

Soil Moisture Probe Update

The graphs below show the latest information from the moisture probes at our Wangary and Cummins trial sites.

The top panel with a single line is the **Summed Graph** and shows the total soil moisture in the metre profile. The figure is an *interpolated sum*, meaning that the software calculates a continuous moisture figure down the whole depth of the probe, not just for the 6 sensors taking readings. It gives an approximation of the total soil moisture in mm, however not all of this moisture is potentially available to plant roots.

The lower panel with different coloured lines is a **Stacked Graph**. This graph shows moisture at each of the of the sensor depths, in this case 10, 20, 30, 50, 70 and 100cm.

As the crop begins to grow more vigorously and draw on the soil moisture reserves, this will be evident on the graphs as **daily stepping**, known as **diurnal fluctuation**. Diurnal fluctuation is the daily cycle of moisture movement where by roots extract moisture during the day and the graph moves downward (photosynthesis/transpiration happening) and then during the night the plants shut down. The further we move into spring, the steps during the day will get bigger as the plant uses more moisture.

The probe installed at the Cummins cereal trial site at Peter Minhard's is currently showing 435mm of total soil moisture (26th August), with the last major rainfall events infiltrating to 70cm (Figure 2).

The Landmark demonstration probe at Yeelanna (opposite silos) is currently showing 420mm of total soil moisture, with the latest rainfall soaking in to 100cm.

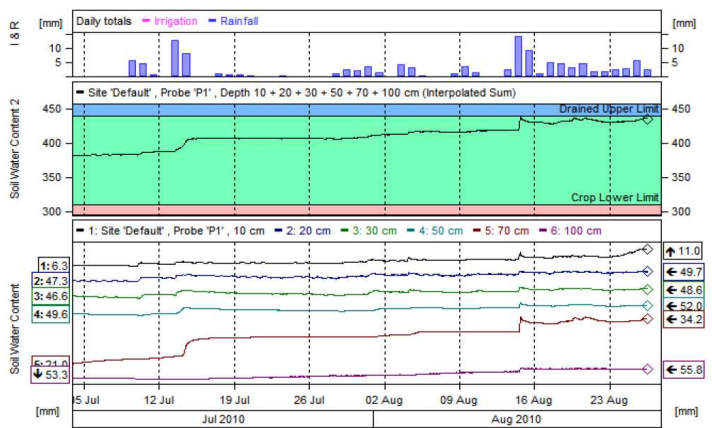


Figure 2. Moisture probe data for Cummins cereal trial site at Peter Minhard's property (Wyalkatchem wheat sown 1st June).

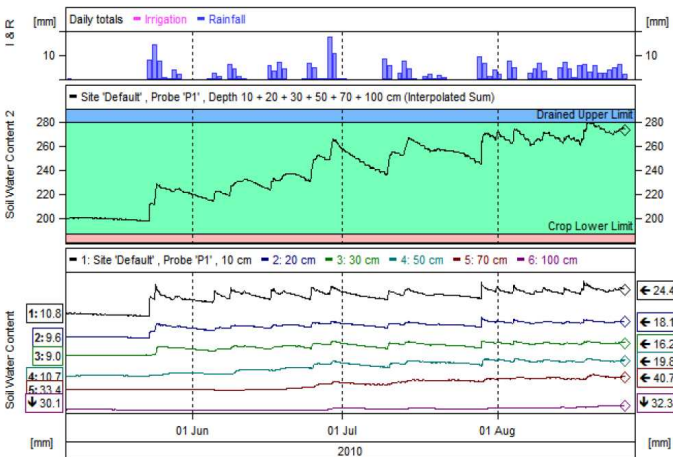


Figure 1. Moisture probe data for Wangary canola trial site at John & Simon Giddings' Property. (Hyola 50 Canola sown 3rd May)

As of the 26th August, the summed graph shows there is approximately 270mm of stored moisture over the 1m profile at the Wangary site (Figure 1) with rainfall on the 28th July and 19th August infiltrating down to 70cm. Stepping can be seen on the graph as the crop starts to draw moisture, prior to rainfall re-filling the profile.

The data from all three probes suggests that the soil profile is relatively full of moisture. There also looks to be fair amounts of moisture at depth, which will be 'fuel in the tank' for grain filling later in the season.

How much of this water is plant available is unknown at this stage, but as we get more years data we will be able to assess where the 'Full Point' and 'Onset of Stress' points are for each site, giving us a better idea of how our crops are travelling and helping with decisions such as nitrogen applications. We have put some full and empty points on these graphs as an example, assuming the profile would be near to saturated following recent rains, and that it was near empty with dry conditions at sowing. Trial site moisture probe data can be viewed on the web at www.cumminsag.com.au/site02

Farewell Billy Branson!!

We take this opportunity to thank Billy for his valued contribution to Landmark Cummins Ag Services and wish he and Tarnya all the best in their new business venture.

LANDMARK

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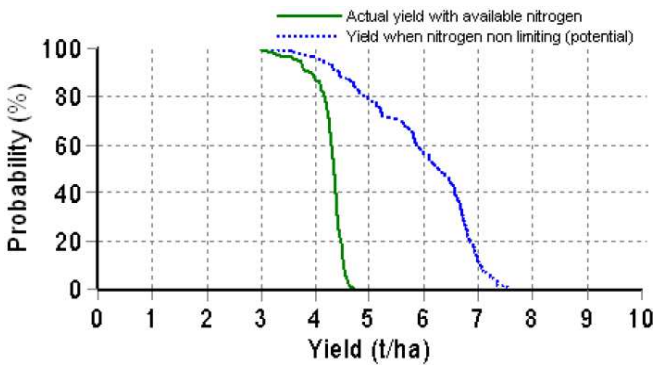
'We go the extra mile'

Yield Profit

We are running some Yield Prophet models in our trials at our Cummins site on Peter Minhard's property. Yield Prophet makes wheat yield predictions by taking into account your pre-season soil moisture; the weather conditions so far; soil N and agronomic inputs. Long term weather records are then used to simulate what would have happened from this date on in each of the past 100 years. The yield results are used to produce the graph below, which shows the probability of exceeding a range of yield outcomes this season.

This graph is based on the following (27/8):

Crop variety	Gladius @ 220 plants/m ²	Sowing date	27 th May
Nitrogen fertiliser at sowing	54kg N / Ha	Soil Type	Clay loam
Post Emergent Nitrogen	39kg N / Ha (16 Aug)	GSR to date	255mm



According to the graph, the trial plots that have had a total of 93 units of nitrogen have a 50% chance of yielding 4.4T/Ha. If more nitrogen were applied or available, these plots could have a 50% chance of yielding up to 6.5T/Ha. Yield prophet also makes predictions related to soil moisture, nitrogen and crop growth stages, some of which can be seen below.

Nitrogen & Water Predictions:

Soil N available prior to sowing*	75kg N /Ha	Plant available water prior to sowing*	11mm
Current predicted soil N	30kg N /Ha	Current predicted plant available water	112mm
Current predicted daily N use	0.5kg	Current predicted daily water use	2mm
Current growth stage	GS33 (3 rd Node)	Predicted date of heading (GS55)	19 th September

*Measured 25th March to 70cm.

We are looking at how this model may be used in conjunction with moisture probes and NDVI data, to help aid your crop input decisions.

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