

Yield prophet performance in 2008

Key findings

- In the last simulation on 25th September, it was predicted there was a 50% chance of reaping at least 1.5t/ha of wheat at Hart, the actual wheat grain yield was 1.4t/ha.
- At no point during the 2008 growing season did the yield prophet simulation predict final wheat yields to be greater than 3.5t/ha, even at the highest level of risk (20%).

Why do the trial?

Wheat growth models such as APSIM are highly valuable in their ability to predict wheat yield.

Yield Prophet® is an internet based service using the APSIM wheat prediction model. The model relies on accurate soil character information such as plant available water and soil nitrogen levels, as well as historical climate data and up to date local weather information to predict plant growth rates and final hay or grain yields.

How was it done?

Seeding date 15th May 2008 **Fertiliser** DAP @ 50kg/ha + 2% Zn

Variety Clearfield JNZ

Soil samples were taken for soil nitrogen and moisture on the 22nd May 2008.

Table 1: Soil conditions at Hart, 22nd May 2008.

| | |
|-------------------------|----------|
| Available soil moisture | 0mm |
| Initial soil N | 72 kg/ha |

Yield Prophet simulations were run throughout the season to track progress of wheat growth stages and changes in grain yield predictions.

Results

The Clearfield Janz wheat grain yield was 1.4t/ha.

At the first simulation (6th July 2008) yield prophet predicted that there was a 50% chance of reaping 1.75t/ha. 27mm of rainfall between the 7th and 12th July improved the yield prediction by 0.8t/ha. The predicted yield at the 50% level dropped back to 2.4t/ha and then remained constant until 26th August (Figure 1).

Throughout the growing season the yield prophet simulations at the 50% level were generally 20% higher than the final grain yield.

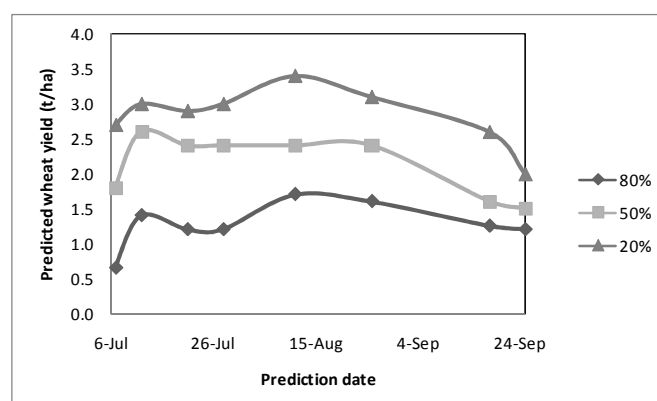


Figure 1: Yield prophet yield predictions from 7th July to 24th September for JNZ wheat sown on 15th May with 50kg/ha DAP. 80%, 50% and 20% represent the chance of reaching the corresponding yield at the date of the simulation.

Plant available water (PAW) did not exceed 45mm to a depth of 1.0m throughout the growing season at Hart. At the time of the first simulation PAW was 0mm (Figure 2). By the end of September PAW fell back to 0mm and crop water stress was high (Figure 3).

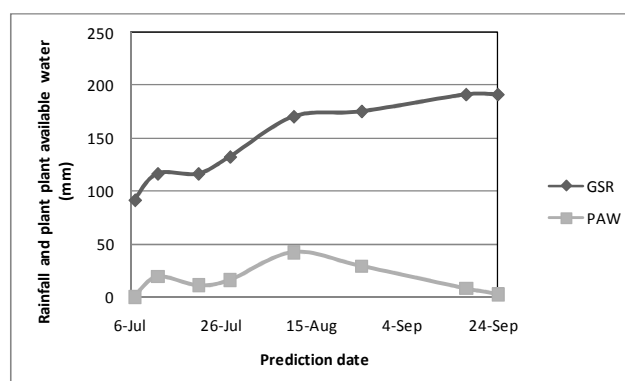


Figure 2: Predicted plant available water and cumulative growing season rainfall from 6th July to 24th September at Hart in 2008.

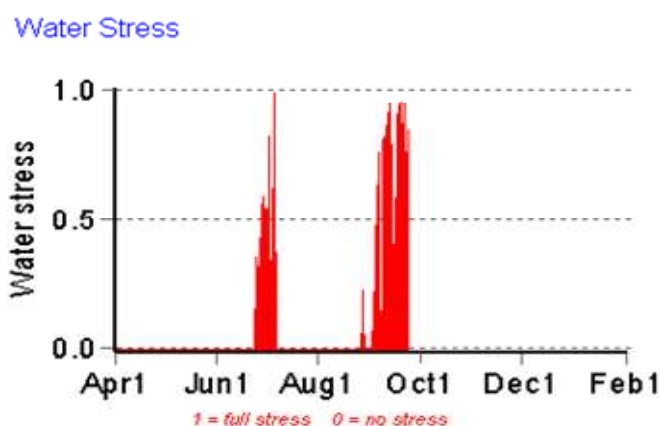


Figure 3: Predicted crop water stress for Clf JNZ at Hart in 2008