

Yield Prophet Site Inspection Report- September, 2016

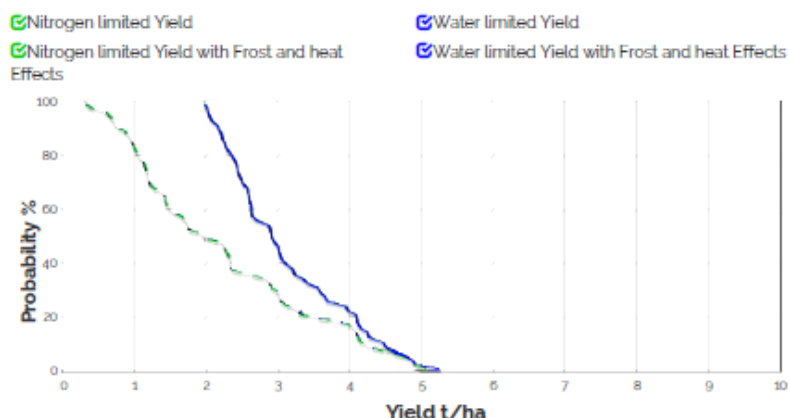
All of the UNFS Yield Prophet sites east of the ranges were inspected on September 22nd. The primary purpose of the inspection was to compare crop yield potential and crop growth stage with modelled outputs.

Barrie (9 km north east Willowie)

Katana wheat sown in the first week of June. Initial soil sampling at this site revealed quite high salinity levels- to the stage of suspecting some irregularities with either the sampling technique or the actual testing. For modelling purposes, salinity levels were adjusted to those more commonly found in the area.

Grain Yield Potential

Grain Yield Outcome



This graph shows the probability of exceeding a range of yield outcomes this season. It takes into account your pre-season soil moisture, the weather conditions so far, soil N and agronomic inputs. The long term record from your nominated weather station is then used to simulate what would have happened from this date on in each year of the climate record. The yield results are used to produce this graph.

Visually, crop has moderate vigour, and with no visual indication of Nitrogen stress. Evidence of earlier season moisture stress apparent with smallish flag leaf and heads. Low level of Russian Wheat Aphid present. Suggest a yield potential of 2-2.5 tonne/Ha which is broadly in line with model.

Crop Growth Stage



This crop is at early head emergence, which is slightly (say 4-5 days) ahead of model predictions.

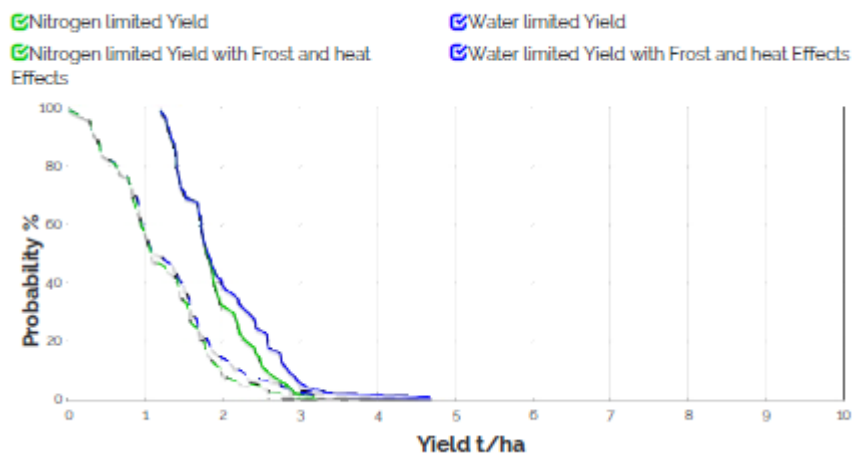


Catford (2 km south west of Morchard)

Katana wheat sown mid-June. Healthy crop in good condition with very few yield limiting features such as weeds or disease.

Grain Yield Potential

Grain Yield Outcome



Visually, crop has a yield potential of at least 3 tonne/Ha depending on the influence of spring heat.

Crop Growth Stage



Crop is at flag leaf fully emerged stage, which is about 5 days ahead of model.

