

# Yield Prophet<sup>®</sup> performance in 2013

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## Key findings

- Yield prophet accurately predicted a final grain yield of Mace wheat near 4.7 t/ha.

## Why do the trial?

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

Yield Prophet<sup>®</sup> 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?

<b>Seeding date</b>	1 <sup>st</sup> May 2013	<b>Fertiliser</b>	30 kg N/ha 1 <sup>st</sup> May 35 kg N/ha 20 <sup>th</sup> July
<b>Variety</b>	Mace wheat @ 180 plants per square metre		

Yield Prophet<sup>®</sup> 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

The grain yield for Mace wheat sown on the 1<sup>st</sup> May at Hart in 2013 was 4.7 t/ha. This final grain yield closely matched the Yield Prophet<sup>®</sup> prediction (Figure 1) of 5.0 t/ha, made in mid-August.

At the first simulation, 24<sup>th</sup> June 2013, the Yield Prophet<sup>®</sup> simulation predicted that Mace wheat sown on the 1<sup>st</sup> May would yield 4.6 t/ha in 50% of years. The predicted grain yield then increased by 0.5 t/ha by the 23<sup>rd</sup> of July due to an increase in rainfall of almost 70 mm. This yield was closely maintained up until early October.

The Yield Prophet<sup>®</sup> simulation on the 1<sup>st</sup> October for grain yield, given an average (50%) finish to the season, was 5.0 t/ha as was the finish for 80% of years. For majority of the season Hart rainfall ranged from decile 8 to 9 which meant the variation in grain yield between 20%, 50% and 80% of years was reduced compared to drier seasons (Figure 1).

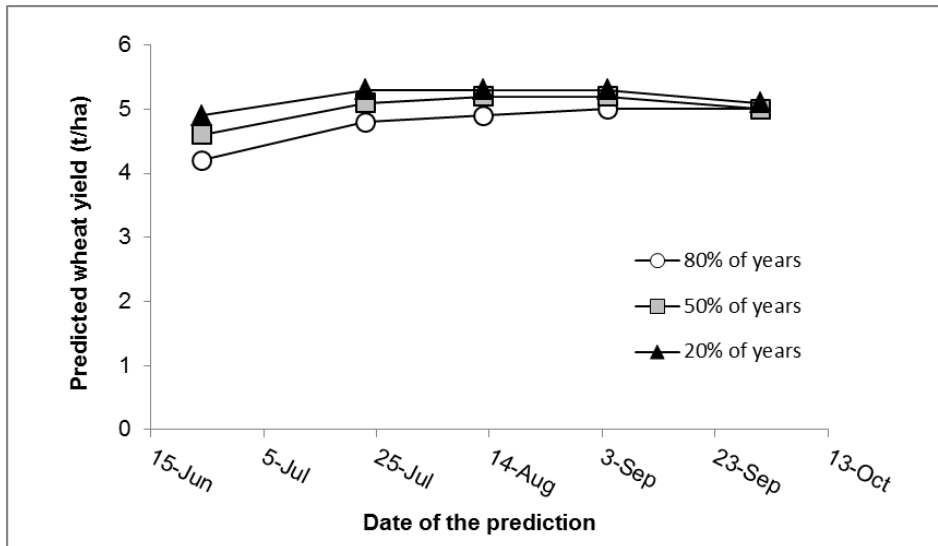


Figure 1. Yield Prophet® predictions from 26<sup>th</sup> June to the 1<sup>st</sup> October for Mace wheat sown on the 1<sup>st</sup> May. 80%, 50% and 20% represent the chance of reaching the corresponding yield at the date of the simulation.

At time of sowing, plant available water (PAW) measured 0 mm (0-90 cm) due to the lack of summer rainfall at the end of 2012 and start of 2013. Plant available water had increased significantly when the first Yield Prophet® simulation was run on 26<sup>th</sup> of June (Figure 2). Plant available water slowly decreased until mid-August due to lack of rainfall towards the end of the season. At the final simulation date of 1<sup>st</sup> of October there was still 59 mm of PAW (Figure 2). The 2013 season favoured earlier districts resulting in above average yields and grain quality. 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.

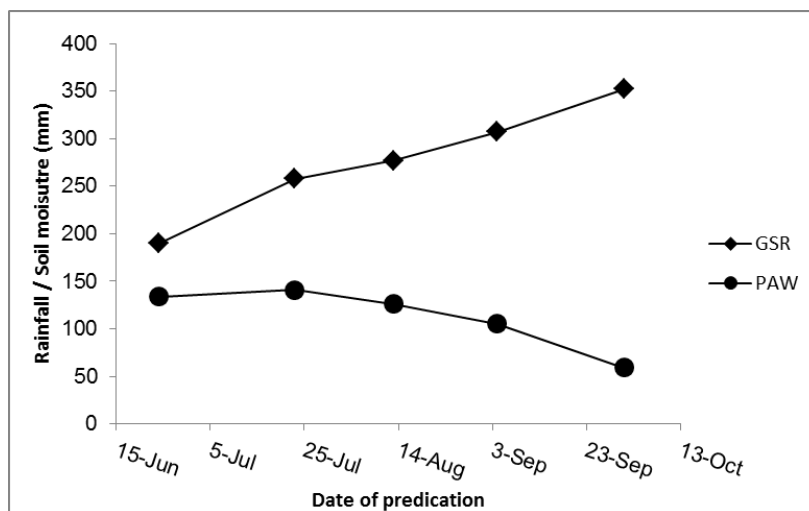


Figure 2. Predicted plant available water (PAW) and recorded cumulative growing season rainfall from 26<sup>th</sup> of June to 1<sup>st</sup> of October at Hart in 2013.