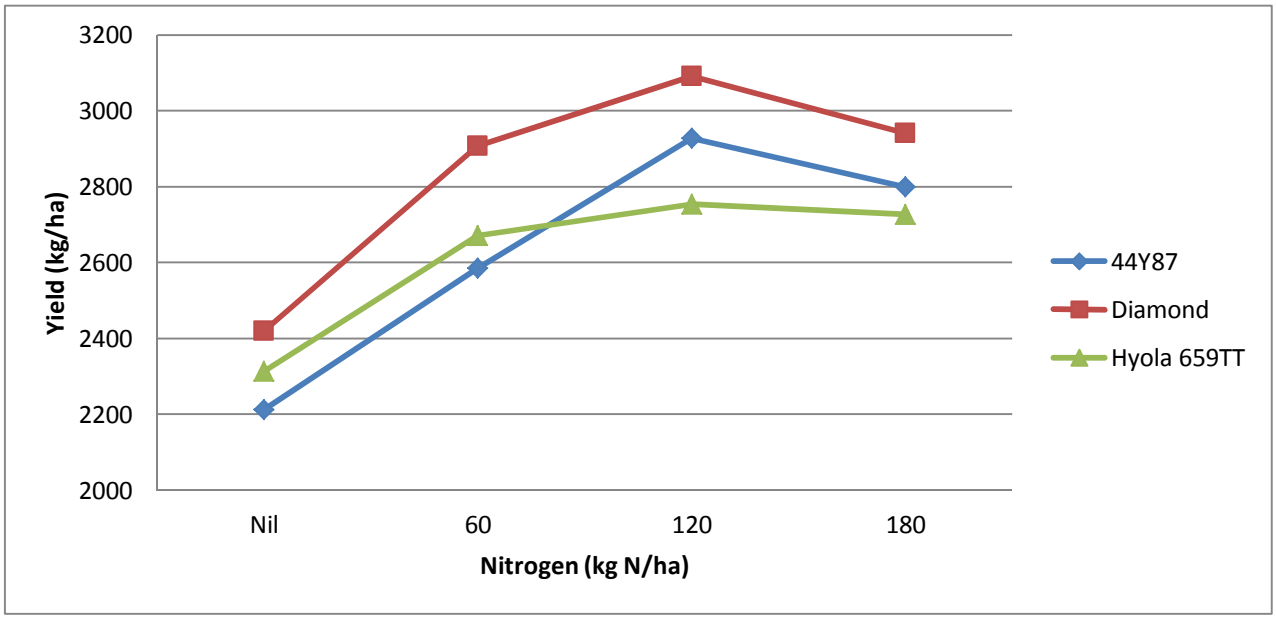
Treatments:

The trial was sown into moisture on 27/04/2015. There were 3 varieties in the trial (Nuseed Diamond, Pioneer 44Y87 and Pacific Seeds Hyola 656TT). 4 common nitrogen treatments were applied across all varieties (Nil N, 60 kg N/ha, 120 kg N/ha and 180 kg N/ha), which were all applied at seeding. Additional plots of 44Y87 were sown to run a more detailed nitrogen response trial, which incorporated additional nitrogen treatments of 30 kg N/ha, 90 kg N/ha, 150 kg N/ha and 180 kg N/ha + PGR (1L Tebuconazole applied at early green bud).

All plots were sown with MAP 1% Zinc at 80 kg/ha and seed at 3 kg/ha. All nitrogen treatments were spread immediately post seeding. The plots were direct harvested with a small plot header and grain yields determined. Grain samples were kept for oil analysis which were not available at the time of publication.

