



MANAGING CLIMATE VARIABILITY
R & D P R O G R A M

MCV Priorities for seasonal climate forecasting research



Australian Government
Rural Industries Research and
Development Corporation

GRDC

Grains
Research &
Development
Corporation



Australian Government
Sugar Research and Development Corporation

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Overview of MCV

- **RD&E program - Partnership across RDCs since 1992**
- **Focused on managing climate risk on seasonal times for agriculture [context of weather & changing climate]**
- **MCV III: GRDC, MLA, SRDC, RIRDC (+ HAL, GWRDC, AWI)**
- **Investment income ~\$1 - \$1.2M per year (3 yrs to June 2013)**
- **Ongoing, valued links with BoM & other research providers**
- **Planning for investment for 2013 – 2016**



MCV III Goals

To help primary producers and natural resource managers manage the risks and exploit opportunities, resulting from Australia's variable and changing climate, by:

- Improving the accuracy of forecasting on timeframes of value for primary production
- Providing climate products, services and tools for managing climate risk
- Increasing knowledge and confidence to adopt climate risk management.



MCV II Strategy

MCV R,D&E Strategy (2010/11-2012/13) – 4 Themes

1. **Forecasting** – Improved forecasts on timeframes relevant to farmers – multi-week to inter-annual
2. **Soil, climate & water attributes**
3. **Tools for Agriculture**
4. **Knowledge, adoption & communication** – WATL, Climate Kelpie, Climag, Climate Champions



Key MCV III Theme 1 investments

Improving ‘accuracy’ in dynamical models [POAMA] forecasts

- Indian and Pacific Ocean initialisation
- MJO; Northern monsoon
- Teleconnections between Climate Drivers

Multi-week forecasting

Extreme Events

- Heat extremes on multi-week timescales

Key MCV III Theme 2 investments

- Heat stress in cereals (WA & SA)
- Climate variability impacts on sugar industry
- Temperature thresholds for vegetables
- Frost risk for vines and wheat
- Seasonal forecasts for N fertiliser applications for wheat in WA
- Local station level climate variability analysis
- Exploring farm insurance applications

Planning & Priorities for ‘MCV IV’

Workshop August 2012

- Identifying current and emerging priorities for seasonal climate forecast information and tools to assist primary producers to incorporate climate understanding into farm management decisions.
- Discussing investment opportunities for RDCs **and others**



Priority: Climate forecasting research

- 1. Improved forecast accuracy** – improvements on 2 – 8 week and 3 – 6 month timescales...towards the 70% skill level farmers want for confidence in decision-making (...but varied needs). Specific research priorities include:
 - Continued improvement in the POAMA (ACCESS) system – regional climate; lead times; skill understanding/representation
 - Extreme events
 - Forecasting the severity and period of long timescale events e.g. droughts
 - Short-term extremes – e.g. frost, heat waves



Priority: Climate forecasting research

Can we make better use of forecast skill available now?

2. Relevance and ease of use of forecasts

- Seamless forecasting across weather, multi-week and seasonal times
- Characterisation of the skill of forecasts on a regional and temporal basis
- Evaluating possible extra value in consensus forecasts
- Exploring the value of statistical/dynamical forecasts where these provide a good interim step to downscaled dynamical forecasts – help farmers make the best of what we have now



Priority: Climate forecasting services

To help farmers, other primary producers and natural resource managers realise the benefits of the improvements in climate forecasts....translate the outputs from climate research into accessible and useful products.

If funding – extend to other sectors



Priority: Climate forecasting services

- ***The Water and the Land (WATL) website*** - Maximise access to useful and up-to-date information for primary producers.
- ***Specifying products of value for agriculture*** - user-driven, consistent, 'simple', linked to key decision-making needs.
- ***Seamless forecasts across weather and seasonal timeframes***
- ***Assigning skill levels to climate forecast products*** – linked on WATL
- ***New or enhanced products and services*** – e.g. soil moisture, linking POAMA to process models, e.g. plant growth/ water balance.

Priority: Tools

- Yield Prophet enhancement
- SmartPhone “app” – location specific information.



Could POAMA forecasts be added in the future?



Priority: Knowledge, Adoption, Communication

Water and the Land

www.Climate Kelpie – climate information and tools

Climag

Climate Champions – fostering farmer leadership in climate risk management, trialling and sharing innovations

Current/Emerging drivers for MCV

Drought Reform Policy

- Farmers will need their own risk management & preparedness

Climate Change adaptation & mitigation

- “Agriculture will respond to climate change through adaptation to our already & increasingly variable climate – within and by season or at most to 10 year investment timeframes.”
- Mitigation – Land sector sinks and mitigation activities;
Projections – for policy and emissions reduction

MCV investment flow-through to other sectors

- Reviewing benefits and seeking co-investment



Thank you

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Managing Climate Variability Program

- **RDC partnership since 1992 (CVAP + MCVP) driven by:**
 - **Policy** – RD&E on managing climate risk required for drought policy reform in early 1990s (...and 2011/12)
 - **Science** – Seasonal forecasts depend on science of climate variability
 - **Agricultural tools and models** – Science to apply climate information
 - **Farmers** – Demand for better seasonal information to manage risks of a variable (and changing) climate

These factors came together in 1990s and are equally applicable now