



WEATHER OR NOT



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OVER AND OUT FOR 2015

The yields are in from the 2015 Weather or Not paddocks and this is the final edition for the year. Hopefully harvest is nearing completion on your farm too and you can enjoy Christmas with the header tucked away in the shed for another year.

THE LAST TWO MONTHS

This edition reports on one of the most important periods of the year: the finish. Spring is a notoriously volatile season and 2015 was no exception. At times it was too wet to windrow canola due to significant rains in early November, then hail

fell in some parts of the region on Friday the 13th of November. This was followed by hot, northerly winds in the following week. Many farmers surmised this heat bought ripening forward for all crop types this year.

Canola and barley yields have been above average in many parts of the region and wheat wasn't far behind.

THE INDIAN OCEAN DIPOLE

2015 highlighted, once again, how a number of factors and weather systems will influence rainfall on our vast continent. Despite the third strongest El Niño event in the past 50 years, good rainfall leading into planting a quite wet winter and late spring/early summer

rainfall events. It appears that the Indian Ocean was the reason with record warm water contributing to average rainfall from early October to now.

As for next year, El Niño has hit its peak and is predicted to subside early 2016.





Just when this will occur, however, is still uncertain. What is clear are the statistics. Based on historical data, the Bureau of Meteorology has reported: an El Niño over summer has an equal chance of being wetter, average or drier. Also based on historical data, the year after an El Niño event has been 50% neutral, 38% La Niña and 12% El Niño.

At this time of year, the Bureau of Meteorology reports: "(t)he Indian Ocean Dipole has little influence on Australian climate between December and April. However, Indian Ocean sea surface temperatures remain very much warmer than average across the majority of the basin. This basin-wide warmth may provide extra moisture for rain systems across Australia."

Basically, the models aren't strong for predicting weather outcomes at this time of year, so take a well-earned break and enjoy time away from the farm. But be prepared for summer spraying if something does eventuate.

HOW DID YIELD PROPHET GO?

Yield Prophet simulations mimic the biological and physical process in crop growth and development for each year of the climate record to give an indication of crop yield potential and current crop resources. The estimates are based on optimal growing conditions that exclude frost, disease, weed competition, chemical and storm damage.

Farmers provided the yield from each paddock and the following graphs summarise the difference between the actual and predicted yields (with available nitrogen and yield when nitrogen is non limiting).

Figure 1 summarises the predicted and actual yields of the wheat paddocks featured in Weather or Not. The average difference between actual yield and Yield Prophet's prediction based on the N available (Predicted N limited) was 0.41 t/ha.

On an individual basis, Lockhart North showed the greatest difference between simulated and actual yield (1.73 t/ha) however the N unlimited and actual yield was only 0.63 t/ha apart suggesting a

potential error in soil testing for nitrogen. It appears the crop had access to nitrogen that Yield Prophet didn't take into account. As can happen, samples may have been taken from low N areas and were not representative of the paddock. In this case, it is recommended the sampling zone be reviewed prior to taking soil tests in this paddock again.

Predictions for the TAIC wheat paddock were acceptable but still 0.6 t/ha higher than the actual. The N unlimited yields were another 1.6 t/ha again. This indicates the crop could have potentially benefitted from additional N.

Beckom North and Dimaseer NE had yields close to those predicted by Yield Prophet. In the case of Dimaseer NE, it appears in retrospect, more N fertiliser could have been applied to realise yield potential. The fertiliser strategy looks 'spot on' at Beckom North. See the individual reports for more details.

Comparing predicted to actual yields of canola is notoriously more difficult because of the fragile nature of canola particularly at the windrowing and harvesting times.



As already indicated, the weather in November was particularly volatile. All canola yield summarised in Figure 2 show predicted yields higher than the actual yields. these crops did not escape the elements. The difference is significant and farmer observations confirmed that heat, wind and hail were potentially playing their part too.

MOISTURE PROBES

The soil moisture probes registered the significant rainfall in early November and were showing unused water in the profile at time of writing.

Some soil moisture sensors are measuring recharge at depth which places these paddocks in a good position for next year.

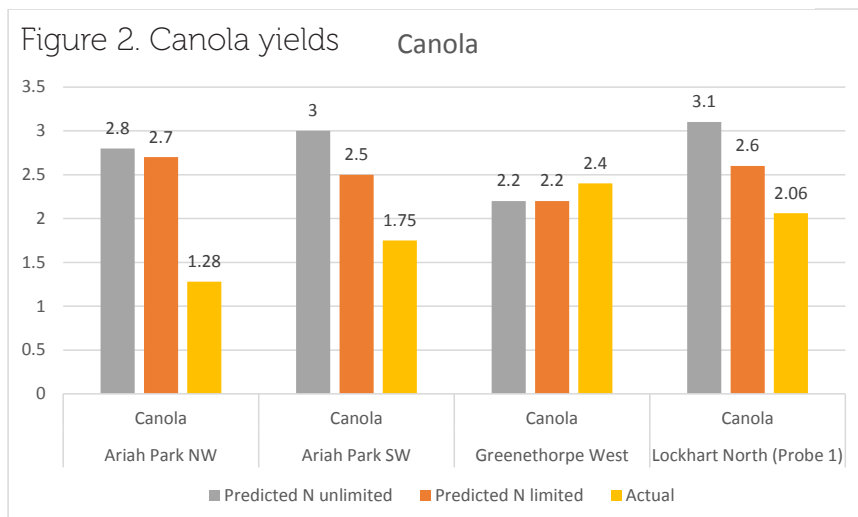
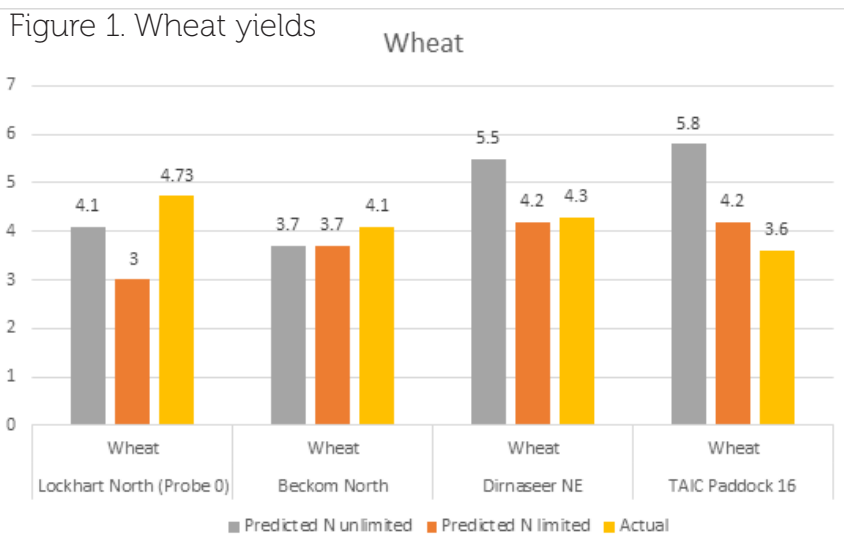
THANK YOU AND BEST WISHES

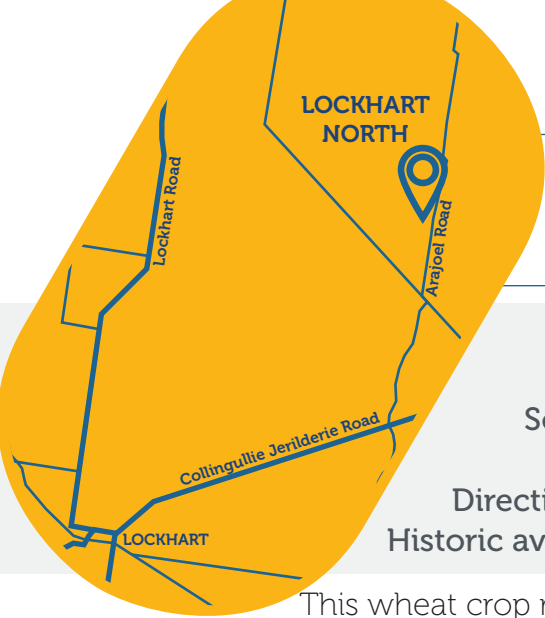
Sincere thanks to all the Weather or Not contributors with particular mention to the landowners: Michael and Renae Denyer, Paul and Linda Griffin, Sam and Matt Dart, Geoff, Liz and Adam Lane, Derek and Susan Ingold, Rob and Mandy Taylor, who faithfully supplied commentary and paddock information on a monthly basis.

Thanks also to the FarmLink staff, especially Kellie Jones, for their thorough approach and commitment to providing relevant information to the FarmLink members.

Geoffrey Minchin and Chris Minehan for providing a valuable district overview to help contextualise the results.

Have a safe and relaxing Christmas and all the best for planning in 2016.





LOCKHART NORTH (PROBE 0)

Crop type: wheat

Cultivar: Suntop

Sowing date: 12 May 2015

Soil type: sandy clay loam over light clay

Directional guide: -35.1036 | 146.8754

Historic average yield: wheat - 2.43t/ha

This wheat crop returned an average yield of 4.73 t/ha with 9.5% protein. This result was higher than the Yield Prophet predictions which consistently indicated that yield potential was being limited by lack of nitrogen. The farmer reported this crop was “never stressed” (for nitrogen) and given the actual yield and N unlimited yield was 0.73 t/ha different, a possible explanation for the

discrepancy may be due to sampling in low fertility areas of in the paddock that weren't representative of the whole paddock.

