YIELD PROPHET

Crop Report

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1-Jul-2026

UpperNorthFS: Ballantyne

Crop: Wheat

Cultivar: Tomahawk

Sowing details: 160 plants/m^2 on 22-May

Expected maturity date: 28-Nov

Paddock Details

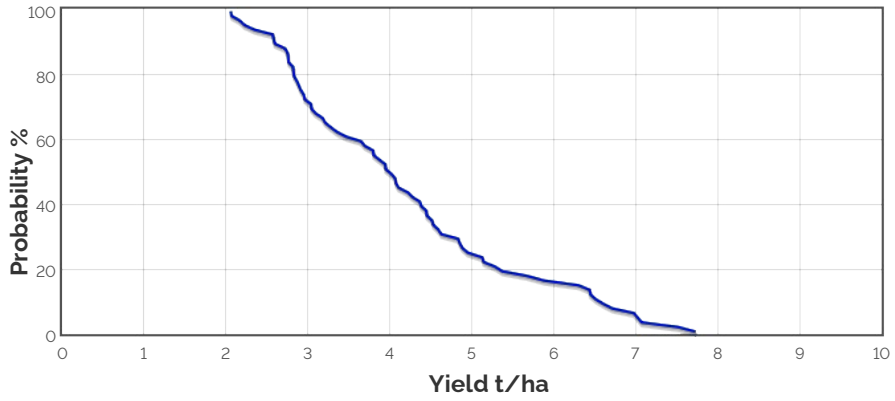
Initial conditions date: 11-Jun

Soil: Soil>
900 mm max rooting depth

Stubble: 1500 kg/ha of Lentil
No till

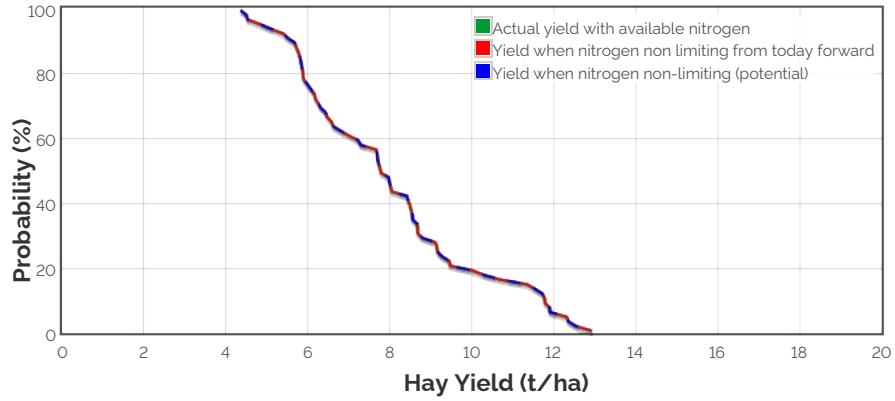
Grain Yield Outcome

☑ Nitrogen limited Yield
☐ Nitrogen limited Yield with Frost and heat Effects
☑ Water limited Yield
☐ Water limited Yield with Frost and heat Effects



This graph shows the probability of exceeding a range of yield outcomes this season. It takes into account your pre-season soil moisture, the weather conditions so far, soil N and agronomic inputs. The long term record from your nominated weather station is then used to simulate what would have happened from this date on in each year of the climate record. The yield results are used to produce this graph.

