Australian Government
Department of Agriculture, Water and the Environment
ABARES

2020 OUTLOOK
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The effects of drought and climate change on Australian farms

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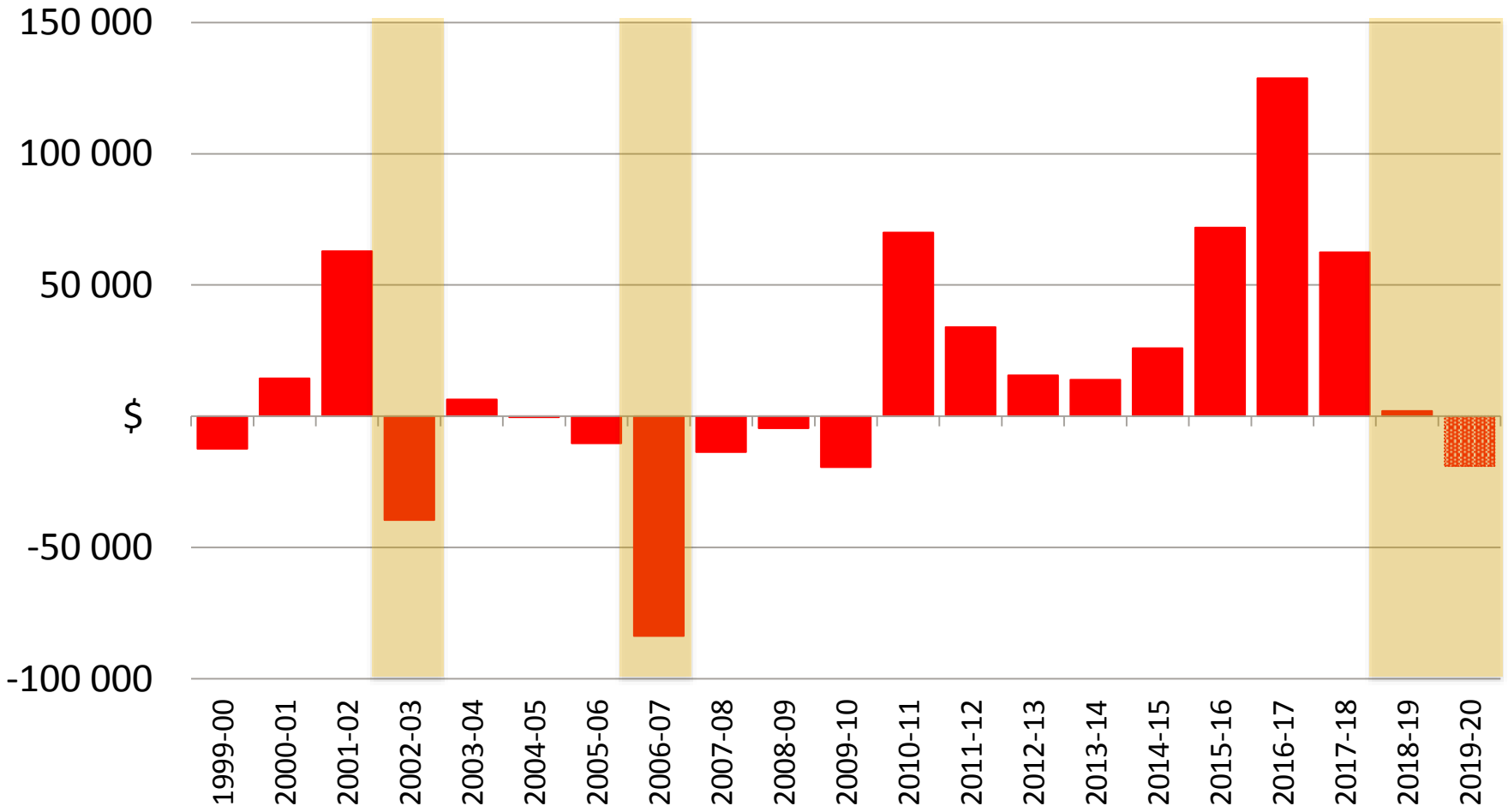
Research by the
Australian Bureau of Agricultural and Resource Economics and Sciences

