

Welcome to the first Yield Prophet® Periodical for 2009. This newsletter will provide you with extra insights into Yield Prophet reports and remind you of the features that Yield Prophet can offer at various times throughout the year.

★New Climate Adaptation Report★

There are nine reports available to Yield Prophet® subscribers providing growers and consultants with decision support in and out of the growing season. The recent run of poor years experienced in many cropping regions of Australia raises questions about the effect climate change may have on crop production. To provide information on this question we developed and released the Climate Change report in late 2008.

The Climate Change Report allows subscribers to observe the potential effect of climate change on crop yield for Yield Prophet paddocks. With the exception of nitrogen inputs, the report uses the soil and crop information pertaining to the paddock selected e.g. the sowing date for the current crop will be used as the basis for simulations in the climate change report.

The Report has three main sections which focus on different aspects of climate change:

- the impacts of historic climate variability on potential grain yields;
- the impacts of recent climate change on grain yield; and
- the potential changes in temperature and rainfall by the year 2030 and their affect on grain yield.

The Climate Change report is an exceptional tool which provides subscribers forewarning of the possible affects of climate change on potential crop yield. However, the response to this report has often been “so what can I do about it?” This has led us to develop a further report.

A new Climate Adaptation Report is now available on the Yield Prophet website. This report allows subscribers to compare their crop potential using their current practice versus an adapted practice under two different climate change scenarios, ‘best case’, and ‘worst case’.

Subscribers are able to review the yield potential with their current practice under these two scenarios and then “experiment” with alternative crop cultivars, plant densities, sowing window, nitrogen and irrigation applications, and stubble and tillage management to adjust to the potential changes in climate. This report is an exciting development as it allows subscribers to form and test strategies to respond to climate change before the effects are fully realised.

Figure 1 shows the results of one grower’s experiment with adaptation practices. The three curves represent the current practice under historic climatic conditions, current practice under the worst case climatic conditions and the adaptive practice under the worst case climatic conditions.

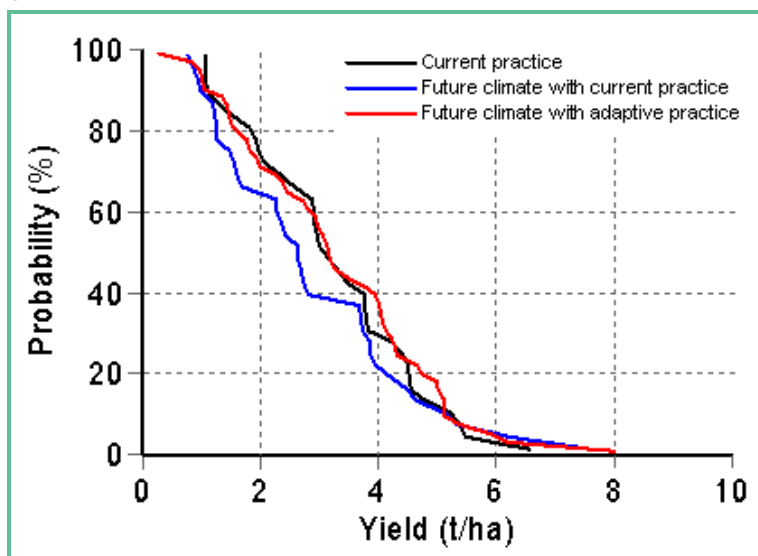


Figure 1: Current and Future Practice Compared: Grain Yield Outcome probability of exceedence curves under current practice and historic climatic conditions, current practice under climate change and adapted practice under climate change.

It is evident from figure 1 that without adaptation of this grower’s farming practice their potential yield across the range of probabilities will be reduced under the worst case climatic conditions. However, after trialling different adaptation strategies the grower “discovered” a strategy that allows the potential crop yields under the worst case climatic conditions to equal or exceed their current practice under historic climatic conditions. In this example this was achieved by extending the sowing window by 20 days at the start, planting an earlier maturing variety, applying an additional

30kgN/ha at growth stage 45 and retaining all of the stubble over the summer period.

This report is now available in Yield Prophet. If you would like assistance in generating a Climate Adaptation Report please contact Tim McClelland via the contact details below.