Hay Yield Outcome

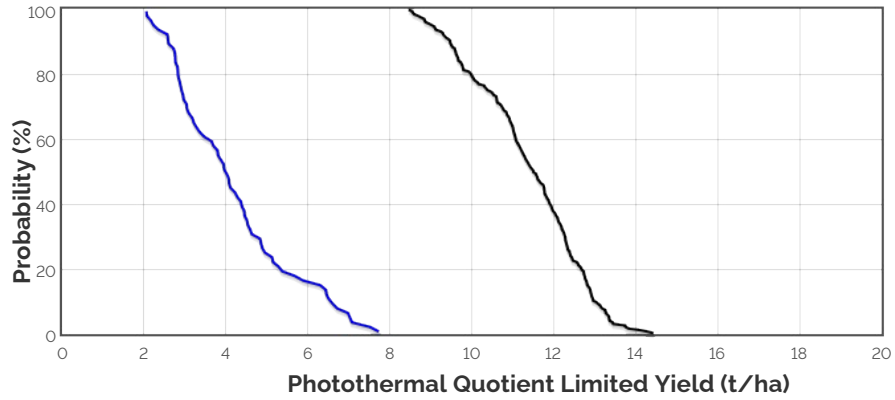


This graph shows the probability of exceeding a range of hay yield outcomes this season. It takes into account the same factors as the grain yield graph above. When above ground dry matter is below 2t/ha, hay yield is assumed to be 70% of dry matter, with a moisture content of 13%. When dry matter is between 2 and 12t/ha, hay yield is assumed to be between 70 and 75% of dry matter (sliding scale). When dry matter is above 12t/ha, hay yield is assumed to be between 75 and 80% (sliding scale).

Current dry matter: 150.1192321903895kg/ha

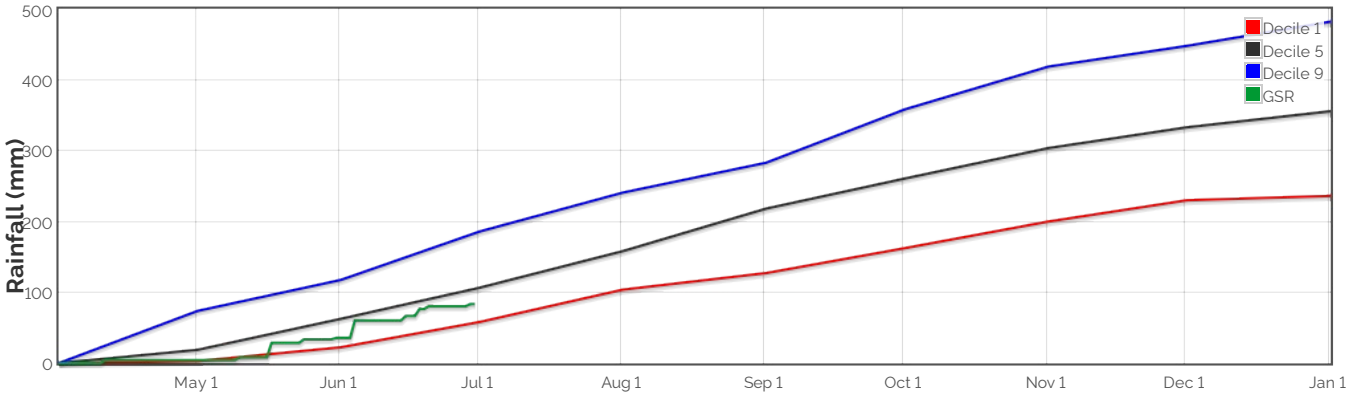
PTQ Yield Outcome

☑ Water Limited Yield
☑ Photothermal Quotient Limited Yield



This chart shows the chances of achieving different yield outcomes this season, based on two key limits: water, and the balance of radiation and temperature during the critical period for grain number development (Photothermal quotient). Water-limited yield is estimated from pre-season soil moisture, seasonal weather to date, and agronomic inputs, with future conditions simulated using the long-term weather record from your chosen station. Radiation and temperature-limited yield is estimated by modelling a range of flowering dates and calculating the ratio between radiation and temperature during the critical period for grain number determination. In most cases, water is the main constraint on yield, but in wetter seasons or locations, radiation and temperature can also limit yield if crop development is not well aligned with the environment. Earlier flowering often reduces potential from radiation due to shorter day lengths and cloudier conditions, while later flowering increases radiation but higher temperatures shorten the critical period, causing yield potential to decline again. These limits assume >90% light interception during the critical period and do not account for frost or heat events pre or post flowering, nor for other grain-filling stresses that reduce harvest index and grain size.

