SESSION 2: CASE STUDY 3

Boosting Agricultural Resilience to Climate Change

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Abstract

Over the recent few years, two research projects were separately undertaken to support Australia's and Vanuatu's agricultural sectors, demonstrating how the provision of climate services can help producers identify and understand future challenges. Both projects explored climate change-related impacts for different crops, assessing production suitability under current and future climates. Here, we consider both the commonalities and differences in the approaches and outputs in providing climate information to farmers in each country. For example, while the web interface of My Climate View (Australia) and the Van-KIRAP climate change portal (Vanuatu) were both designed for sectoral users to access, the Australian project was location-specific and Vanuatu's output was more regional. We also consider the strengths from both projects and provide actionable recommendations that can be implemented in similar projects going forward.

Introduction

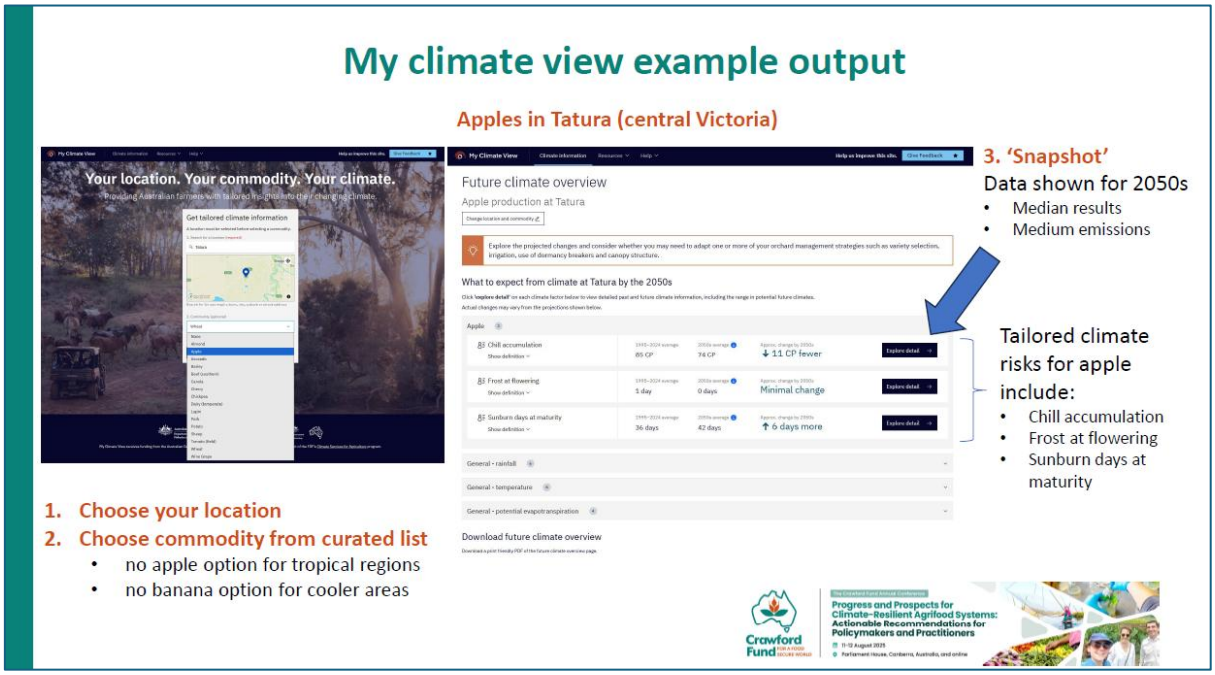
My name is Dr. Leanne Webb, and I work with CSIRO in Australia. Alongside my colleague Dr. Rebecca Derbyshire (CSIRO), we've been leading projects that aim to boost agricultural resilience to climate change. Today I want to share insights from two of those projects: My Climate View in Australia (CSIRO and Bureau of Meteorology, 2025), and Van-KIRAP in Vanuatu. A summary of both projects is shown in the below table

	My Climate View	**Van-KIRAP**
Country	Australia	Vanuatu
Target audience	Farmer and farm advisors	Sector decision makers
Location specific	Choose a location	Regional
Multiple commodities	22 (crops and livestock)	5 (crops, not livestock)
Target	Mainly about **how** it grows	Mainly about **where** it grows

'User' dial-up input	Limited	Yes, explore another crops' suitability
Timeframes	Observed past changes, future	Past, future
Adaptation advice	No	Yes, limited / with caveats
Output (as shown)	Data and graphs of production metrics	Case studies, mapping tool
Support etc.	Train the trainer, field days, industry events	Workshops, fact sheets, video (in Bislama)

Both projects are about helping farmers, advisors, and decision-makers understand how climate change will affect agriculture — and how we can plan more effectively for the future.