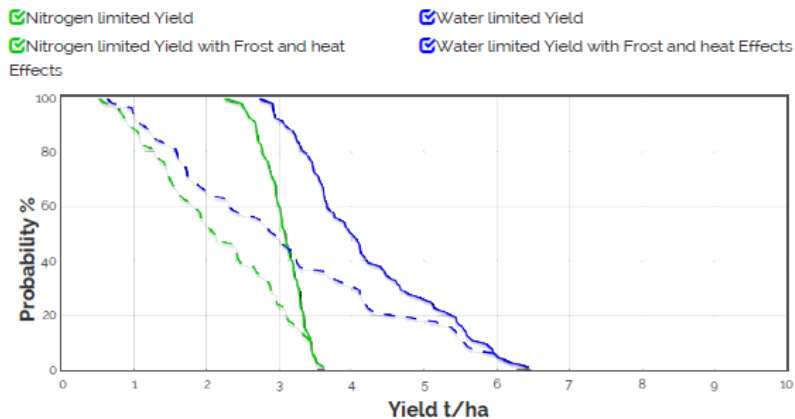


Matt McCallum (9 km north Booleroo Centre)

Mace wheat planted in the first week of June. Nice crop, but probably showing some minor signs of N deficiency which is in line with modelling. Matt has placed some different N application strips across the paddock to assess.

Grain Yield Potential

Grain Yield Outcome



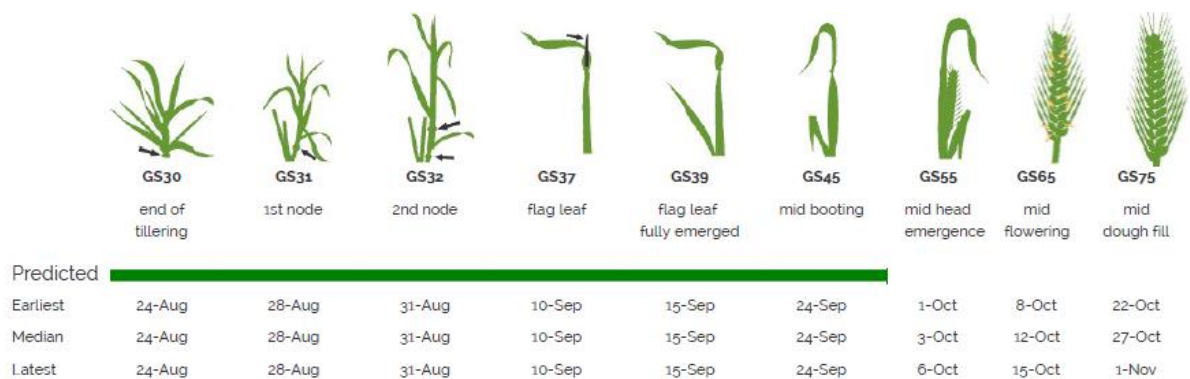
This graph shows the probability of exceeding a range of yield outcomes this season. It takes into account your pre-season soil moisture, the weather conditions so far, soil N and agronomic inputs. The long term record from your nominated weather station is then used to simulate what would have happened from this date on in each year of the climate record. The yield results are used to produce this graph.

Visually, crop looks to have a yield potential of 3-3.5 tonne/Ha. The model is suggesting that yield will be significantly compromised from a lack of nitrogen although this did not appear to be the case when inspected. Time will tell. Good soil moisture, but still has to negotiate spring.

Crop Growth Stage



Crop is at early head emergence, which is close to the models prediction. Predicted flowering date of early to mid-October.

