

Can Short Term Climate Forecasting Improve Irrigation Efficiency??

A reflection on Day 1

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Climate Modelling Tools

- ⇒ Range of climate models supply forecasts at different scales and reliabilities.
- ⇒ Skill of predictions varies geographically and seasonally
- ⇒ No "one" statistic can give a full picture
- ⇒ More refinements in next 12 months

Crop Models

- water stress and water logging

- ⇒ Fundamental processes captured in most models
- ⇒ Validation against soil moisture and yield
- ⇒ Greater sophistication = more data
- ⇒ Not all industries currently well represented with modelling tools e.g. horticulture
- ⇒ Root density/depth, stem extension and kernel number
- ⇒ Waterlogging is a “recent” consideration

Proof of concept

- ⇒ Generic crop models to evaluate potential “savings” through capturing in-crop rainfall
- ⇒ Simulated savings of 4% - 14%
- ⇒ Highlights variability due to crop type and location
- ⇒ More questions - quality issues, systems issues

National, State and Industry overviews

- ⇒ We all aspire to improved WUE
- ⇒ Investment through industry groups to optimise chance of success
- ⇒ Significant improvement at farm and industry level but little data to document improvements
- ⇒ Water is bigger than the irrigation industry
- how does WUE fit into the NRM system?

Summary session

- ⇒ Is integration of crop/water models and short term climate forecasting a good investment?
- WUE - maybe not for "average" irrigator (MI saved) but maybe for those who have already adopted latest technology (opportunities controlled by systems design, crop type and location).
 - Quality issues - yes (irrigation management)
 - Farm management - yes (disease and pest management)

Summary session (2)

- ⇒ Why do we need integrated climate and crop models?
- extrapolate limited data-sets
 - generation of probabilities and "risk" maps
 - put numbers around an irrigators "self-calibration" and "risk aversion" decisions to help others make similar decisions
 - provide a translation step between climate forecast information and impacts on crop growth or quality

Triple bottom line!!

(Ian chasing a job in Canberra comments)

⇒ What else do the community (all of us!!) wish to invest in?

Salinity and Water Quality

Environmental flows

⇒ How do we achieve production and environmental goals?
(how do we “value” deep drainage and run-off)

⇒ “lost opportunity” vs “downstream impact”

The challenge ahead

- ⇒ Today's focus on "practical application"
- ⇒ Key R&D issues
- ⇒ Where to from here??