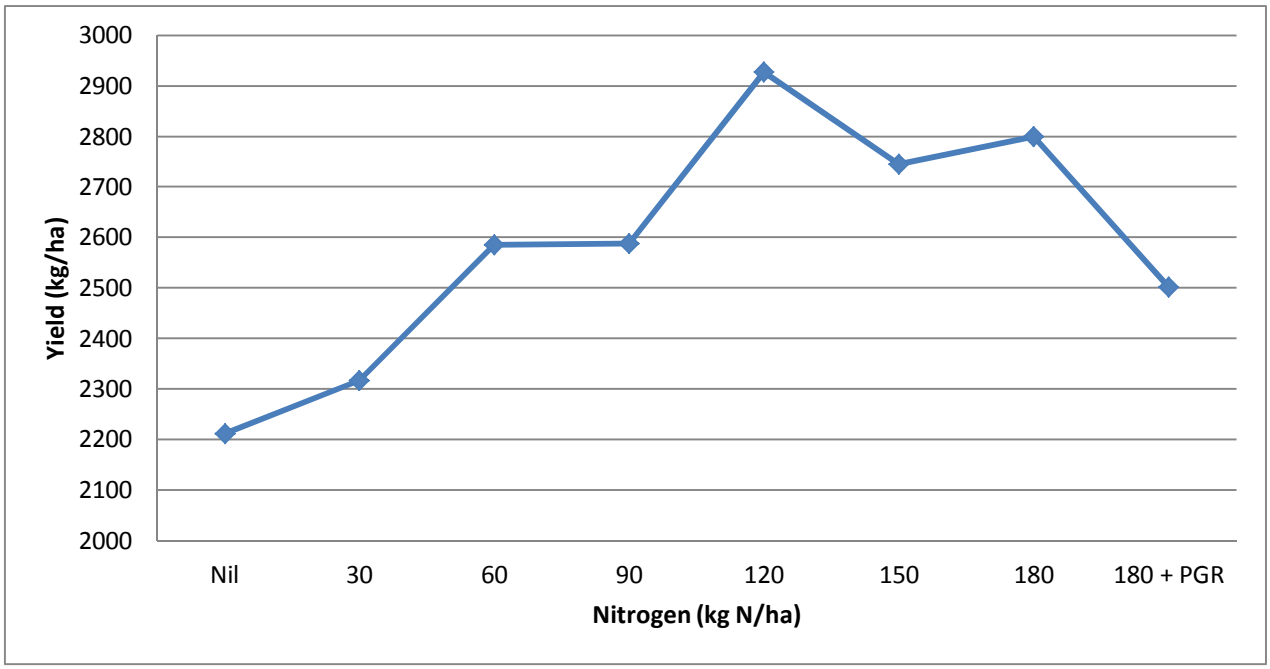
Results:

Figure 1: *Canola Yield vs. Variety and Nitrogen, MNHRZ, 2015.*



Variety x Nitrogen Interaction Not Significant

Figure 2: *Yield of 44Y87 Canola vs Nitrogen, MNHRZ, 2015.*



LSD 5% - 348.4

Comments:

Diamond canola produced the highest yields in the trial, which were significantly better than those of the other two varieties. There was no significant difference in the yield of 44Y87 and Hyola 656TT. This would be in line with commercial observations, where it appears the conventional varieties (where they can still be grown) have a slight yield advantage over the herbicide tolerant types.

Excessive nitrogen has not resulted in the "haying off" of canola crops (Rohan Brill, NSW DPI) as can be the case in cereal crops. The canola trials from the MNHRZ in 2015 (**Figure 2**) allow us to see that this is definitely the case, with large applications of nitrogen not resulting in a significantly lower yield. It is expected however, that there would be a resultant loss of oil content. Whilst the yield difference is not significant, yields tended to be lower when nitrogen was applied at rates greater than 120 kg N/ha. This combined with greater cost of nitrogen applied and potentially lower oil contents can have marked effects on the profitability of the crop.

The application of a PGR (tebuconazole – registered in Canada for this purpose) did not result in any yield gain and was in fact associated with a significant yield decline vs. the untreated plots that received the same amount of N. This effect needs further research, as does the use of plant growth regulators in canola.

Conclusion and into the paddock

Canola remains a viable part of many peoples cropping rotations for a variety of reasons. However, with the cost of nitrogen a large part of the variable costs associated with this crop, matching nitrogen input to achieve optimal yields becomes very important. These trials have again shown that good canola yields can be achieved with lower rates of nitrogen, however we must also realise that these trials were sown on bean stubble, where nitrogen and water were higher. Deep soil nitrate testing may be a viable option for canola crops, especially if their place in the rotation is following a sequence of cereal crops.

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