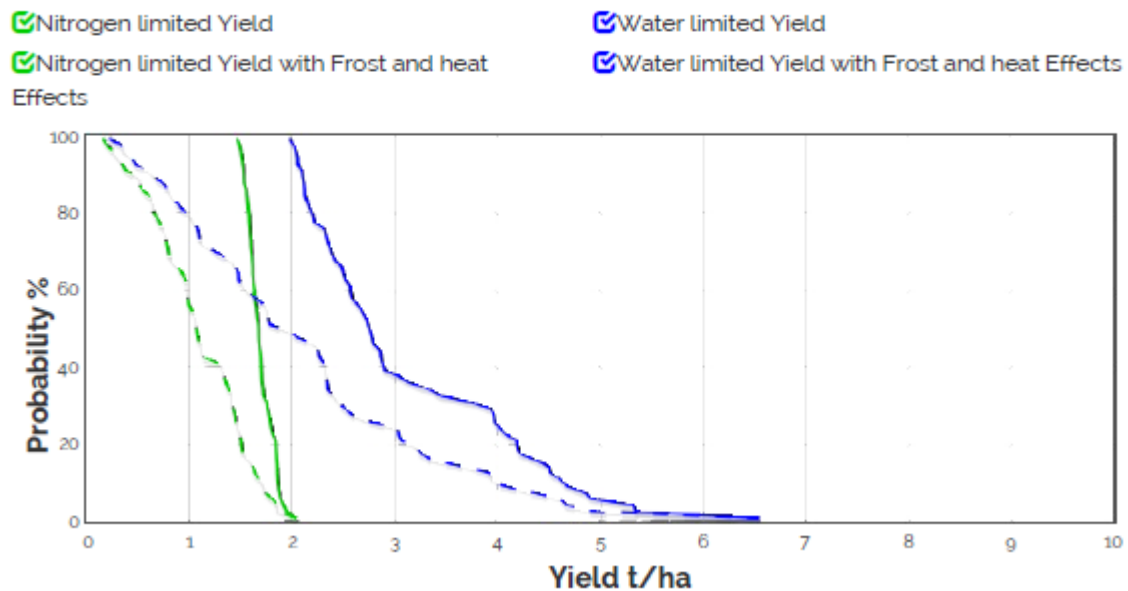


Kuerschner (Black Rock)

Mace wheat sown early June. Nice crop showing good yield potential. Some damage from Russian Wheat Aphid evident, but very low numbers currently suggesting the crop had been sprayed.

Grain Yield Potential

Grain Yield Outcome



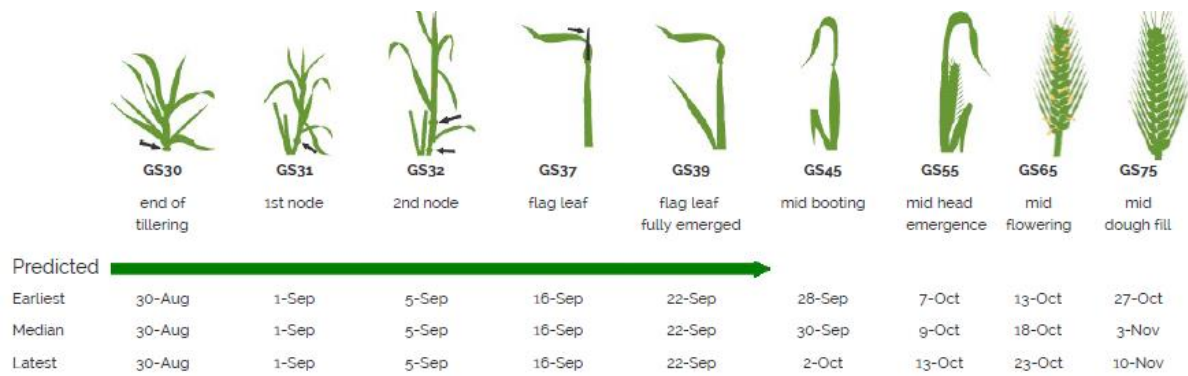
Visually, crop has a yield potential of at least 3 tonne/Ha depending on the influence of spring heat. The potential for yield limitations due to inadequate N supply as indicated by the model was not evident on inspection. We may have missed an N application here?

Crop Growth Stage



Crop Growth Stage

Crop is currently at flag leaf fully emerged (no heads emerged) which is in line with model predictions.