My Climate View: Supporting Farmers in Australia



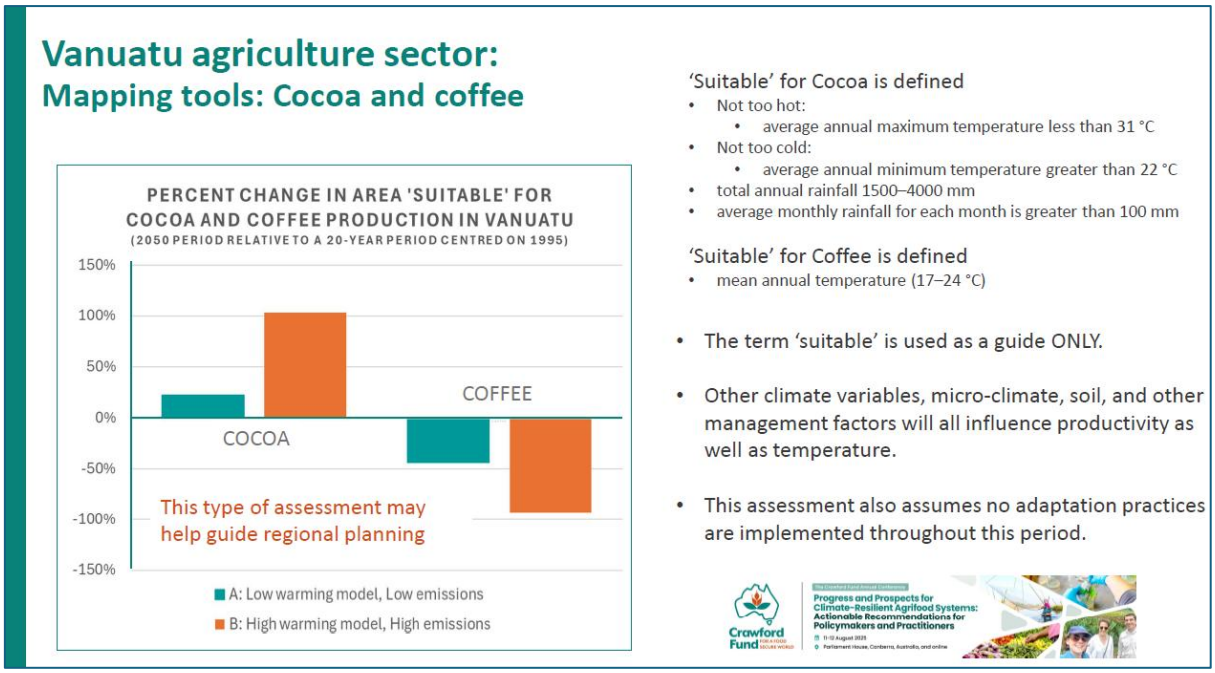
In Australia, My Climate View was designed to integrate climate science into farm management planning. Farmers can choose from a list of commodities currently being produced in their region of interest. The tool then provides a tailored snapshot of how climate risks for the commodity of interest will change for selected periods out to the 2070s under different greenhouse gas emission scenarios.

For example, an apple grower in Victoria can see projections for climate risks such as chill accumulation, frost risk, and sunburn damage, with comparisons between current conditions and future projections (2030, 2050, 2070). Users can explore projected changes in the climate risks

into the future, switching between medium and high-emission scenarios.

The tool was deliberately designed to be practical and user-friendly, allowing farmers and advisors to make evidence-based decisions. Training sessions, field days, and industry events have supported its uptake across Australia.

Van-KIRAP: Climate Resilience in Vanuatu



The Van-KIRAP project applied similar climate science principles in Vanuatu, an island archipelago located between Fiji and New Caledonia in the Western Tropical Pacific Ocean (SPREP VMGD and CSIRO, 2025).

In this project we worked with sector decision-makers to integrate climate information into planning across five sectors, with agriculture being a central focus. We developed case studies — short, accessible four-page reports — on key crops such as cocoa and coffee.

We also built a mapping tool to show how suitable land for crops like cocoa might change under different climate scenarios (Webb and Leo, 2023a). For example, under a high-emissions scenario by 2050, the land suitable for cocoa production could increase considerably. But there are winners and losers: while cocoa suitability increases, coffee suitability declines (Webb and Leo, 2023b).

Importantly, these tools are guides rather than prescriptions. Suitability depends not only on climate but also on soil, microclimate, and management practices. Nonetheless, they provide valuable evidence to support regional planning.

Lessons Learned Across Both Projects

Working across both Australia and Vanuatu, we've learned some important lessons:

- **Regional decision-making must be based on the latest science.** Tools like My Climate View and the Van-KIRAP Climate Futures Portal help integrate climate data into everyday planning.
- **Co-development is essential.** The best projects are built with users, not for them. We made sure to involve farmers, advisors, and local experts from the start, and kept iterating as needs evolved.
- **Capacity exchange matters.** I don't call it capacity development — it's an exchange. We learn from our partners, and they learn from us. That reciprocity makes tools more relevant and more likely to be used.
- **There is no one-size-fits-all.** Each location, crop, and community has different needs. The key to answering the question 'What's going to happen under a changing climate for me?' is to ask: for where, for what, for whom, and why are you asking this?

Conclusion

Agricultural resilience depends on equipping farmers and decision-makers with tools that combine scientific rigour with local relevance. Both the My Climate View and the Van-KIRUP projects show how climate information can be transformed into actionable insights, tailored to farmers in Australia or smallholders in the Pacific.

The future of farming under climate change will be challenging, but with science, co-development, and capacity exchange, we can give communities the confidence to adapt and thrive.

References:

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Dr Leanne Webb is currently working as the science lead for the CSIRO Asia-Pacific Climate intelligence team. In this position Leanne draws on more than two decades of experience gained from studying climate change impacts and related adaptation strategies across many sectors, including agriculture, electricity, finance and health. Agriculture has been Leanne's foundational research domain, with her doctoral research published in 2007 exploring the potential impacts of climate change on the Australian wine industry.
Over the past seven years, Leanne's role has shifted to focus on the Pacific

region. Here, Leanne has been involved with extracting, evaluating, and processing climate model output for use in Pacific-focused case studies, again across multiple sectors, with the purpose of better informing future planning decisions. Currently, Leanne represents CSIRO's involvement across multiple Pacific-focused climate-related committees and panels.