

“Durum Agronomy, 2015”

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Key Outcomes:

- When sown on the 24th of April, Hyperno yielded higher than all other varieties at this time of seeding.
- When sown on the 8th of May, Saintry yielded higher than all other varieties at this time of seeding. This was the best time of seeding for Aurora albeit yielding significantly less than Saintry.
- Conservative nitrogen applications at GS 31, followed by UAN at flowering resulted in similar proteins levels to higher rates of nitrogen applied during the season

Trial Objectives: To determine 1) Varietal yield in response to Time of Sowing (TOS) and nitrogen and 2) to determine the nitrogen requirements needed to achieve protein > 13% (Durum 1 Grade).

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 (Split Plots), 4 replicates

Treatments:

The trial consisted of the following treatments:

2 x Times of Sowing – TOS 1 – 24/04/2015, TOS 2 – 08/05/2015

3 x Varieties – Aurora, Hyperno and Saintry

4 x Nitrogen Treatments – 120 kg N/ha Seeding, 60 kg N/ha seeding + 60 kg N/ha GS 31, 60 kg N/ha GS 31 + 25 L/ha UAN at flowering (GS 61) and 120 kg N/ha at Growth Stage 31.

All plots were sown at 200 seeds/m² with MAP 1% Zinc at 80 kg/ha. The plots were harvested with a small plot header and grain yields determined. Grain samples were kept for protein analysis which was assessed via NIR testing.

Results:

Figure 1: Durum Wheat Grain Yield & Protein vs. Time of Sowing and Variety, MNHRZ, 2015.

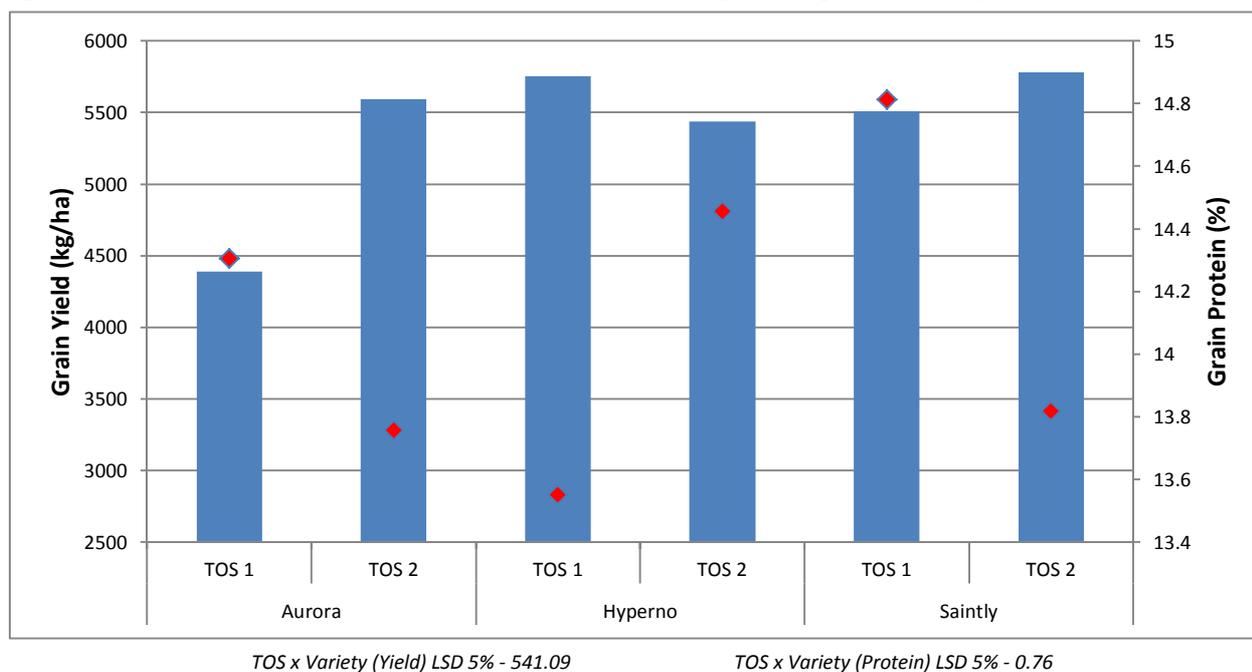


Table 1: Durum Wheat Protein vs. Nitrogen, MNHRZ, 2015

Nitrogen Treatment	Yield	Protein
120N Seeding	5456.0	13.3
60N Seeding + 60N GS 31	5587.5	13.8
60N GS 31 + UAN 25L GS 61	5217.1	14.5
120N GS 31	5381.4	15.0
LSD 5%	NS	0.62

Comments:

Sowing Hyperno early (24th of April) or Sainthly later (8th May) resulted in the highest yields at each time of sowing. Aurora was frosted at the first time of seeding and produced yields more than 1 t/ha less than Hyperno sown at the same time. It was noted during the year that Aurora came to head at a similar time to Sainthly, but flowered approximately 10 days later. This results in Aurora being at a highly vulnerable stage for a longer period of time to both frost and heat. This may have

contributed to the yield decline in this variety at TOS 1. Saintly was “leaning heavily” come harvest for all times of sowing. This did not result in any yield loss, but it is noted that the application of a plant growth regulator may be warranted to prevent lodging in the higher rainfall environments. Overall applied nitrogen was not a significant contributor to yield, with no significant yield difference recorded between nitrogen treatments. It was however, significant for grain protein levels, with later applications generally being more conducive to higher grain protein levels. Applying nitrogen later in the season is generally not an option for all crops due to the size of most farms today, but these results may allow durum growers to target durum paddocks with a late application to minimise seasonal risk and maximise grain protein. The other interesting results was the where UAN was applied at the start of flowering and its effect on grain protein. This treatment produced higher protein levels than treatments with a higher overall rate of nitrogen. This may enable durum growers to “hedge their bets” when it comes to seasonal risk and nitrogen applications.

Conclusion and into the paddock

Knowing the maturity of durum varieties appears key in determining sowing date, which is also linked closely to grain yield potential. The seasonal conditions in 2015 may not have suited the developmental pattern of Aurora, which produced significantly lower yields than the established benchmark varieties Saintly and Hyperno. Aurora’s grain quality appears to be excellent and growers should not be dissuaded from growing this variety based on these results alone.

Knowing soil nitrogen reserves is a key component of durum agronomy. Combining this knowledge with appropriate in crop nitrogen management will allow optimal yields to be achieved, whilst reducing seasonal risk, particularly if late nitrogen applications up to flowering are employed. The tendency for durum to accumulate a lot of early biomass may be alleviated by utilising some of the later application strategies as seen in this trial.

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