26th International Congress on Modelling and Simulation, Adelaide, SA, Australia, 30 Nov–4 Dec 2025
mssanz.org.au/modsim2025

Turning cross-sectoral agricultural climate change modelling into actionable insights for industry and government

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Abstract: Primary industries in NSW face one of the most variable climates in the world, and many of the commodities that they produce require narrow ranges of climatic conditions for optimal growth and development. The availability of research into these physiological requirements varies greatly across the sector, and the Climate Vulnerability Assessment (CVA) sought to address knowledge gaps in the research literature. This talk will discuss the communications framework developed for this broad, multi-commodity modelling project, focusing on the resulting protocols which enabled us to distil over 1.5 million spatial layers into a set of consistent, comparable outcomes accessible to a wide audience.

The CVA was designed to help policymakers, planners and industry bodies understand possible implications (risks and opportunities) of climate change on economically significant commodities by the middle of the century. It was also intended to address disparities in research efforts across the sector as identified by Darbyshire et al. (2022). Target audiences for the project's outcomes and reporting include industry bodies and planners and policymakers at all levels of government. The primary industries included ranged from broadacre cropping to horticulture and fisheries, and related biosecurity risks. Details and published reports are available on the project's web pages (https://www.dpi.nsw.gov.au/dpi/climate/climate-vulnerability-assessment).

The broad coverage of primary industries, and the scale of the future climate projections used in the CVA, resulted in more than 1.5 million spatial layers of climate suitability for commodities and biosecurity threats across NSW. The hierarchical and transparent characteristics of the MCA models also meant that the effects of climate, and changes in climate, could be examined for each model component, from the overall model to lifecycle or production stages, down to the effects of individual climate variables. The availability of this level of detail is important for decision making, particularly in the prioritisation and development of adaptation options to address vulnerabilities. This collection of outputs had to be refined into a comprehensive but accessible set of outcomes which policymakers, planners and industry bodies could use to support policymaking and strategic planning.

To turn our model outputs into a set of actionable insights for our target audiences, a number of communication protocols were developed: standardised language, consistent colour schemes and confidence statements and a concise map panel layout for communicating a subset of results, based on the careful application of averages over time and underlying climate models.

These communications choices and the reporting process of the project have resulted in a consistent set of project outputs and reports which will ultimately cover 50+ models, producing a thorough analysis of the effects of climate change on primary industries in NSW under a variety of future scenarios.

REFERENCES

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Keywords: *Agriculture, biosecurity risks, climate change, science communication, visualisation*

