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# Crop Report

16-Sep-2024

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Crop: Wheat

Cultivar: Vixen

Sowing details: 200 plants/$m^2$ on 1-Jun

Expected maturity date: 2-Dec

Paddock Details

Initial conditions date: 26-Feb

Soil: Clay Loam over Loamy Medium Clay (Yeelanna No590)
1200 mm max rooting depth

Stubble: 1500 kg/ha of Canola
No till

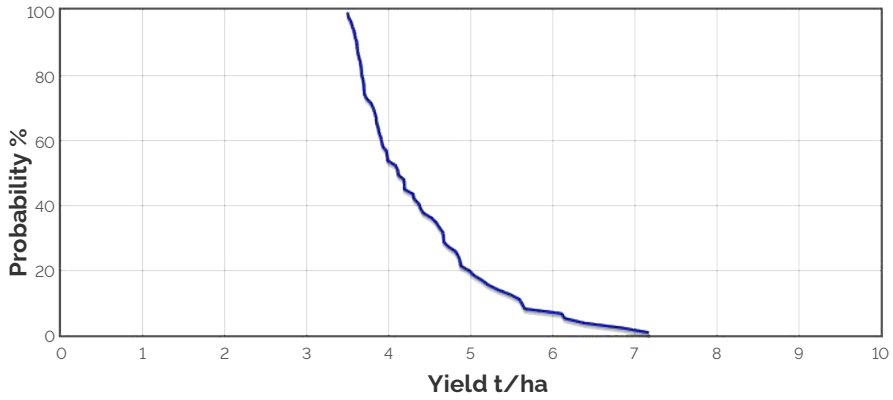
## Grain Yield Outcome

☑ Nitrogen limited Yield

☐ Nitrogen limited Yield with Frost and heat Effects

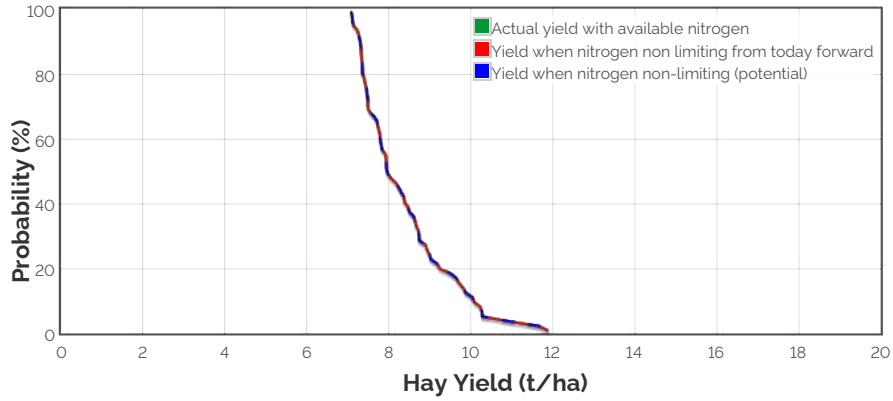
☑ Water limited Yield

☐ 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.