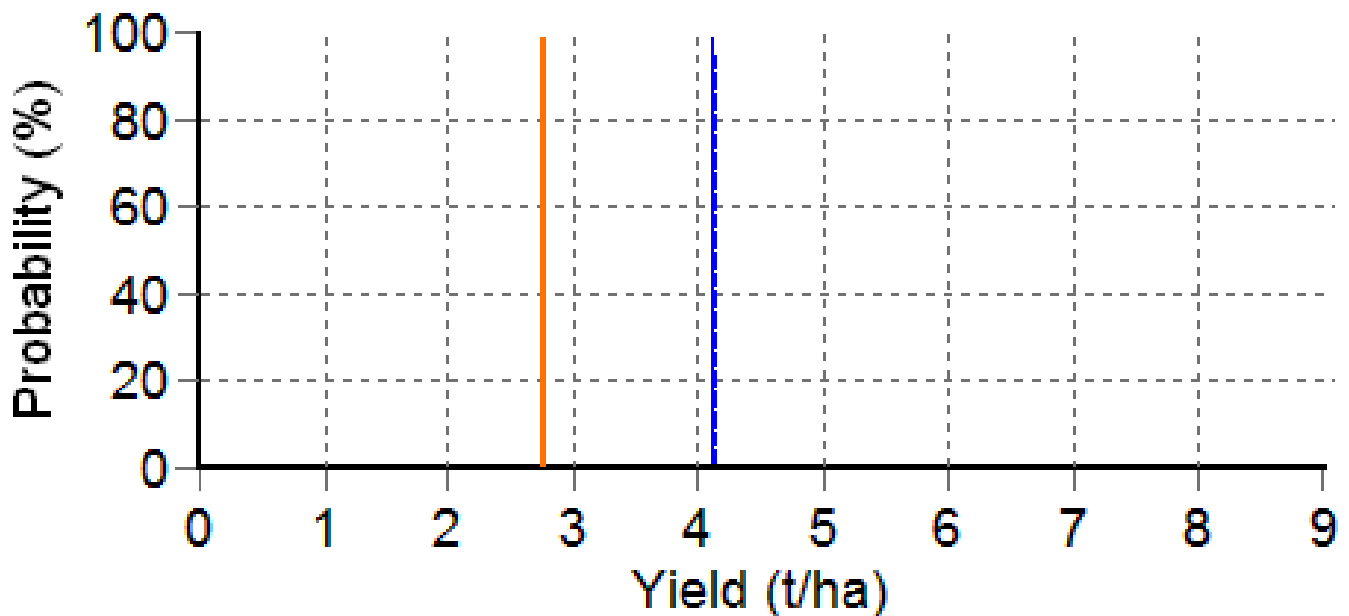
In summary: Predicted yield avail. N: 2.8 t/ha

Predicted yield N unlimited: 4.1 t/ha

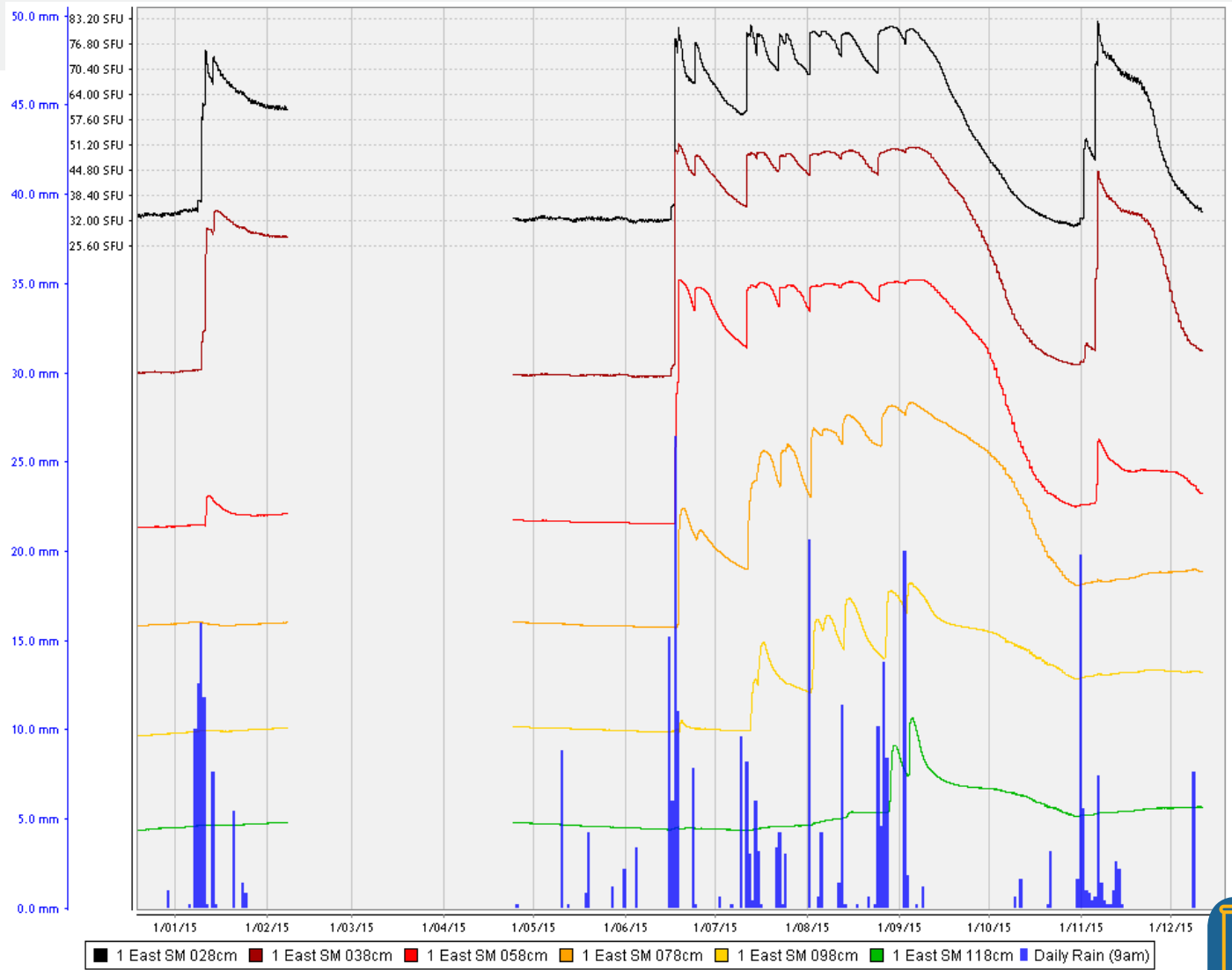
Actual yield: 4.7 t/ha

GRAIN YIELD OUTCOME

- Actual yield with available nitrogen
- Yield when nitrogen non limiting from today forward
- ... Yield when nitrogen non limiting (potential)



SOIL MOISTURE PROBE





ARIAH PARK NW (PROBE 1)

Crop type: canola
Cultivar: Stingray
Sowing date: 20 April 2015
Soil type: sandy clay
Directional guide: -34.2482 | 147.1984
Historic average yield: 1.2 t/ha

Yield Prophet predicted the final yield potential of this canola crop to be 2.7 t/ha. In the October edition Yield Prophet reported a 100% probability of getting this yield. This was over 1 t/ha higher than the reality where the average yield was 1.28 t/ha.

The discrepancy between predicted and actual yield could be due to weather. Stingray is a shorter standing variety and the farmer reported it may have been "blown around in windrows a fair bit", especially in comparison to the Gem canola variety which returned a 1.8 t/ha yield on the same property. Soil characteristics may need to be reviewed prior to using this paddock in Yield Prophet next year.



The soil moisture probe shows good soil moisture levels with the shallower sensors exhibiting readings close to reaching the drained upper limit at this time. The farmer reported a dry September and moisture draw down is clear down to 80 cm.

On the whole, soil moisture levels in this paddock have been excellent and further rains in November leaves this paddock in a good position for crop establishment in 2016. Summer weed control will be important to conserve the moisture.