The Season So Far - Growing Season Rainfall Deciles



Simulated and Predicted Crop Growth Stage

	GS11	GS12	GS13	GS14	GS15	GS16
	emergence	2nd leaf	3rd leaf 1st tiller	4th leaf early tillering	5th leaf mid tillering	6th leaf late tillering
Predicted						
Earliest	10-Jun	16-Jun	27-Jun	6-Jul	16-Jul	28-Jul
Median	10-Jun	16-Jun	27-Jun	8-Jul	20-Jul	31-Jul
Latest	10-Jun	16-Jun	27-Jun	11-Jul	23-Jul	4-Aug

	GS30	GS31	GS32	GS37	GS39	GS45	GS55	GS65	GS75
	end of tillering	1st node	2nd node	flag leaf	flag leaf fully emerged	mid booting	mid head emergence	mid flowering	mid dough fill
Predicted									
Earliest	4-Aug	9-Aug	18-Aug	26-Aug	27-Aug	3-Sep	13-Sep	19-Sep	5-Oct
Median	9-Aug	14-Aug	24-Aug	31-Aug	1-Sep	9-Sep	20-Sep	26-Sep	13-Oct
Latest	15-Aug	21-Aug	5-Sep	8-Sep	10-Sep	17-Sep	29-Sep	5-Oct	24-Oct

Probability and Incidence of Frost and Heat Shock

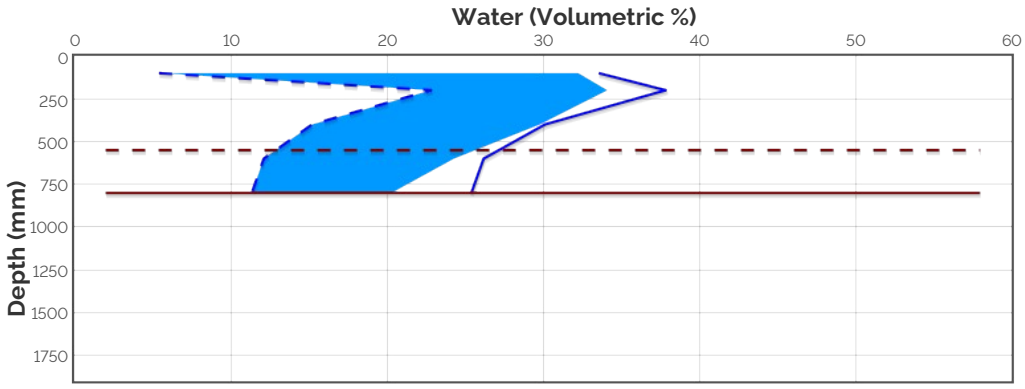
Frost damage during flowering

	Probability	This Season
mild 2 to 0°C during flowering	42%	0
moderate 0 to -2°C during flowering & early grain fill	4%	0
severe Less than -2°C during flowering & grain fill	0%	0

Heat damage during grain fill

	Probability	This Season
mild 32 to 34°C	37%	0
moderate 34 to 36°C	22%	0
severe Above 36°C	12%	0

Current Distribution of PAW



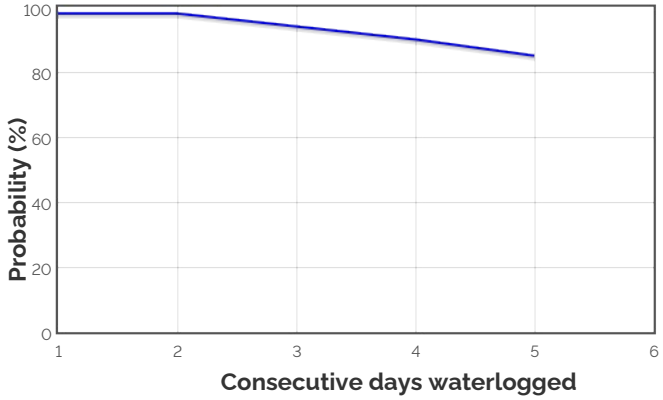
Current root depth = 550 mm
Median final root depth = 800 mm
Current crop PAW available to roots = 86 mm
Total Soil PAW = 110 mm
PAWC = 129 mm