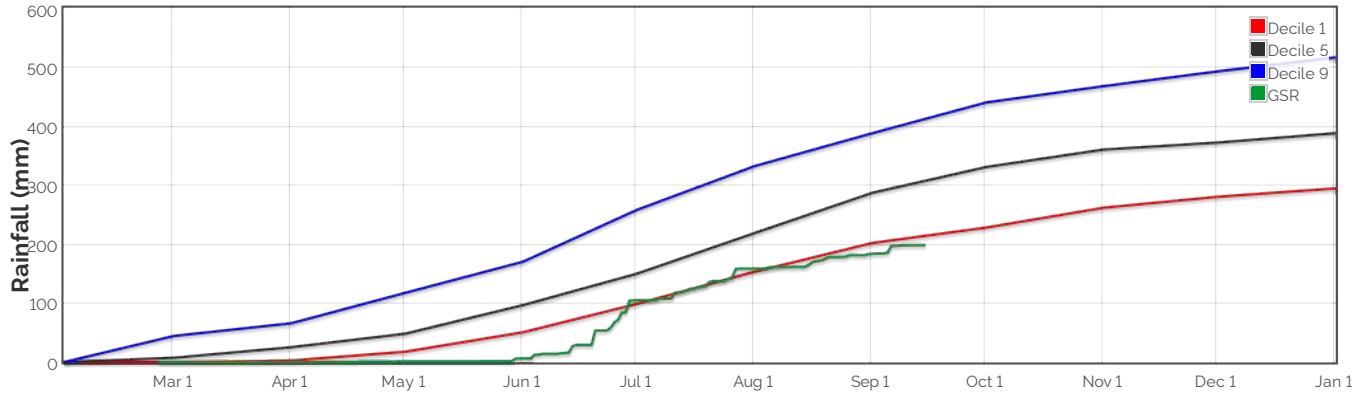
## Hay Yield Outcome




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: 7450.977257728888kg/ha

## 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<br>1st tiller | 4th leaf<br>early tillering | 5th leaf<br>mid tillering | 6th leaf<br>late tillering |
| Predicted | | | | | | |
| Earliest | 14-Jun | 22-Jun | 3-Jul | 13-Jul | 23-Jul | 2-Aug |
| Median | 14-Jun | 22-Jun | 3-Jul | 13-Jul | 23-Jul | 2-Aug |
| Latest | 15-Jun | 22-Jun | 3-Jul | 13-Jul | 23-Jul | 3-Aug |

| | GS30 | GS31 | GS32 | GS37 | GS39 | GS45 | GS55 | GS65 | GS75 |
|---|---|---|---|---|---|---|---|---|---|
| | end of<br>tillering | 1st node | 2nd node | flag leaf | flag leaf<br>fully<br>emerged | mid booting | mid<br>head<br>emergence | mid<br>flowering | mid<br>dough<br>fill |
| Predicted | | | | | | | | | |
| Earliest | 7-Aug | 12-Aug | 15-Aug | 24-Aug | 24-Aug | 5-Sep | 22-Sep | 28-Sep | 14-Oct |
| Median | 7-Aug | 12-Aug | 15-Aug | 24-Aug | 24-Aug | 5-Sep | 24-Sep | 30-Sep | 18-Oct |
| Latest | 8-Aug | 14-Aug | 16-Aug | 24-Aug | 25-Aug | 6-Sep | 27-Sep | 3-Oct | 22-Oct |

## Probability and Incidence of Frost and Heat Shock

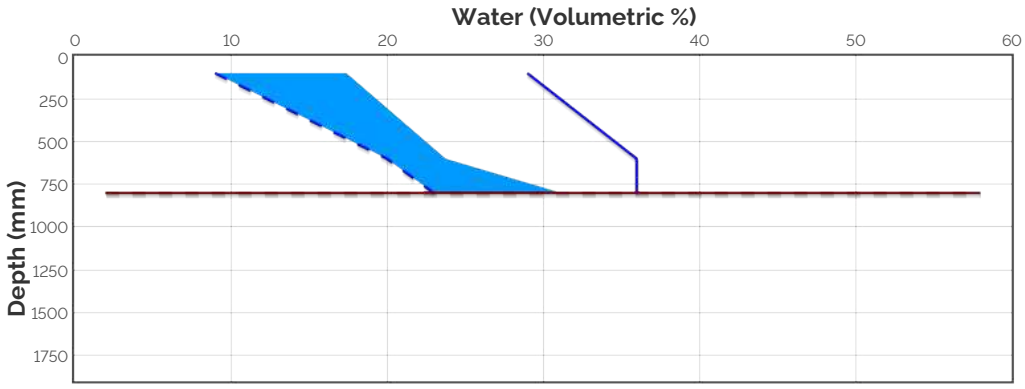
### Frost damage during flowering

| | Probability | This Season |
|---|---|---|
| mild<br>2 to 0°C during flowering | 2% | 0 |
| moderate<br>0 to -2°C during flowering & early grain fill | 2% | 0 |
| severe<br>Less than -2°C during flowering & grain fill | 0% | 0 |

### Heat damage during grain fill

| | Probability | This Season |
|---|---|---|
| mild<br>32 to 34°C | 39% | 0 |
| moderate<br>34 to 36°C | 26% | 0 |
| severe<br>Above 36°C | 10% | 0 |

