



Optimising
Irrigated Grains

IRRIGATED GRAINS TRIAL 2020: DURUM WHEAT AGRONOMY



TRIAL OPERATIONS

April 9th Pre-irrigation (1.5 Ml/ha).
Flood trial only

May 8th Glyphosate (1.5 l/ha) +
Goal (75 ml/ha)

May 29th Boxer Gold (2.5 l/ha) +
Gramoxone (2.0 l/ha)

July 28th Triathlon (1.0 l/ha)

August 17th PGR applied (GS31-32)

September 4th Topdress N 55 kg
N/ha

Sprinkler Trial

September 7th Topdress N 100 kg
N/ha Flood Trial,
reflecting the different
soil N.

Spring Irrigation

Flood Irrigation

September 8th 0.8 Ml/ha

Sprinkler Irrigation

September 1st 25 mm

September 10th 15 mm



OPTIMUM PLANT POPULATIONS OF DURUM GROWN UNDER OVERHEAD AND FLOOD IRRIGATION

These trials will evaluate the plant population of durum wheat grown at different plant populations under flood and overhead irrigation.

The individual objectives are as follows:

- Evaluating the influence of four different plant populations on crop structure, dry matter production and grain yield of durum wheat grown under flood and overhead irrigation.
- To compare the economics of durum wheat grown under flood versus overhead irrigation sown at the same time.
- To observe whether cultivar susceptibility to disease interacts with the plant population under these two irrigation systems.

VARIETY AND POPULATION

	Sowing Rates (kg/ha)			
Variety	100 seeds/m ²	200 seeds/m ²	300 seeds/m ²	400 seeds/m ²
DBA Aurora	39	79	118	157
DBA Vittaroi	54	109	163	217

Notes:

Lower plant population treatments have been distinguishable to date.

NITROGEN USE EFFICIENCY - OPTIMUM RATES FOR THE NITROGEN (N) APPLIED IN IRRIGATED DURUM CROPS



This trial is to evaluate nitrogen use efficiency in durum wheat under different rates of applied N fertiliser on flood irrigation.

The individual objectives are as follows:

- Evaluating nitrogen use efficiency under different N rates in durum wheat (0 – 320kg N/ha total N) under flood irrigation.
- Influence of different rates of urea N fertiliser (46%N) on yield and grain quality applied as split applications at GS30, GS32 and GS39.
- Influence of N rate on harvest index (HI) in durum wheat

TRIAL OPERATIONS

- April 9th** Pre-irrigation (1.5 Ml/ha). Flood trial only
May 8th Glyphosate (1.5 l/ha) + Goal (75 ml/ha)
May 29th Boxer Gold (2.5 l/ha) + Gramoxone (2.0 l/ha)
DBA Vittaroi sown at 124 kg/ha targeting 160 pl/m²
July 28th Triathlon (1.0 l/ha)
August 17th PGR applied (GS31-32)
September 7th GS30 topdress treatments applied (actual GS32)

Spring Irrigation

Flood Irrigation
September 8th 0.8 Ml/ha

Notes:

Topdressing intended to be applied at GS30 was delayed due to lack of topdressing opportunities/rainfall events.

NITROGEN USE EFFICIENCY - OPTIMUM TIMING FOR THE NITROGEN (N) APPLIED IN IRRIGATED DURUM CROPS.

These protocols evaluate nitrogen use efficiency in durum under different timings of applied N fertiliser under flood irrigation.

The individual objectives are as follows:

- Evaluating nitrogen use efficiency under different N rates and timings in durum wheat (0 – 300kg N/ha total N) under flood irrigation.
- Influence of different rates of urea N fertiliser (46%N) on yield and grain quality applied as split applications between incorporated by sowing & GS30 (pseudo stem erect), GS30 & GS32 (2nd node) and GS32 & GS37 (flag leaf just visible).
- Influence of N rate and N timing on harvest index (HI) in durum wheat

TRIAL OPERATIONS

- April 9th** Pre-irrigation (1.5 Ml/ha)
May 8th Glyphosate (1.5 l/ha) + Goal (75 ml/ha)
May 29th Boxer Gold (2.5 l/ha) + Gramoxone (2.0 l/ha)

Pre-sowing N treatments applied.
DBA Vittaroi sown at 124 kg/ha targeting 160 pl/m²

- July 28th** Triathlon (1.0 l/ha)
August 17th PGR applied (GS31-32)
September 7th GS30 topdress treatments applied (actual GS32)

Spring Irrigation

September 8th First spring irrigation – 0.8 Ml/ha

Notes:

Topdressing intended to be applied at GS30 was delayed due to lack of topdressing opportunities/rainfall events. Low or high N plots are difficult to distinguish.

PLANT GROWTH REGULATION FOR LODGING CONTROL IN IRRIGATED DURUM CROPS



The trial will investigate a combination of plant growth regulator timings, rates, products and practices to manage lodging in high yielding irrigated durum crops.

TRIAL OPERATIONS

April 9th	Pre-irrigation (1.5 MI/ha).
May 8th	Glyphosate (1.5 l/ha) + Goal (75 ml/ha)
May 29th	Boxer Gold (2.5 l/ha) + Gramoxone (2.0 l/ha) DBA Aurora sown at 90 kg/ha targeting 160 pl/m ²
July 31st	PGR grazing treatment part 1
July 28th	Triathlon (1.0 l/ha)
August 17th	PGR applied (GS30) including 'grazing' part 2
August 24th	PGR applied (GS31)
September 6th	PGR applied (GS32)
September 7th	Topdress 1 - 100 kg N/ha applied
Spring Irrigation	
September 8th	First spring irrigation – 0.8 MI/ha

Notes:

Apart from the 'grazed' treatments, it is too early to observe any effect of the PGR treatments applied.

DISEASE MANAGEMENT OPTIONS

This trial is investigating the interaction of variety disease resistance and various fungicide strategies, including foliar and seed treatments, comprising various timings and products on disease occurrence severity, yield and grain quality.

TRIAL OPERATIONS

April 9th	Pre-irrigation (1.5 MI/ha).
May 8th	Glyphosate (1.5 l/ha) + Goal (75 ml/ha)
May 29th	Boxer Gold (2.5 l/ha) + Gramoxone (2.0 l/ha) Seed fungicide treatments applied. DBA Aurora sown at 90 kg/ha targeting 160 pl/m ² . DBA Vittaroi sown at 124 kg/ha targeting 160 pl/m ²
July 28th	Triathlon (1.0 l/ha)
August 17th	Fungicide application timing 1. PGR applied (GS31-32)
September 7th	Topdress 1 - 100 kg N/ha applied
Spring Irrigation	
September 8th	First spring irrigation – 0.8 MI/ha



Notes:

No disease has been observed to date.