APSRU agricultural production systems research unit

National WhopperCropper – risk management discussion support software

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Background

Farmers in all regions of Australia endure widely varying rainfall conditions whilst needing to make critical management decisions every season. Each resource and management input option can affect the yield outcome. The inputs are important per se but they can also interact.

The WhopperCropper database contains 600 000 pre-run APSIM simulations. These scenarios demonstrate the *range* of potential yield or gross margin outcomes generated from 100 years of weather data.

WhopperCropper uses data appropriate for a *district* and does not provide data at a point or paddock scale. Intensive modelling of a paddock requires running the APSIM model specifically for that paddock.

More than 200 agronomists and farmers have been accredited to use WhopperCropper in the northern grains region. Evaluation results indicate the product has been well accepted. The new challenge is to deliver the capability to other states of Australia.

Scenarios

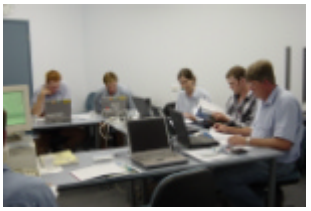
Weather data spanning 100 years, and the selected set of inputs, is used in the APSIM model to generate a unique annual yield . These can be displayed as individual yield results (time series graph) or in various types of probability graphs (e.g boxplots and cumulative frequency distributions). Distributions of gross margins can be generated after entering cost and product price data.

The 'All years' data can be separated on the basis of the SOI phase system.

'What-if' scenarios are easily generated and will provide objective analysis of risky management options.

Input options

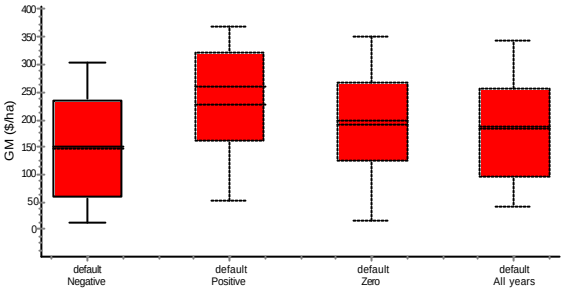
- soil water-holding capacity
- soil water at sowing
- crop type
- time of sowing
- N fertiliser rate
- crop maturity type
- sowing density
- SOI phase effect

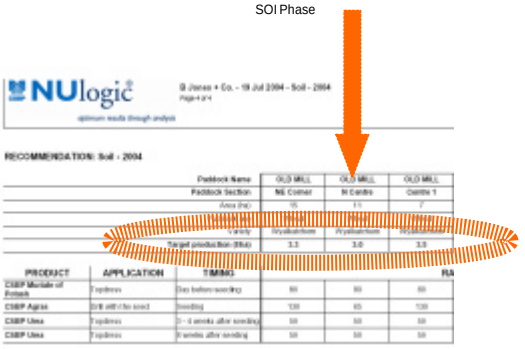


Combining capabilities

WhopperCropper + NUlogic

The output from WhopperCropper will be linked to soil test interpretations provided by Nutrient Management Systems. Instead of focussing on a *single* target yield, agronomists and farmers will be able to analyse the *range* of yields that is possible from a given set of inputs. This will enable a better targeting of inputs to achieve more predictable outcomes.





Conclusion

WhopperCropper be soon be available throughout Australia. A large number of widely-distributed agronomists will be able to use the capability to assist growers better manage input decisions in their variable-rainfall environments. Reducing inputs and costs in poor seasons and maximising gains in better years is the ultimate aim.

Nutrient Management Systems

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