Validating Simulations

With good rainfall realised in many regions across Australia many crops are quite advanced. As this is the case your Yield Prophet paddock details should be up to date and you have been generating reports. If this is not the case please contact Tim McClelland for assistance.

As it is still early in the season it is important to validate any reports generated and check that they are producing reasonable outputs. There are some key indicators that can be used to check the validity of your reports.

Grain Yield Outcome

The key output of Yield Prophet is the probability of exceedence curve in the crop report. This is the first thing that you should examine to ensure an appropriate paddock set up. Is the yield distribution reasonable?

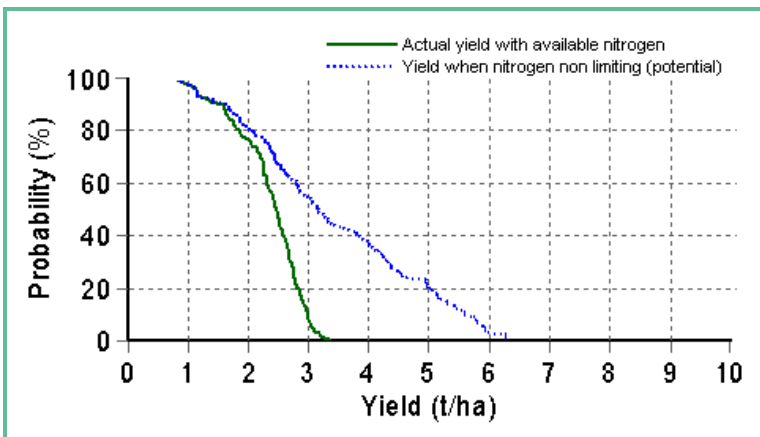


Figure 2: Grain Yield Outcome probability of exceedence curve chart from the Crop Report

Using figure 2 as an example, if average growing conditions eventuated for the remainder of the season could the crop achieve a yield of 3t/ha (probability 50%) if it had unlimited nitrogen? When answering this question you have to remember that these yields are based on growing conditions that exclude frost, disease, weed infestation, chemical damage etc. that are not incorporated into the

Yield Prophet simulation. In addition, you have to factor in the starting soil conditions when reviewing the chart remembering that stored soil moisture, or lack of it, can have a significant impact on the yield potential of the crop.

Growth Stage Chart

Another key indicator of an accurate simulation is a correlation between the actual crops growth stage and the simulated growth stage from the growth stage chart in the Crop Report. Using figure 3 as an example, did the crop reach growth stage 12 on 9 June? If not it might be that we have the wrong information about the growth pattern of the variety you are growing.

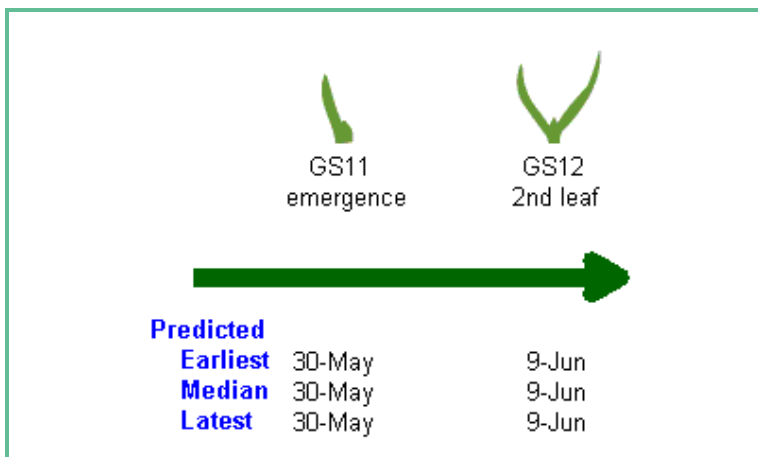


Figure 3: Emergence and second leaf section of the Growth Stage Chart from the Crop Report

If the simulated yields are unreasonable or the crops growth stage is not matching up the growth stage chart there may be something wrong with your paddock set up e.g. the soil characterisation selected is not representative of the actual soil in your paddock. If you feel that your report outputs are unreasonable please contact Tim McClelland.

For more information...

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