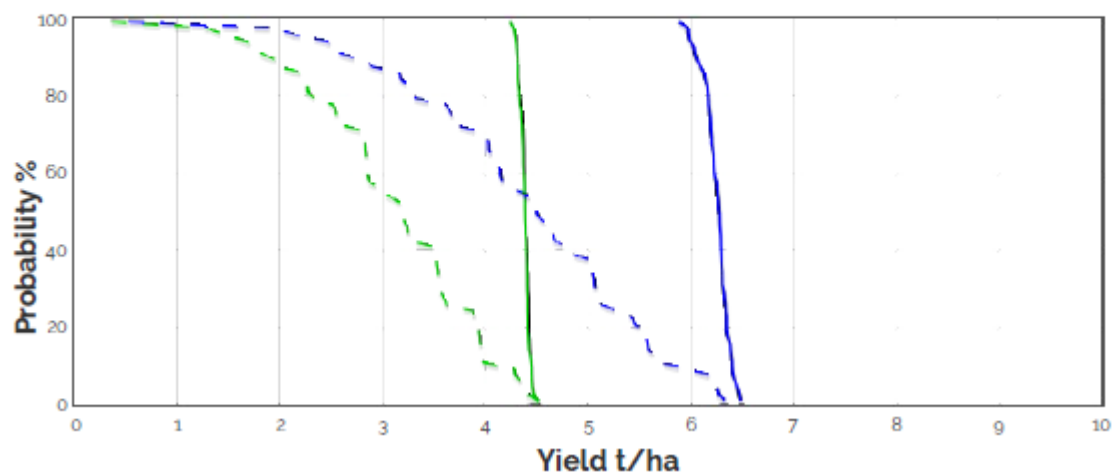
Clark (10 km south Jamestown)

Cobra wheat sown early May. An advanced crop of excellent vigour. No yield limiting features evident other than a small level of frost damage in low lying areas.

Crop Yield Potential

Grain Yield Outcome

- ☒ Nitrogen limited Yield
- ☒ Nitrogen limited Yield with Frost and heat Effects
- ☒ Water limited Yield
- ☒ Water limited Yield with Frost and heat Effects

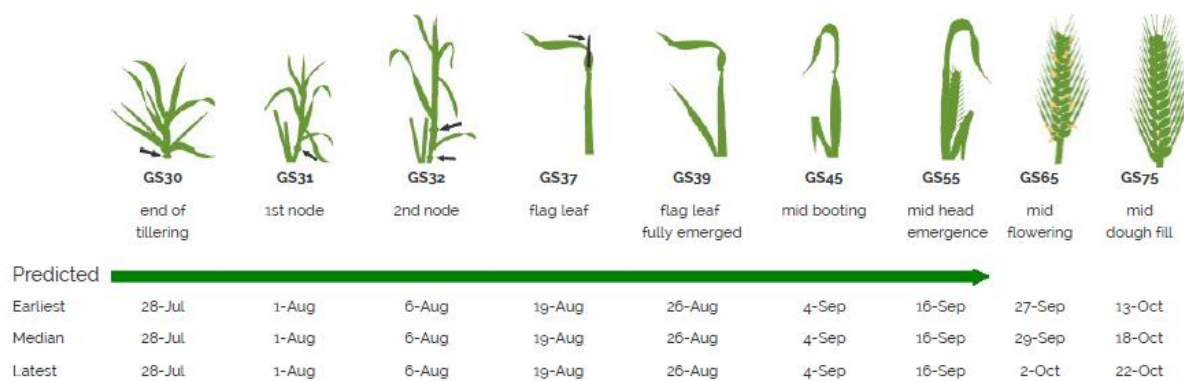


Crop is displaying very high yield potential. Model is suggesting that yield will be limited by N supply. However, Luke indicated that sampling in other areas of the paddock (i.e. different to the Yield Prophet sampling) showed higher initial N supply. Crop still has to negotiate spring frosts, but current soil moisture levels are very high and yield potential remains high.

Crop Growth Stage



Currently crop is at mid-head emergence which is in line with model.