PAW = Plant Available Water
CLL = Crop Lower Limit or Wilting Point
DUL = Drained Upper Limit or Field Capacity
PAWC = Plant Available Water Capacity
Current Crop PAW = Soil water currently accessible to the roots down to the current rooting depth
Soil PAW = Total accessible soil water in the soil profile

Water Budget

Initial PAW status @ 11-Jun	78 mm
Rainfall since 11-Jun	23.3 mm
Irrigations	
Evaporation since 11-Jun	17 mm
Transpiration since 11-Jun	1 mm
Deep drainage since 11-Jun	0 mm
Run-off since 11-Jun	0 mm
Current PAW status:	**110 mm**

Probability of Future Waterlogging Events

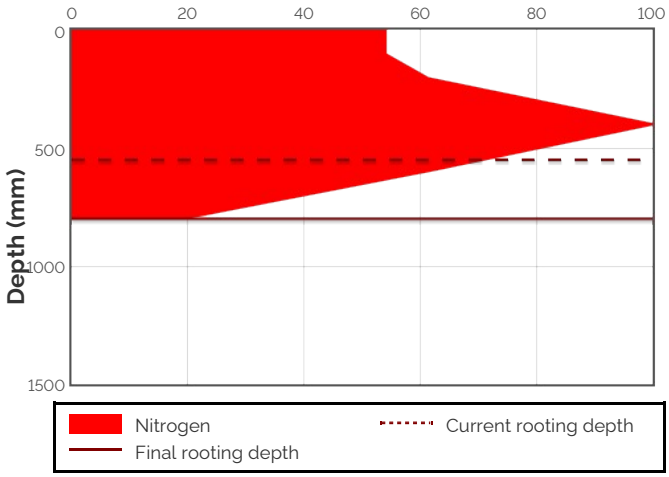


Nitrogen Budget

Initial N status @ 11-Jun	268 kg/ha
N mineralisation since 11-Jun	5 kg/ha
N tie up since 11-Jun	0 kg/ha
N applications	
	22-May : 30 kg/ha
Total N in plant	8 kg/ha
De-nitrification since 11-Jun	0 kg/ha
Leaching since 11-Jun	0 kg/ha
Current N status:	**300 kg/ha**

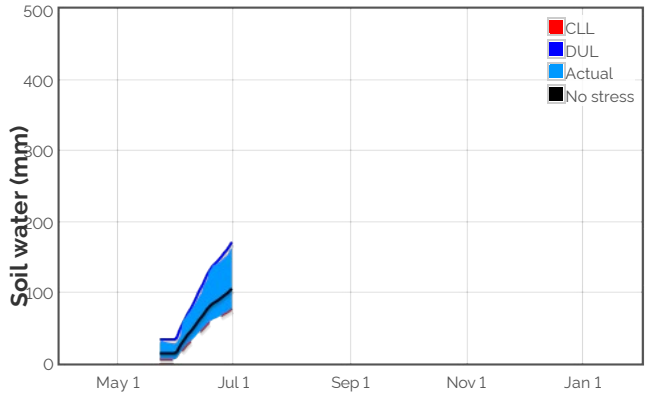
Median N mineralisation to maturity = 44.4910237300755 kg/ha
Median N tie up to maturity = 0 kg/ha

Current distribution of soil nitrogen (kg/ha)