## Current Distribution of PAW



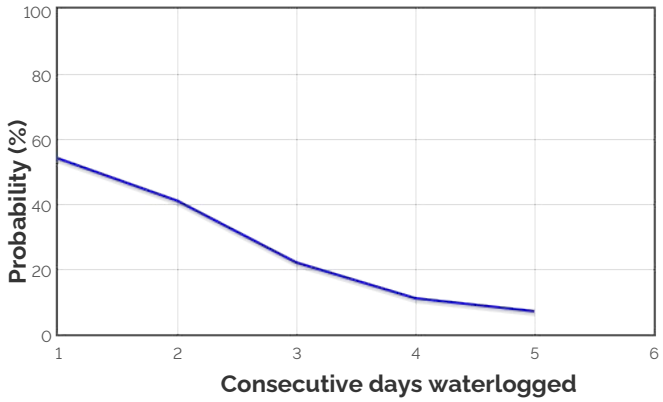

Current root depth = 800 mm
Median final root depth = 800 mm
Current crop PAW available to roots = 44 mm
Total Soil PAW = 44 mm
PAWC = 126 mm

**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 @ 26-Feb | 98 mm |
| Rainfall since 26-Feb | 198.3 mm |
| Irrigations | |
| Evaporation since 26-Feb | 91 mm |
| Transpiration since 26-Feb | 130 mm |
| Deep drainage since 26-Feb | 46 mm |
| Run-off since 26-Feb | 2 mm |
| **Current PAW status:** | **44 mm** |

## Probability of Future Waterlogging Events

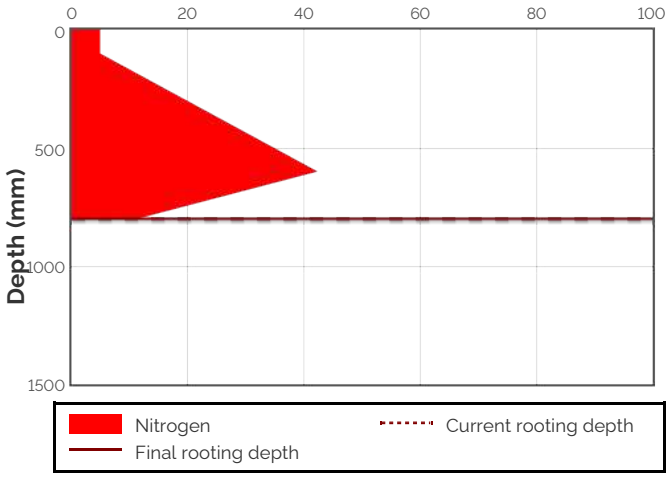



## Nitrogen Budget

| | |
|---|---|
| Initial N status @ 26-Feb | 104 kg/ha |
| N mineralisation since 26-Feb | 58 kg/ha |
| N tie up since 26-Feb | 0 kg/ha |
| N applications | |
| | 7-May : 22 kg/ha |
| | 25-Jun : 42 kg/ha |
| | 25-Jul : 47.3 kg/ha |
| Total N in plant | 203 kg/ha |
| De-nitrification since 26-Feb | 0 kg/ha |
| Leaching since 26-Feb | 21 kg/ha |
| **Current N status:** | **61 kg/ha** |

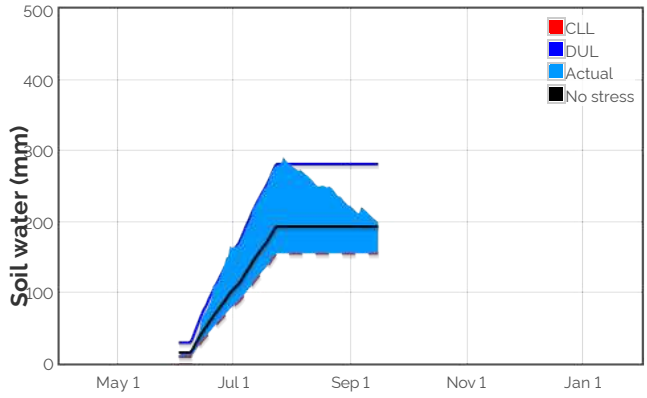
Median N mineralisation to maturity = 46.6132591542492 kg/ha
Median N tie up to maturity = 0 kg/ha