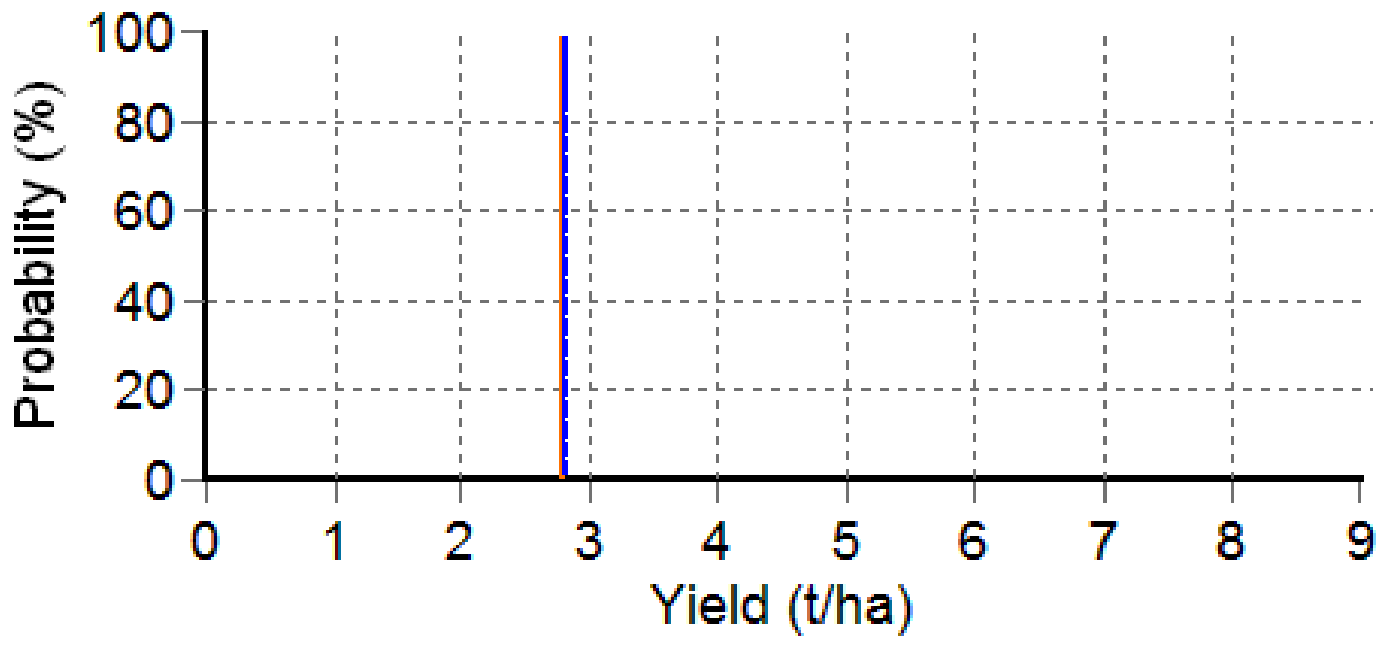
In summary:

Predicted yield for available and non limiting N: 3.0 t/ha

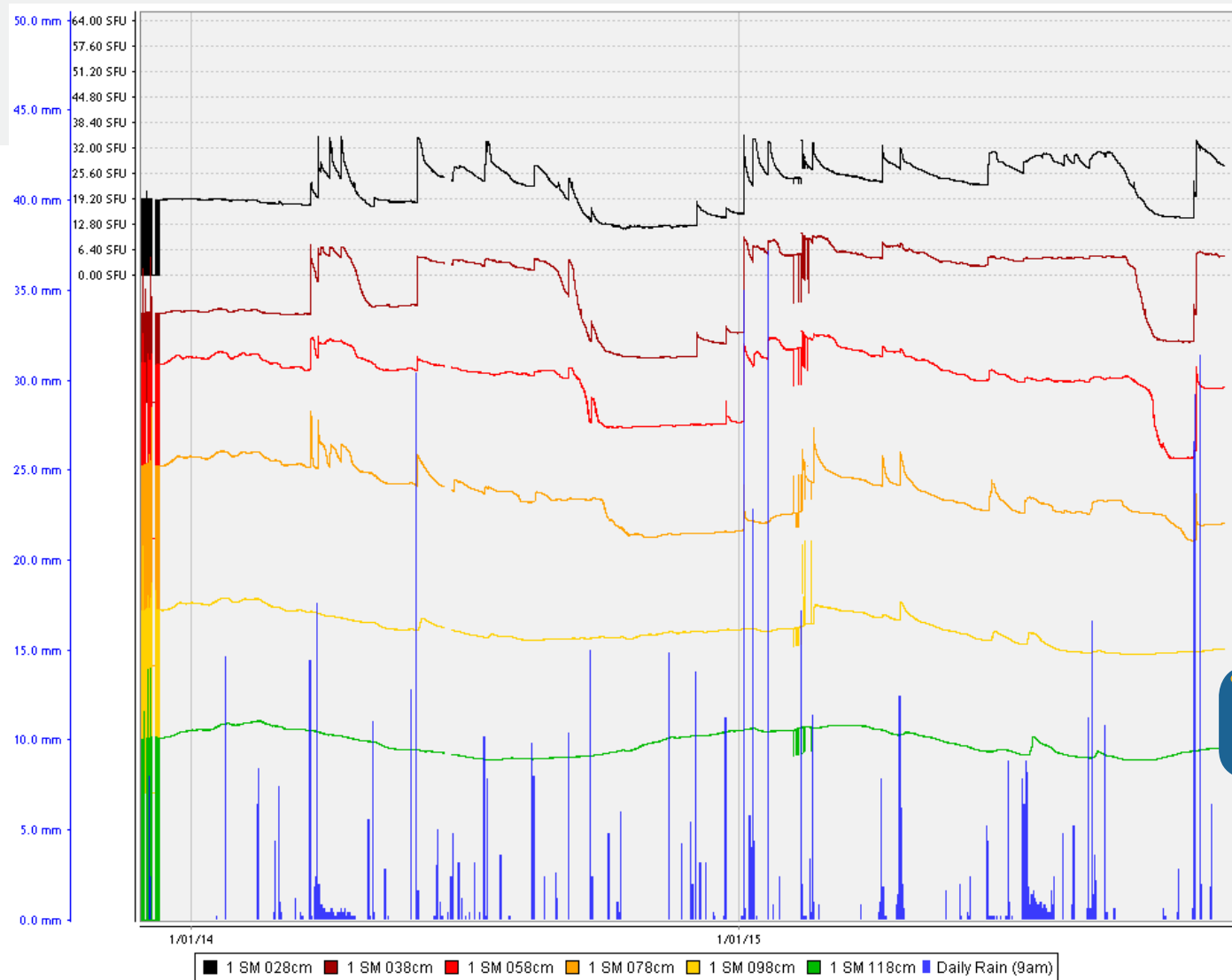
Actual yield: 1.3 t/ha

GRAIN YIELD OUTCOME

- Actual yield with available nitrogen
- Yield when nitrogen non limiting from today forward
- ... Yield when nitrogen non limiting (potential)



SOIL MOISTURE PROBE



ARIAH PARK SW (BLOCK 1 EAST PROBE)

Crop type: canola

Cultivar: 45Y86

Sowing date: 22 April 2015

Soil type: sandy loam changing to sandy clay at depth

Directional guide: -34.383 | 147.1494

Historic average yield: canola - 1.45t/ha

ARIAH PARK SW ARIAH PARK

Burley Griffin Way

Rogers Road

This paddock yielded a 1.75t/ha canola crop with 23% oil. With such a low oil content, it is evident this crop suffered from severe stress.

At the end of September, Yield Prophet predicted at 100% probability of receiving 2.5t/ha with the available N. This is close to the 2.0 t/ha canola the farmer expected.

Canola is notoriously vulnerable to the elements and the crop in this paddock was no exception. The farmer reported a total 23% hail claim with 10% damage from a hail storm in September then another 13% was lost in another hail storm that hit in mid-November.

The probe readings clearly show good moisture storage at the end of the growing season. Rainfall received late in the year was not utilised by the crop.

The farmer said using Yield Prophet with the moisture probe information helped him make the decision to make an early N application

In summary:

Predicted yield with available N: 2.5 t/ha

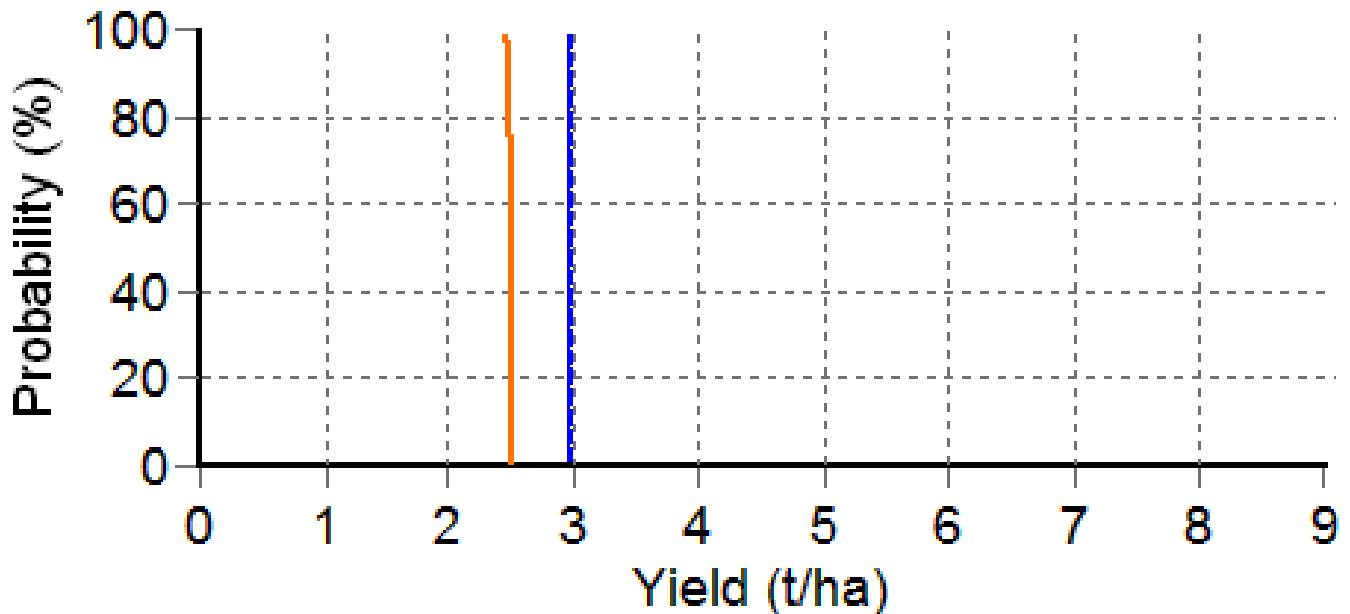
Predicted Yield with N unlimited: 3 t/ha