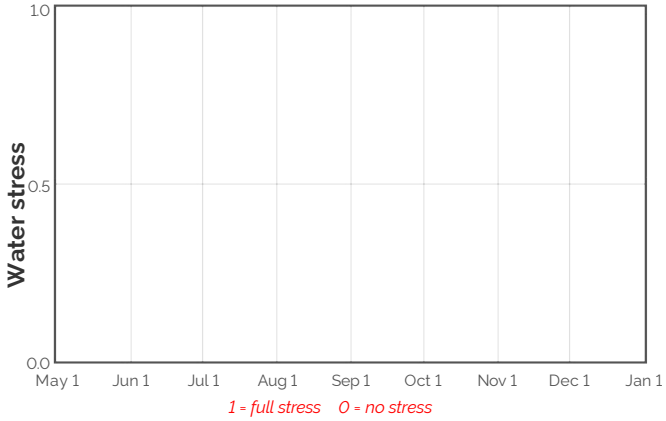
Current Crop Available N = 263 kg/ha
Total Soil N = 300 kg/ha

Availability of Water to Growing Roots



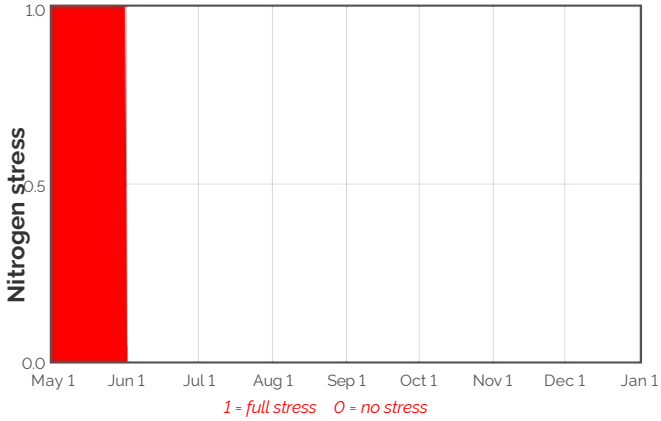
Availability of Soil Nitrogen to Growing Roots

Water Stress



1 = full stress 0 = no stress

Nitrogen Stress



1 = full stress 0 = no stress

Brief periods of mild to moderate stress do not necessarily lead to reduced yield. To see the likely impacts of additional nitrogen fertiliser rates use the Nitrogen and Nitrogen Profit reports.

Median projected crop performance and requirements for the next 10 days assuming no rain and no added fertiliser

Date	Growth Stage	Evap. (mm)	Water use (mm)	N use (kg/ha)	Water avail. to roots above stress threshold (mm)	Water avail. to roots above CLL (mm)	N avail. to roots (kg/ha)	Mineralisation (kg/ha)	N tie up (kg/ha)
2-Jul	13.5	0.4	0.2	-0.6	57.9	86.7	266.8	0.2	0.0
3-Jul	13.6	0.4	0.1	-0.6	58.4	87.8	270.4	0.2	0.0
4-Jul	13.7	0.4	0.2	-0.7	58.8	88.8	273.8	0.2	0.0
5-Jul	13.8	0.4	0.2	-0.7	59.1	89.7	276.4	0.2	0.0
6-Jul	13.9	0.3	0.2	-0.8	59.2	90.4	277.0	0.2	0.0
7-Jul	14.0	0.3	0.2	-0.9	59.3	91.1	277.4	0.2	0.0
8-Jul	14.1	0.3	0.2	-0.9	59.4	91.7	277.8	0.2	0.0
9-Jul	14.2	0.3	0.2	-1.0	59.4	92.2	278.0	0.2	0.0
10-Jul	14.2	0.3	0.2	-1.0	59.5	92.8	278.4	0.2	0.0
11-Jul	14.3	0.3	0.3	-1.2	59.5	93.4	278.6	0.2	0.0

The water available to roots above the stress threshold is the amount of PAW (mm) above one third of the total water holding capacity of this soil. If the water values are below this stress threshold the water available to roots above the stress threshold will be negative.

Bureau of Meteorology Seasonal and Monthly Outlooks