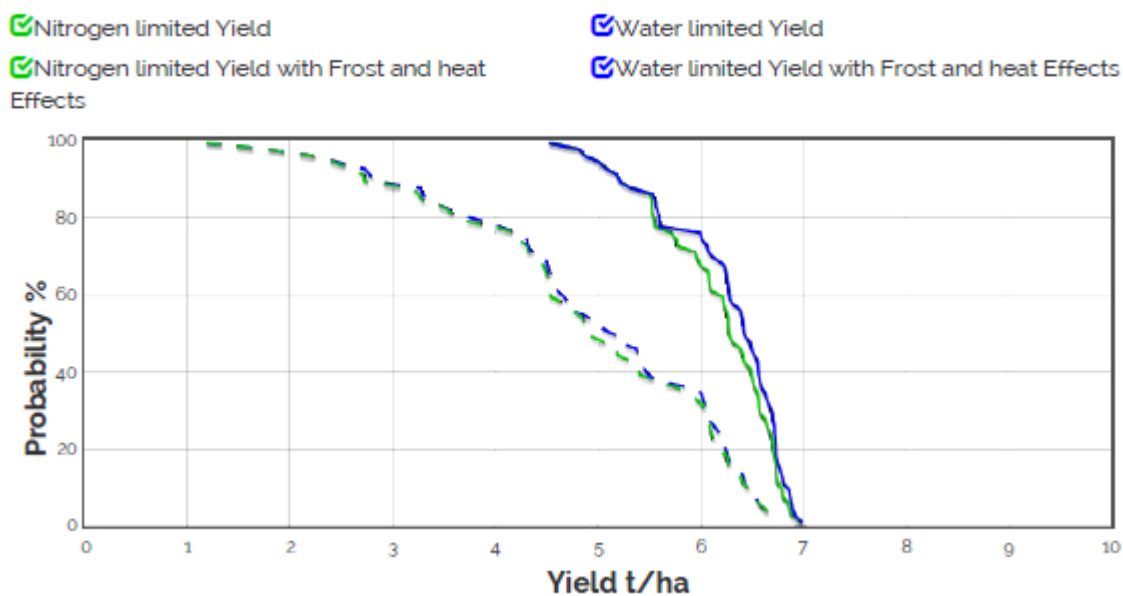


Ritchie (7 km north-west of Appila)

This is the site of the UNFS trial looking at crop competition effects on suppression of weed seed set, predominantly in barley grass. Initial soil testing revealed very high starting N levels. However, visually the crop looks to be significantly N stressed.

Crop Yield Potential

Grain Yield Outcome

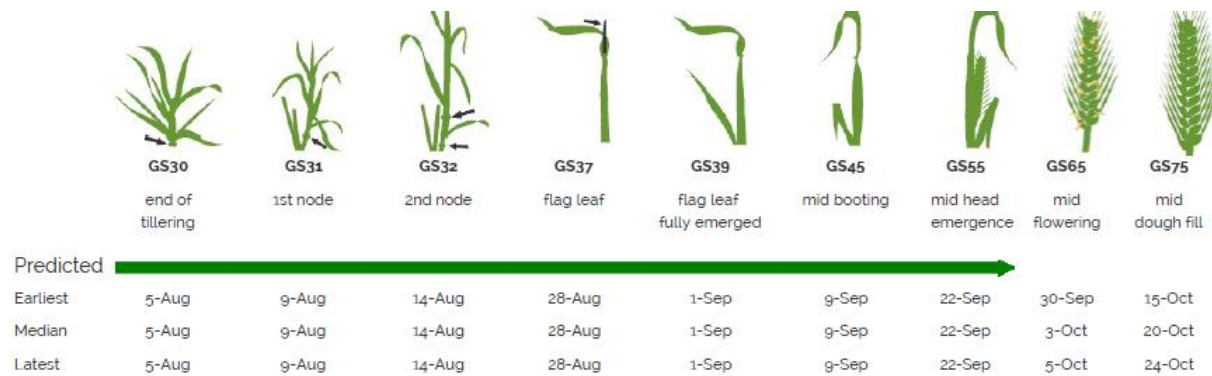


Modelling throughout the year has shown that this site has the potential for very high yields if the seasonal conditions remained favourable. However, visually, current crop growth does not support this. The site is highly calcareous grey soil showing considerable variability. The site has received very high rainfall this growing season, and I suspect a high level of leaching has occurred. Visually, current crop expectations for wheat at the trial site would be 2-2.5 tonne/Ha.

Crop Growth Stage



Current crop stage is around mid-head emergence, which is in line with model expectations.



Summary

The outputs from the Yield Prophet model are generally supported by visual inspection. Crop yield potential is generally in line with modelled outputs, although there are exceptions. The ability of the model to accurately predict crop growth stage has always been a concern, given that crop growth is heavily temperature dependant, and the model does not have the intimate knowledge of local variations in soil and landscape temperature variability. However, given that, the crop growth stage being modelled is reasonably in line with visual observations.

In a more general sense, seasonal conditions from now on remain critical for several of the crops which did not achieve plant establishment until well into June. Soil moisture conditions are now generally very good. The presence or absence of spring heat shocks will be an important determinant of final crop yields.

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