Actual yield: 1.75 t/ha

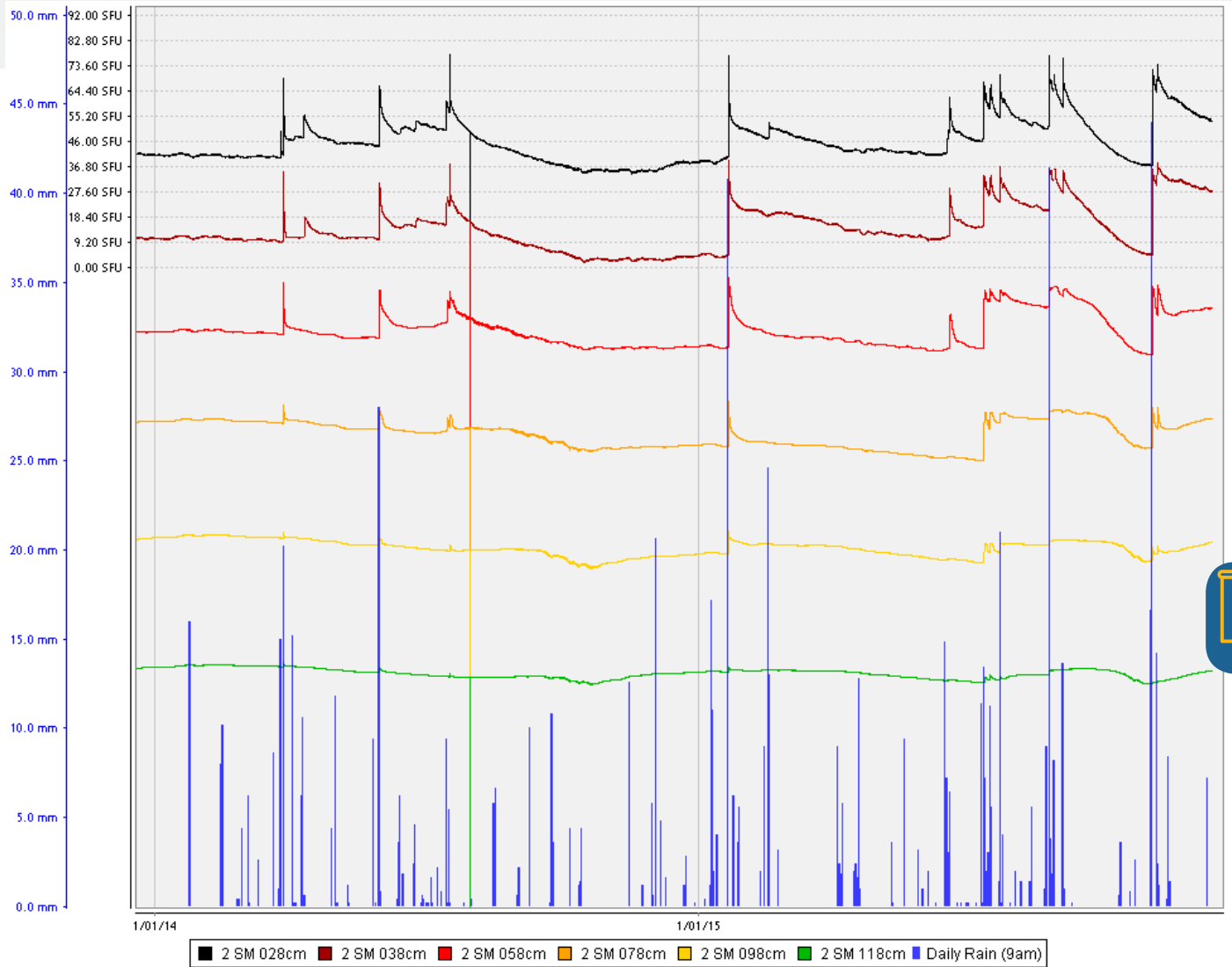


GRAIN YIELD OUTCOME

- Actual yield with available nitrogen
- Yield when nitrogen non limiting from today forward
- ... Yield when nitrogen non limiting (potential)



SOIL MOISTURE PROBE





BECKOM NORTH (PROBE A)

Crop type: wheat
Cultivar: condo
Sowing date: 19 May 2015
Soil type: sandy clay
Directional guide: -34.2895 | 146.9493
Historic average yield: wheat - 2.4t/ha

Yield Prophet predicted a 3.7 t/ha wheat crop with the available nitrogen. It actually yielded 4.1 t/ha, much higher than the long term average, and with 10% protein. That's a 0.4 t/ha difference which could be considered a reasonable outcome. That said, a protein value of 10% is an indication that higher quality grain could have been achieved with the addition of N later in the season because more N applied late in the season contributes more to grain quality, more N applied early in the season contributes to yield.

The farmer reported that Yield Prophet assisted his nitrogen fertiliser top dressing decision making where he refrained from applying more nitrogen because Yield Prophet

indicated there was an adequate supply in the soil.

The soil moisture probe information indicates considerable rainfall activity throughout the growing season with the exception of a dry September where moisture levels steadily dropped even down to the 80cm sensor. Soil moisture levels have recharged after rainfall in November therefore summer weed control will be important to conserve this moisture.

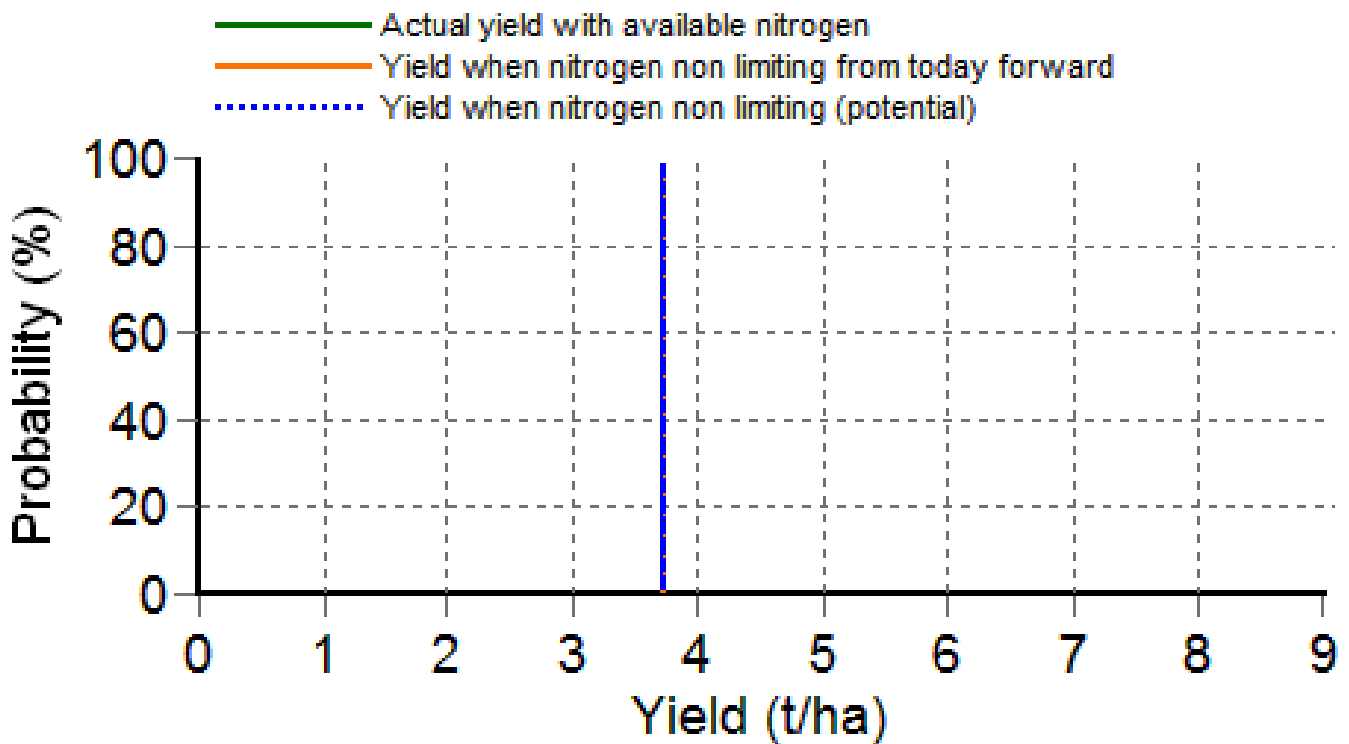
In summary:

Predicted yield with available and non limiting nitrogen: 3.7 t/ha

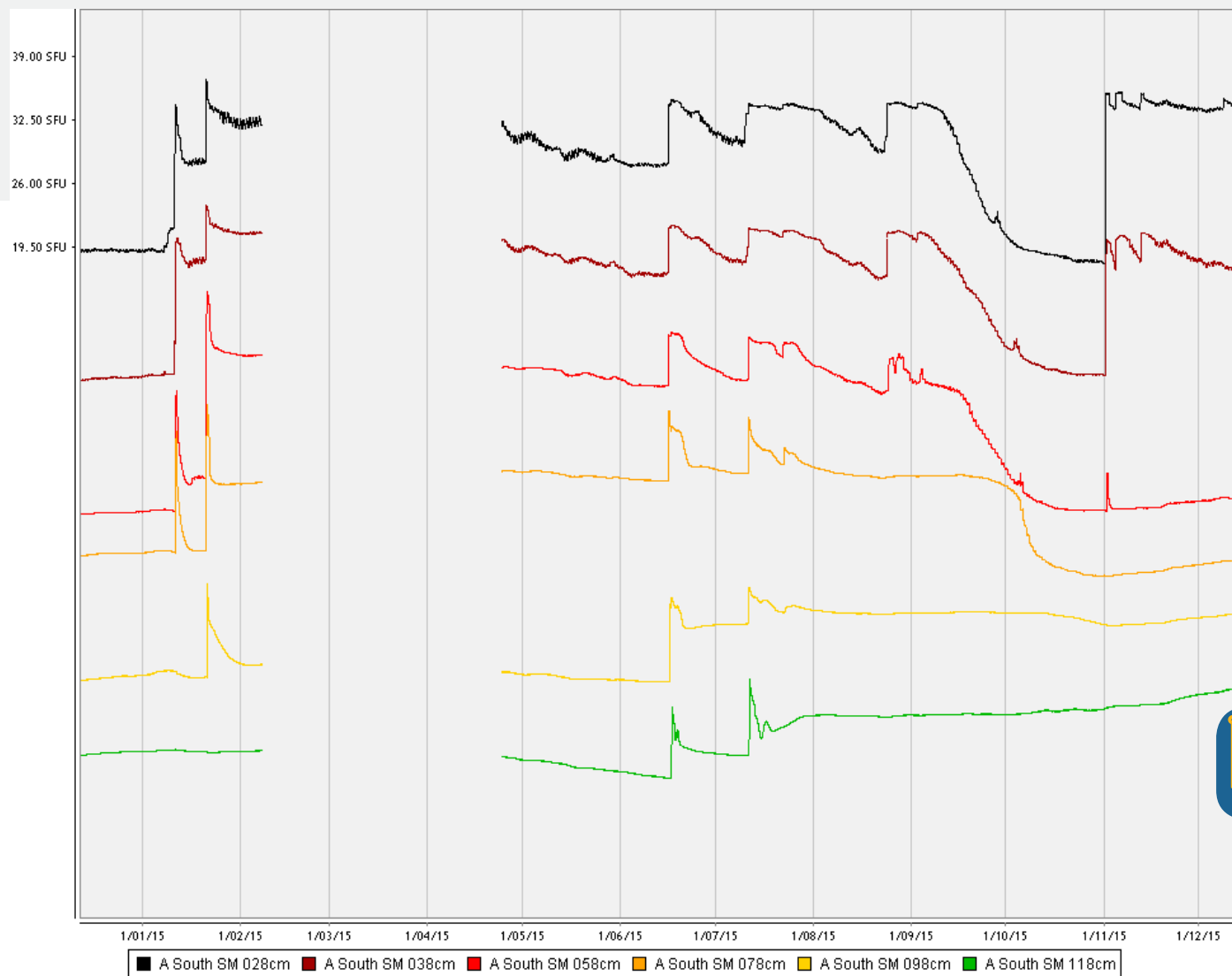
Actual yield: 4.1 t/ha



GRAIN YIELD OUTCOME



SOIL MOISTURE PROBE



GREENETHORPE WEST (PROBE 0)



Crop type: canola

Cultivar: gem

Sowing date: 26 April 2015

Soil type: sandy loam over a sandy clay and heavy clay

Directional guide: -34.013 | 148.2542

Historic average yield: canola - 1.8t/ha

With nitrogen limited and unlimited nitrogen, Yield Prophet predicted a 2.2 t/ha canola crop. It actually yielded 2.4 t/ha with 42.5% oil content.

The difference is very minor however the farmer advised that CSIRO did another soil analysis during the year and that the soil actually has a better water holding capacity than originally predicted.

The canola crop had some light hail damage but no claim was made and a 5% yield loss was predicted.

The soil moisture probe data shows a dry finish to the season with small contributions to stored soil water in the soil surface. Moisture conservation practices such as summer weed control will be important in this paddock.

In summary:

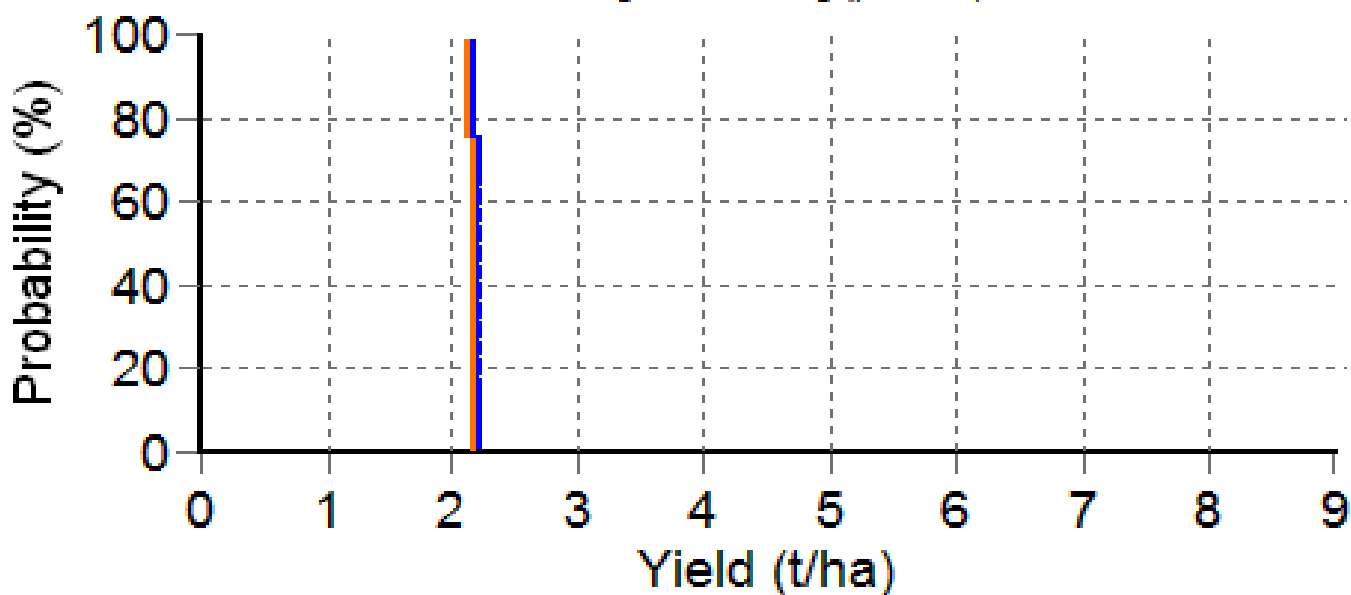
Predicted yield: 2.2 t/ha

Actual yield: 2.4 t/ha

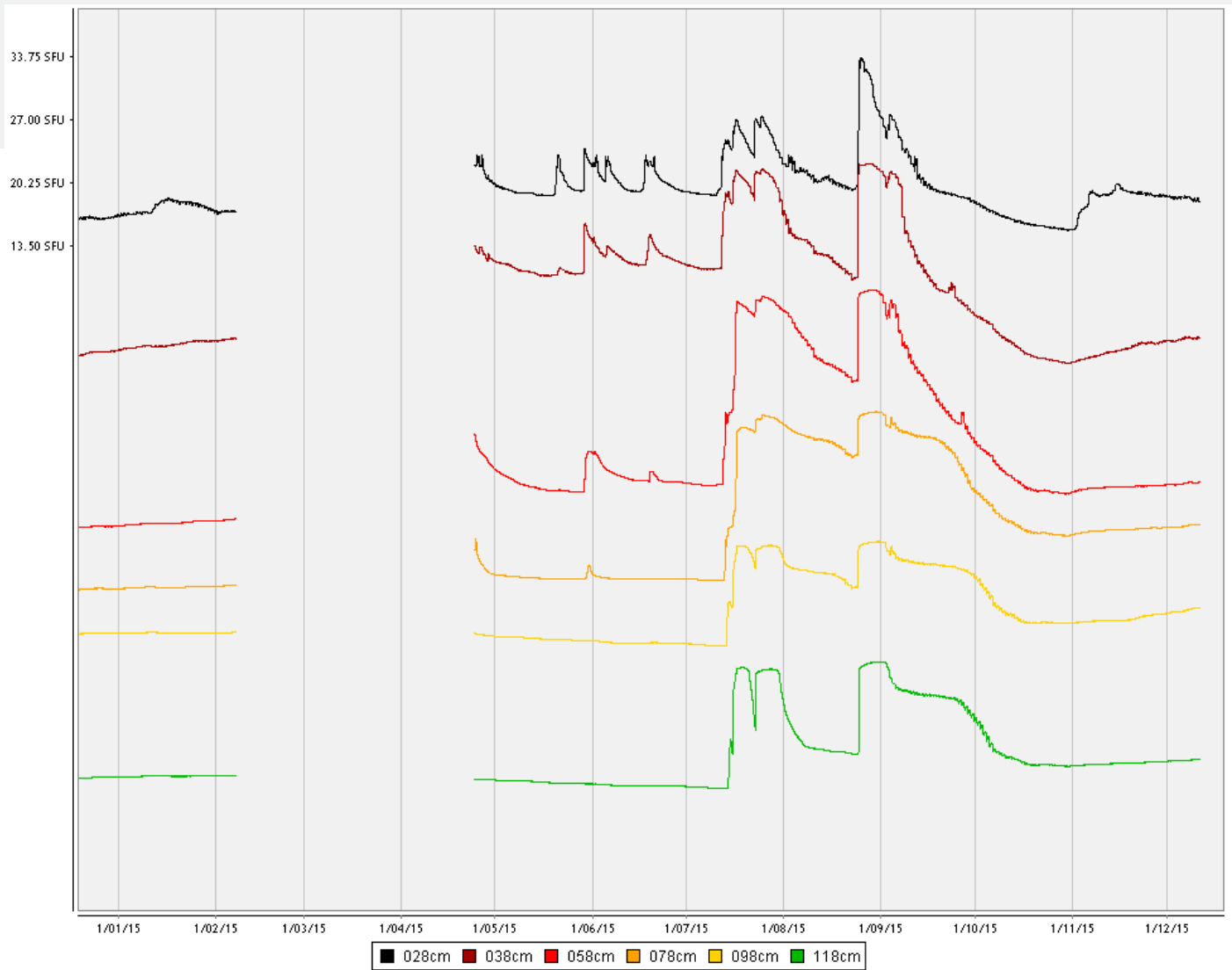


GRAIN YIELD OUTCOME

- Actual yield with available nitrogen
- Yield when nitrogen non limiting from today forward
- Yield when nitrogen non limiting (potential)



SOIL MOISTURE PROBE





DIRNASEER NE (PROBE 0)

Crop type: wheat
Cultivar: Sunvale
Sowing date: 13 May 2015
Soil type: red chromosol
Directional guide: -34.6131 | 147.7621
Historic average yield: wheat - 3.0t/ha

At the start of October, Yield Prophet was predicting nothing less than a 4 t/ha wheat crop with excellent nitrogen and soil water moisture stores. At the end of the season, predictions were 4.2 t/ha with the available nitrogen and a massive 5.4 t/ha where N was unlimited. The actual yield was 4.3 t/ha of wheat with 13.3% protein (APH2).

This scenario presents a good example of the challenges farmers face when deciding what or when to apply N. All along, Yield Prophet was predicting good yield potential in this paddock.

Applying more nitrogen toward the end of

the season paid off for this grower because it meant he could capture some of that yield potential and improve grain quality. The soil moisture probe information supported this decision where it showed significant soil water and a potential benefit from additional N.

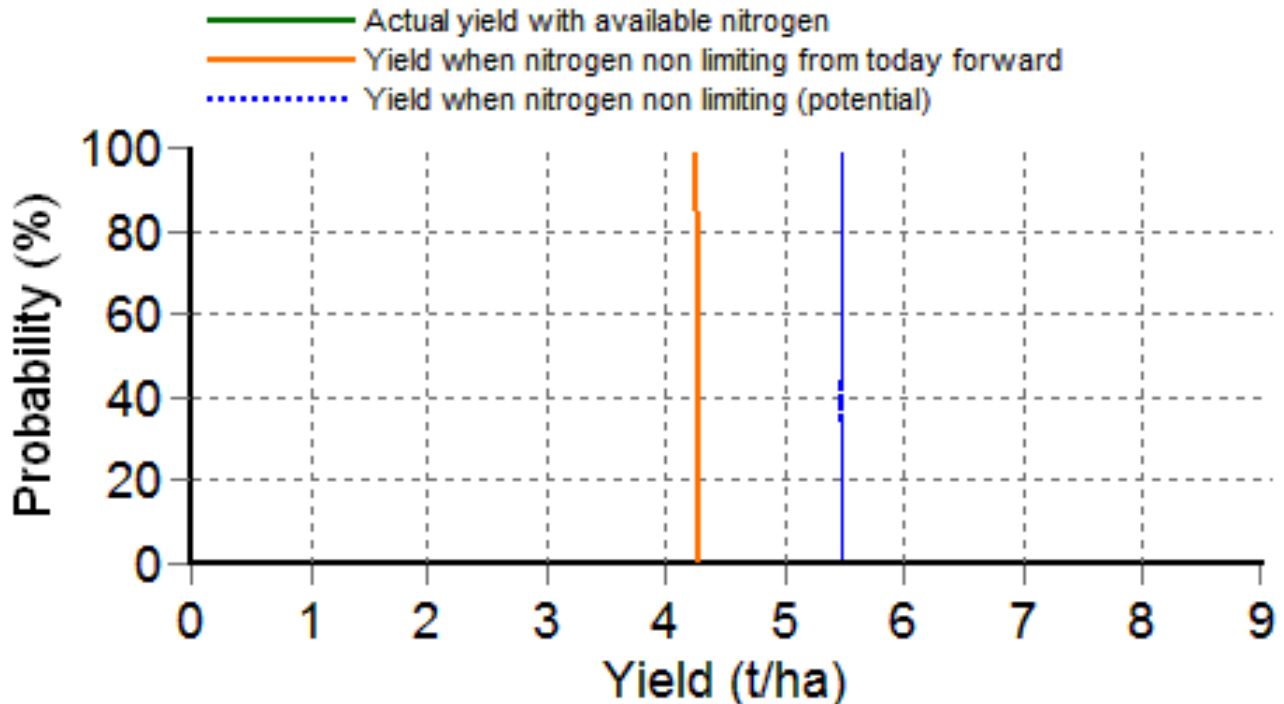
In summary:

Predicted yield with available N: 4.2 t/ha

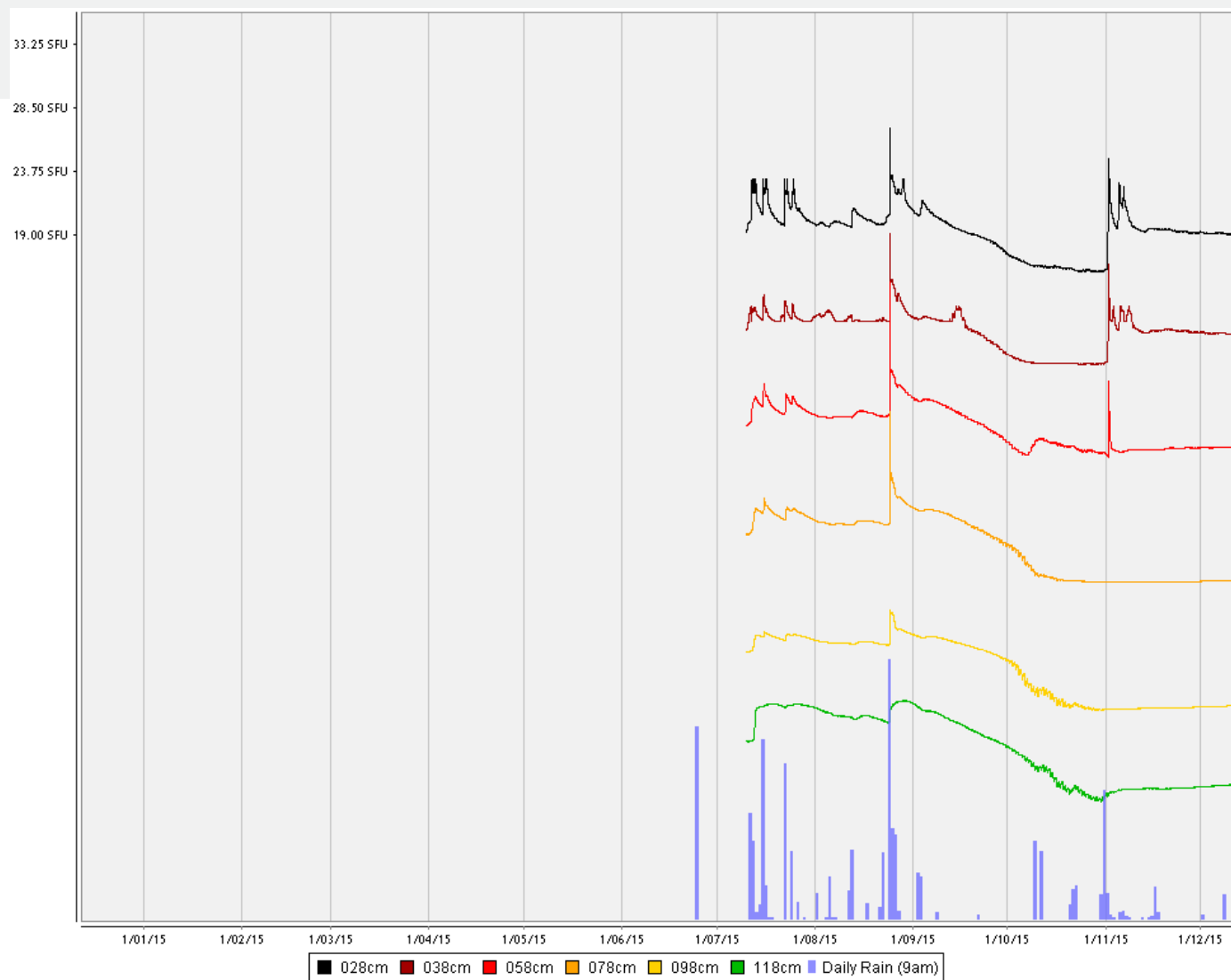
Predicted yield with N unlimited: 5.4 t/ha

