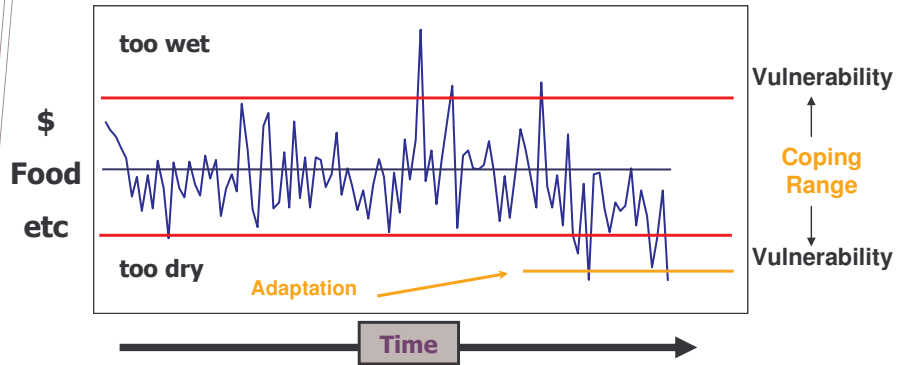


# Risk exposure, vulnerability and adaptation

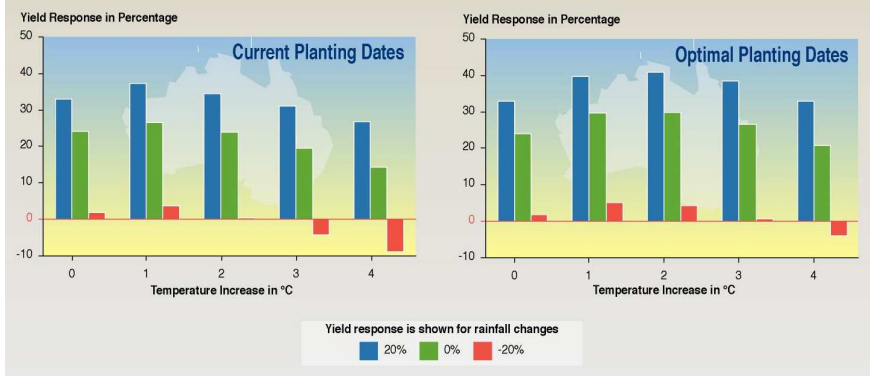


- A continuation of current climate trends (rainfall, max temperature) may result greater enterprise vulnerability.
- Given the difficulties in ensuring appropriate levels of adaptation, planning is required well ahead of these changes.



# Adaptation Benefits at a National Scale

Australian Wheat Yield for CO<sub>2</sub> levels of 700 ppm and a Range of Changes in Temperature and Rainfall



## There is nothing special about adaptation, we are adapting all the time

- Businesses re-position themselves in response to opportunities and risks
  - Governments change policies and programs to better achieve broad societal goals
  - These decisions are taken all the time – in the absence of complete information
  - Climate is no different
  - Our aim is to help make adaptations more effective and efficient in the face of uncertain climate changes
- **It is all about good risk management and increasing resilience**



## Possible On-Farm Adaptation<sub>1</sub>

- Develop additional climate risk offset approaches:
  - zero tillage and other minimum disturbance techniques;
  - retaining residue,
  - extending fallows and staggering planting times,
  - row spacing and planting density, and
  - additional erosion controls.
- More opportunistic plantings:
  - accounting for environmental condition (e.g. soil moisture), and
  - climate (e.g. seasonal climate forecasting)
- Expand routine record keeping:
  - Weather
  - Production
  - Degradation,
  - Pest, diseases and weed invasion
- Incorporating seasonal climate forecasts and climate change into farm enterprise plans



## Possible On-Farm Adaptation<sub>2</sub>

- Improve efficiency of water distribution systems:
  - reduce leakage and evaporation
  - Improve irrigation practices, and
  - moisture monitoring, soil definition
- Learning from farmers in currently more marginal areas.
- Selection of varieties with appropriate thermal time and vernalisation requirements:
  - heat shock resistance,
  - drought tolerance,
  - high protein levels,
  - resistance to new pests and diseases and
  - perhaps that set flowers in hot/windy conditions
- Use of tools/training to access/interpret climate data and alternative management options (e.g. Yield Prophet)



## Bigger Picture Adaptation Ideas....

- What crops to grow? Do I change my enterprise mix?
- Water priorities?
- Invest in high efficiency irrigation methods?
- Irrigation strategies & triggers?
- Do I partially water the whole farm, or focus down for intensive irrigation?
- Do I manage a dryland operation and plan to sell my water?
- Must be many more ideas, both wild and conservative....