## Current distribution of soil nitrogen (kg/ha)

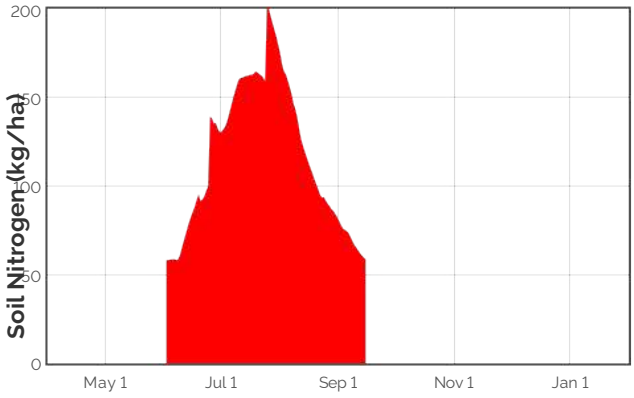



Current Crop Available N = 59 kg/ha
Total Soil N = 61 kg/ha

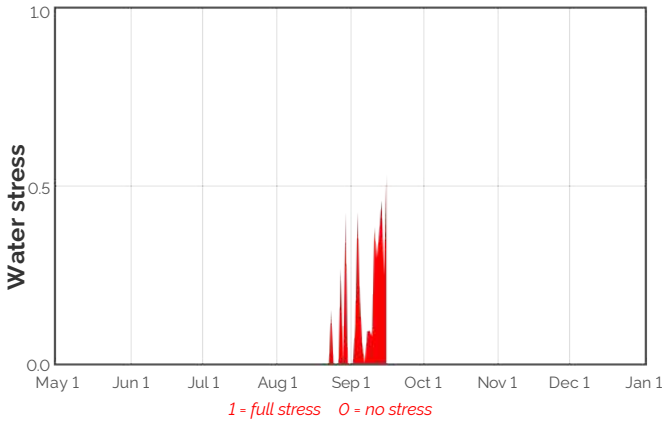
## Availability of Water to Growing Roots



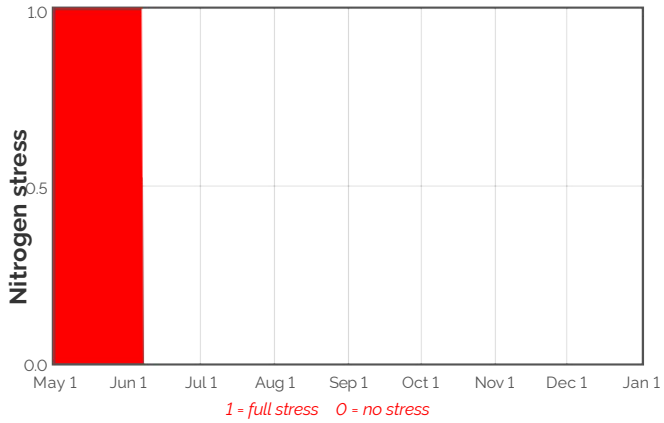

## Availability of Soil Nitrogen to Growing Roots




## Water Stress




## Nitrogen 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) |
|---|---|---|---|---|---|---|---|---|---|
| 17-Sep | 51.3 | 0.6 | 2.7 | -1.0 | 3.6 | 41.3 | 58.5 | 0.3 | 0.0 |
| 18-Sep | 51.8 | 0.6 | 2.5 | -0.8 | 1.6 | 39.4 | 57.9 | 0.3 | 0.0 |
| 19-Sep | 52.4 | 0.6 | 2.6 | -0.7 | -0.2 | 37.7 | 57.4 | 0.3 | 0.0 |
| 20-Sep | 52.8 | 0.5 | 2.7 | -0.1 | -2.0 | 35.8 | 57.4 | 0.3 | 0.0 |
| 21-Sep | 53.4 | 0.4 | 2.8 | 0.0 | -3.8 | 34.0 | 57.5 | 0.3 | 0.0 |
| 22-Sep | 54.0 | 0.4 | 2.8 | 0.0 | -5.4 | 32.4 | 57.6 | 0.3 | 0.0 |
| 23-Sep | 54.6 | 0.4 | 2.4 | 0.0 | -6.7 | 31.1 | 57.8 | 0.3 | 0.0 |
| 24-Sep | 55.4 | 0.3 | 2.5 | 0.0 | -8.0 | 29.8 | 58.0 | 0.3 | 0.0 |
| 25-Sep | 57.2 | 0.3 | 2.5 | 0.0 | -9.1 | 28.6 | 58.0 | 0.3 | 0.0 |
| 26-Sep | 58.9 | 0.3 | 2.6 | 0.0 | -10.2 | 27.6 | 58.2 | 0.3 | 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