Actual yield: 4.3 t/ha

GRAIN YIELD OUTCOME



SOIL MOISTURE PROBE





TAIC Paddock 16 (PROBE A)

Crop type: wheat

Cultivar: Spitfire

Sowing date: 10 May 2015

Soil type: sandy clay

Directional guide: -34.4171 | 147.5316

Historic average yield: 2.06 t/ha

This wheat crop yielded 3.6 t/ha with an average protein 12.2%. Yield Prophet was over the mark and was predicting a 4.4 t/ha crop with the available nitrogen and 5.7 t/ha crop with unlimited nitrogen. This yield is excellent compared to the historic average of 2.06 t/ha.

Soil moisture levels were recorded properly closer to the end of this growing season period but it is showing good water levels down to nearly 1 m.

The grower reported there was slight aphid pressure mid-season in this paddock and the November rain was a couple of weeks too late

to benefit the crop. A 'checkered' rotation on the trial site may have also contributed to the overall paddock production.

It is clear that Yield Prophet predictions were well in excess of the actual yields with no significant reported problems. The paddock set up may need to be revised before using it in the Yield Prophet next time.

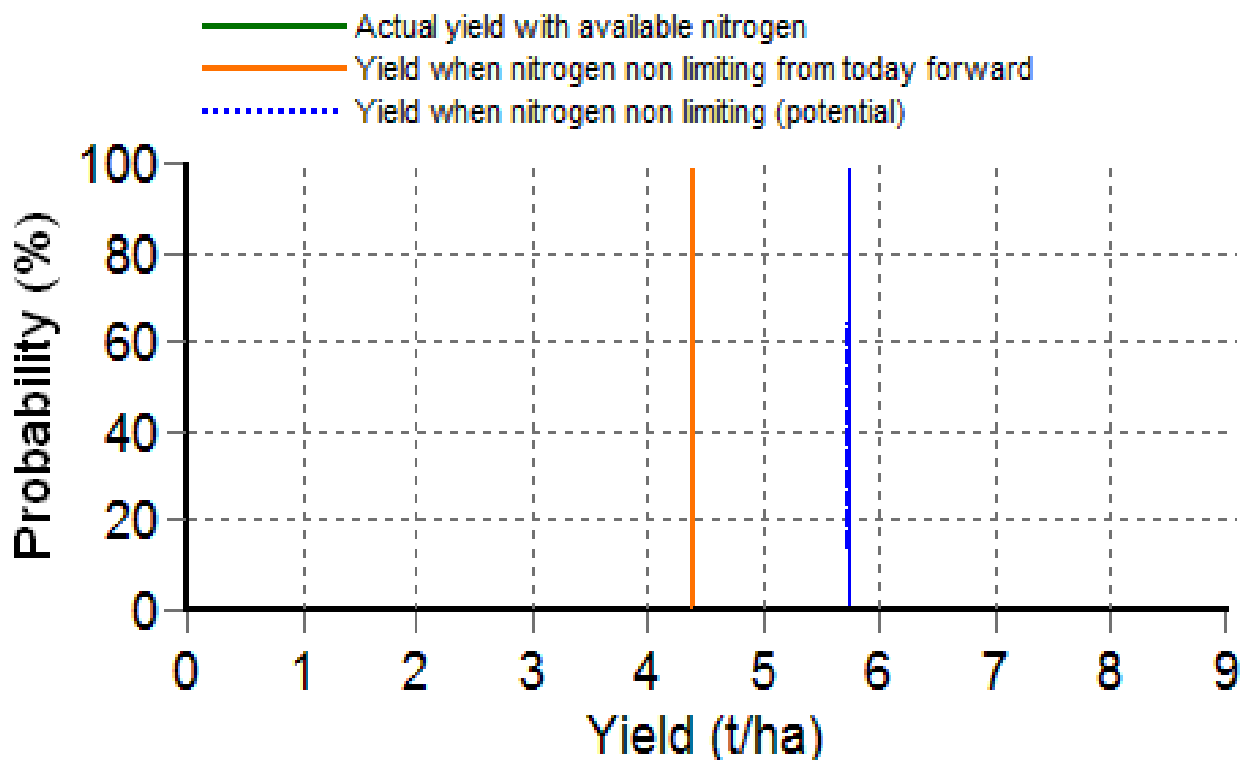
In summary: Predicted yield with available N: 4.4 t/ha

Predicted yield with N unlimited: 5.7 t/ha

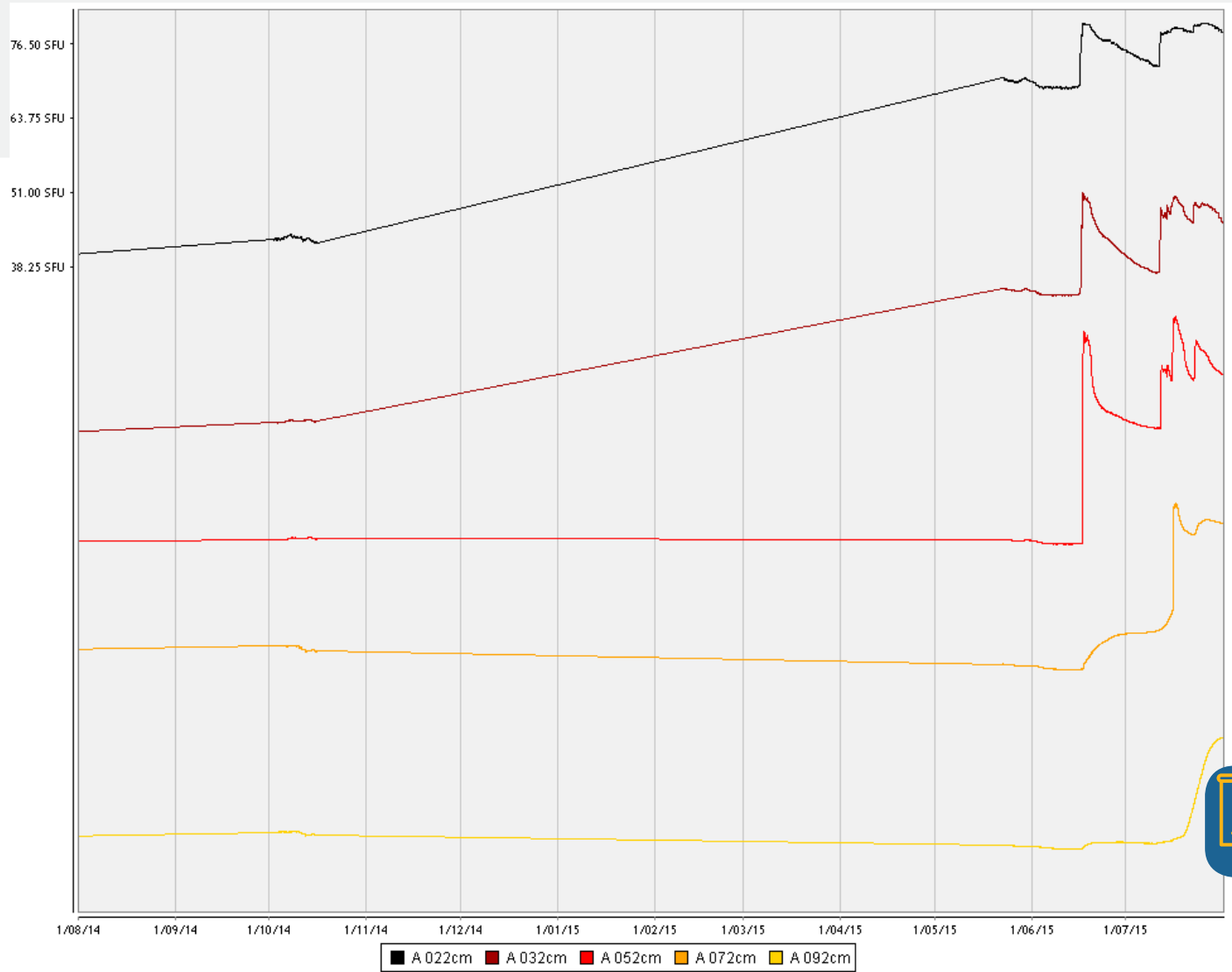
Actual yield: 3.6 t/ha

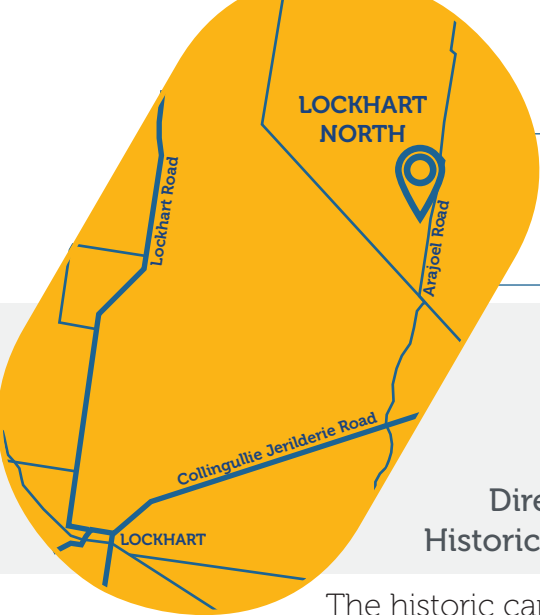


GRAIN YIELD OUTCOME



SOIL MOISTURE PROBE





LOCKHART NORTH (PROBE 1)

