

Yield Prophet® performance in 2015

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Key findings

- Yield prophet closely predicted a final grain yield of 4.2 t/ha for Mace wheat at Hart.
- The lack of in-season rainfall in June and July meant the difference between 20% and 80% of years was only 1.5 – 2 t/ha during this time.

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.

This early prediction of grain yield potential means it can be used to directly influence crop input decisions. No other tool is currently available to growers, which can provide information of this accuracy at such a useful time of the season.

How was it done?

Seeding date	1 st May 2015	Fertiliser	30 kg N/ha 1 st May 30 kg N/ha 21 st July
Variety	Mace wheat @ 180 plants per square metre		

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

20%, 50% and 80% levels of probability refer to the percentage of years where the corresponding yield estimate would have been met, according to the previous 100 years of rainfall data.

Results

At the first simulation, 5th June 2015 Yield Prophet® predicted that Mace wheat sown on the 1st May would yield 5.2 t/ha in 50% of years (Figure 1). After below average rainfall in June it is not surprising that this yield prediction dropped to 4.1 t/ha on 1st July simulation. This yield prediction was closely maintained up until the end of October.

The Yield Prophet® simulation on the 28th September for grain yield, given an average (50%) finish to the season, was 4.2 t/ha, only 0.2 t/ha above the finish for 80% of years. The actual grain yield for Mace wheat sown on the 6th May at Hart in 2015 closely aligned with the predication at 4.3 t/ha.



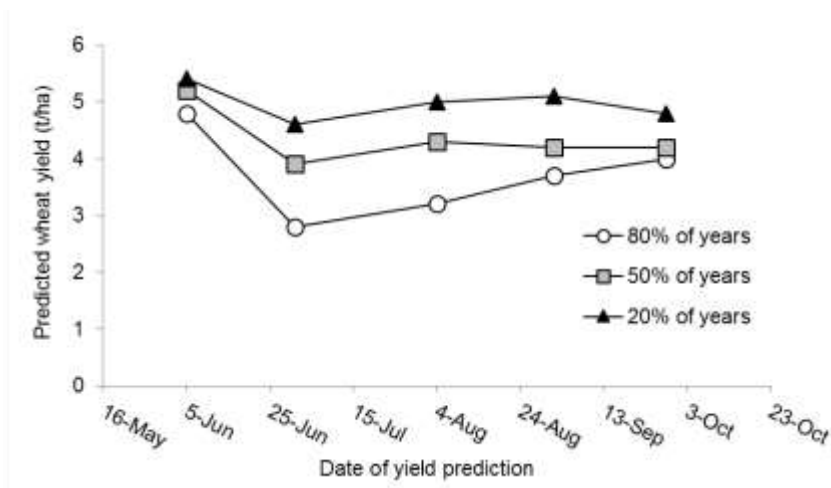


Figure 1. Yield Prophet® predictions from 5th June to the 28th September for Mace wheat sown on the 1st May, 2015. 80%, 50% and 20% represent the chance of reaching the corresponding yield at the date of the simulation.

Plant available water (PAW) (0-90 cm) when the first simulation was run at the beginning of June was 52 mm (Figure 2). This was 46 mm less stored moisture compared to the same time in 2014. Plant available water remained steady across June and July as any rainfall received was used by the crop and not available for storage. From early August the bucket increased to 70 mm and was maintained at this level until early September. With no additional rain after the end of September the PAW decreased. As seen in 2014, the 2015 season favoured earlier districts. Additional rainfall in many of the later districts was required to finish the season and reduce screening levels, although generally grain yield and quality were good in areas unaffected by frost damage.

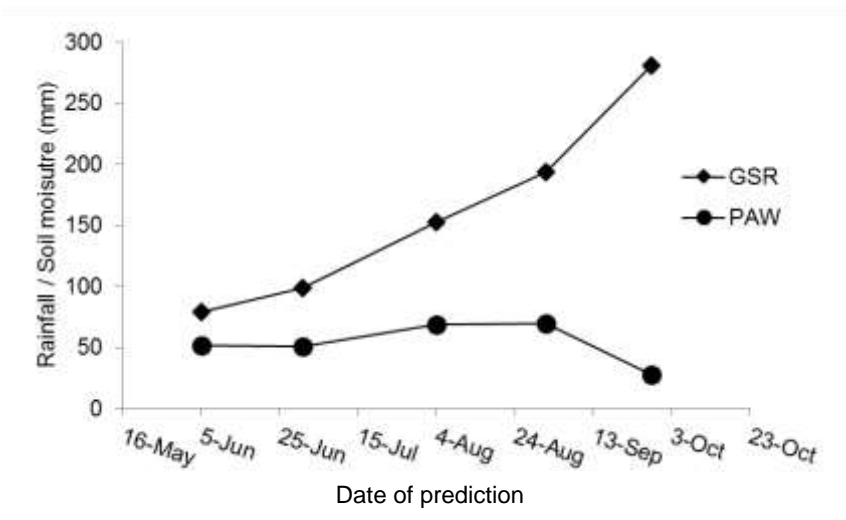


Figure 2. Predicted plant available water (PAW) and recorded cumulative growing season rainfall from 19th of June to 13th of October at Hart in 2015.