

Tools to Assess Vulnerability and Help Adapt to Climate Change in a Temperate Developed Agricultural Economy

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Topic Area – Application of methods and tools including regional models for assessing the impacts of, and vulnerability and adaptation to climate change.

Abstract

This presentation highlights the importance of agriculture to the New Zealand economy, discusses adaptation as a process, overviews adaptation options for a developed agricultural economy, and identifies the range of assessment tools currently being used in New Zealand to assess vulnerability and adaptation responses. The tools included a number of top down and bottom up approaches. The use of a regulatory approach to engage individuals at the regional/district planning and strategy stage is presented. Some of the tools are briefly discussed in more depth: Global Climate Model downscaling, the CLIMFACTS Impacts Assessment Tool, Free Air Carbon Dioxide Enrichment (FACE) research, extreme event studies, regional climate assessments, and bottom-up farmer engagement.

Lessons learnt and conclusions are presented.

- Adaptation is very important for agricultural based economies whether developed or developing.
- Positive and negative impacts are expected.
- Some impacts are well quantified; some are only qualitatively known or poorly understood.
- The biggest negative impacts in medium term are likely to arise from climate extremes (e.g. drought, floods).
- Adaptive capacity is generally high in New Zealand agriculture, but needs to be integrated into business decisions.
- Water management, biosecurity and biodiversity are the biggest potential pressure points on agriculture from a climate change perspective
- The regulatory framework and Sustainable Development objectives provide an important context and framework for adaptation in New Zealand.
- Flow-on effects of climate change impacts and adaptation in other countries (producers or purchasers of agricultural produce) may be larger than any direct domestic agricultural impacts.