Crop type: canola
Cultivar: Bonito
Sowing date: 22 April 2015
Soil type: sodosol
Directional guide: -35.1036 | 146.8754
Historic average yield: canola - 1.26t/ha

The historic canola yield average in this paddock is 1.26 t/ha. The yield this year was 2.06 t/ha with an oil content of 45.9%. By the end of the growing season, Yield Prophet predicted a 2.6 t/ha crop yield with the available nitrogen and 3.1 t/ha with unlimited soil nitrogen.

External weather factors such as insect, rain and wind may have caused this deficit. The grower indicated 20% insect pressure from slaters early in the growing season. Toward the end of the season, sclerotinia, heavy rain and wind after windrowing may also have contributed.

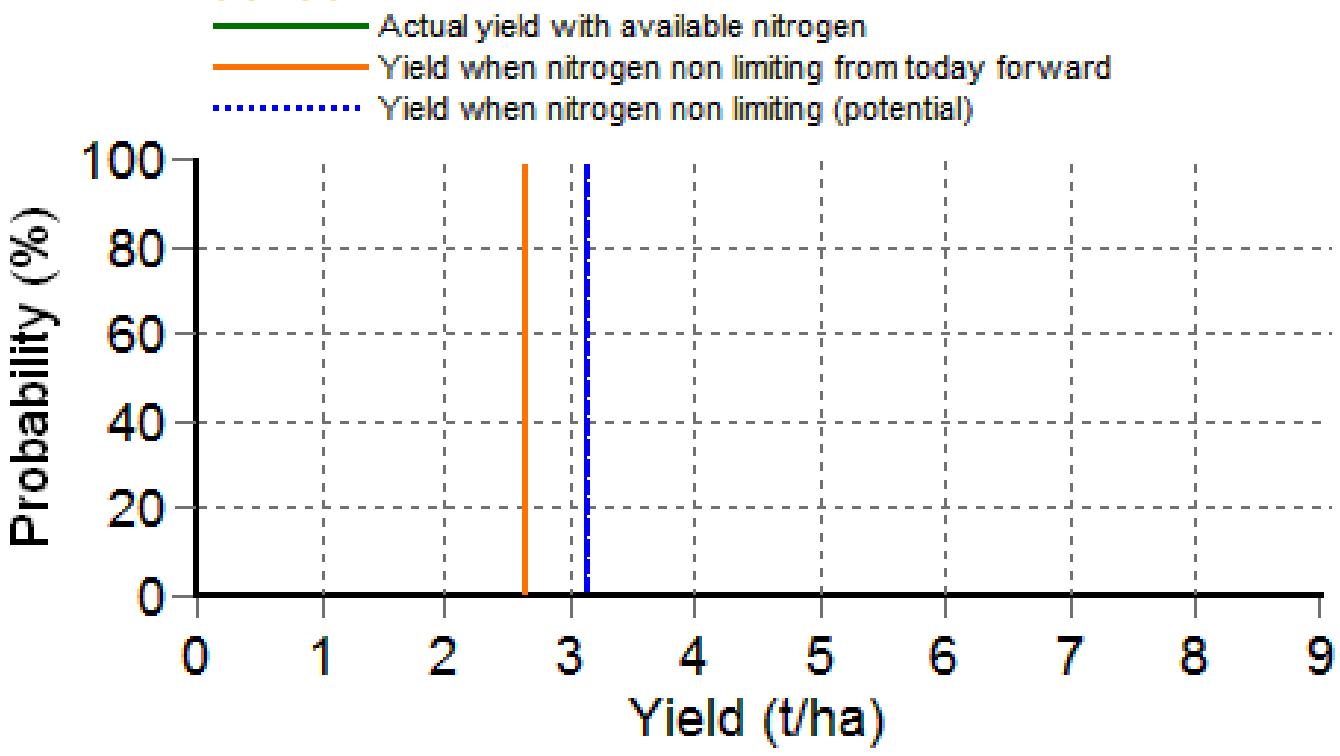
The 'flattening' effect of data from the upper

soil moisture sensors show signs of the soil reaching it's drained upper limit. The moisture steadily decreased down to 1 m over the dry, hot September but shows signs of increasing in response to rain in November. Summer weed control to conserve this moisture for next year's crop will be important.

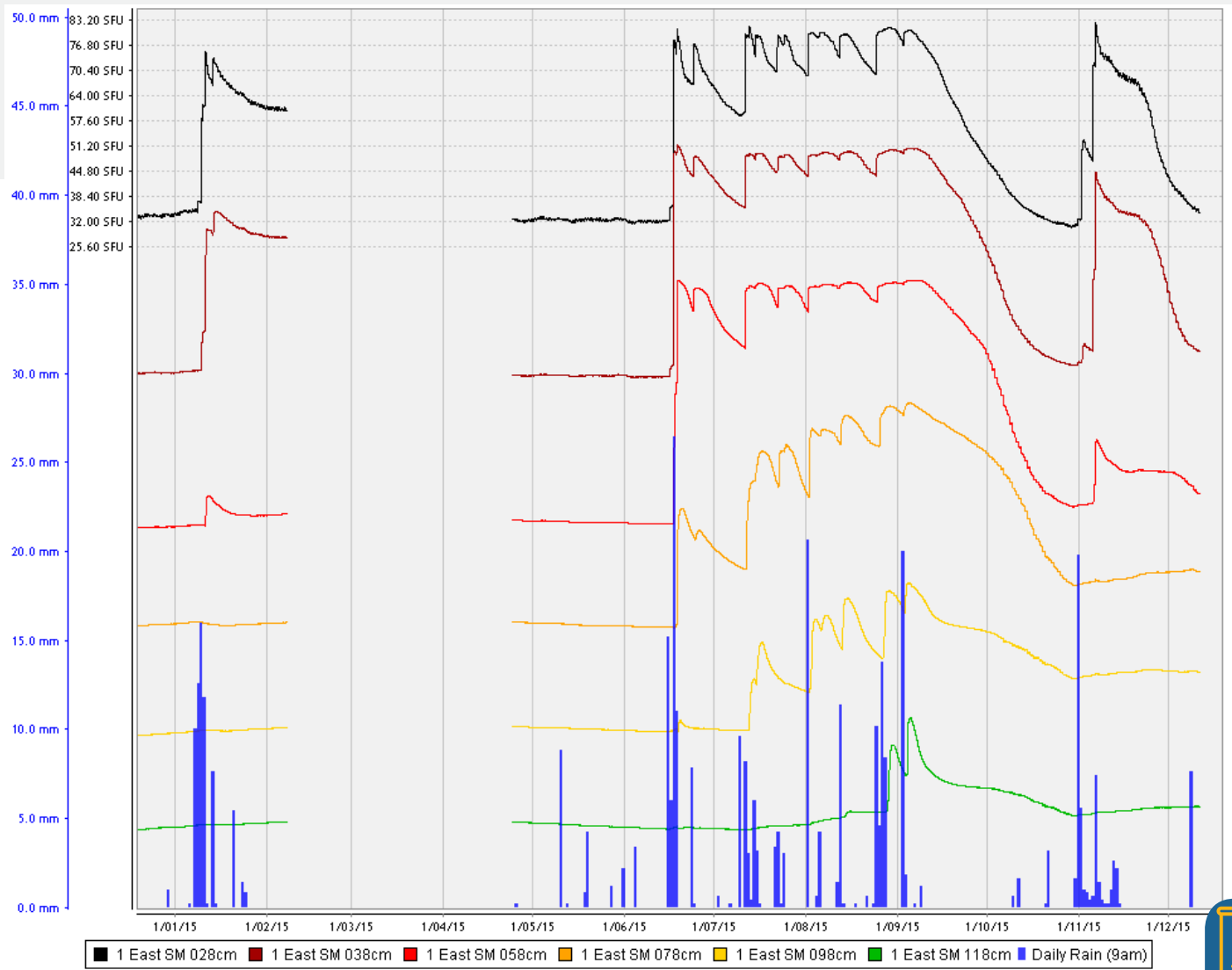
In summary:

- Predicted yield N available: 2.6 t/ha
- Predicted yield N unlimited: 3.1 t/ha
- Actual yield: 2.1 t/ha

GRAIN YIELD OUTCOME



SOIL MOISTURE PROBE





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