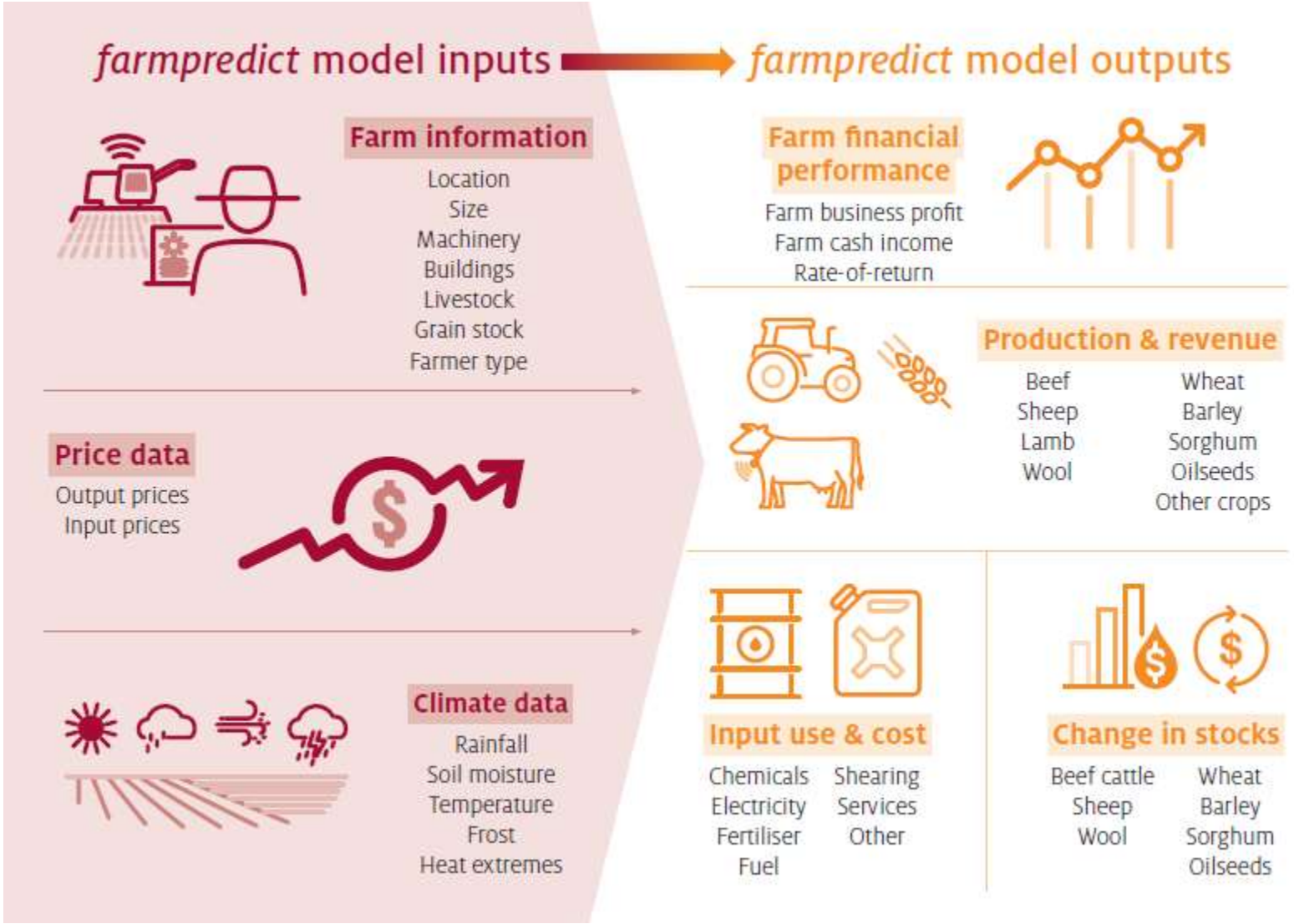
Farm profits are highly variable

Broadacre average farm business profit, 1999-2000 to 2019-2020



Source: ABARES AAGIS

Introducing *farmpredict*



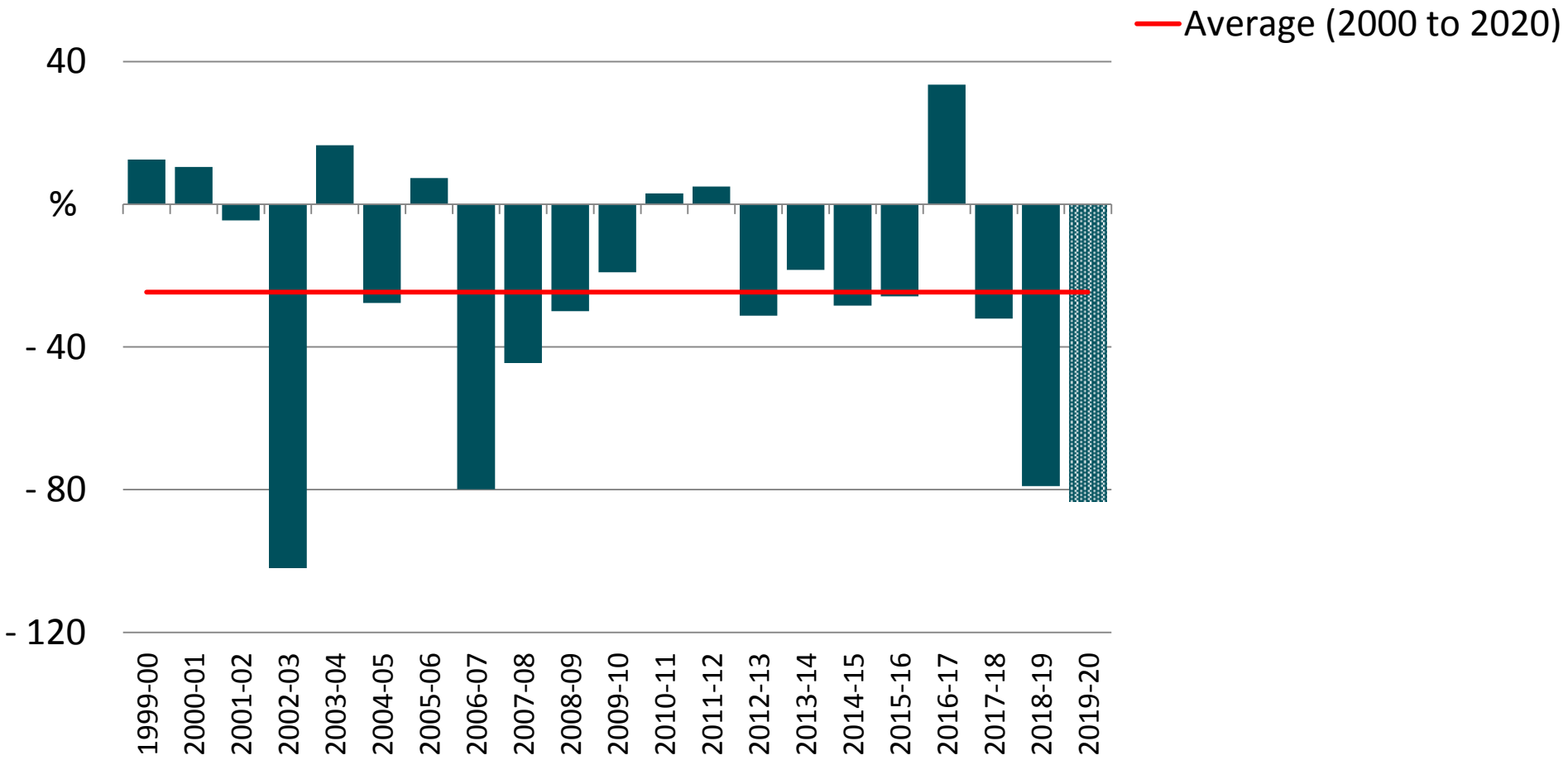
Climate change trends

- Higher av. temperatures, +1 degree with most since 1950
- Lower av. winter rainfall in southern Australia
- Higher av. summer rainfall, esp. in northern Australia
- More weather extremes (heat events, heavy rain)

Source: BOM 2018 http://www.bom.gov.au/state-of-the-climate/

Changes in climate are affecting farm profits

Effect of climate on farm profits relative to long-run average (1950 to 1999)



Source: ABARES *farmpredict*

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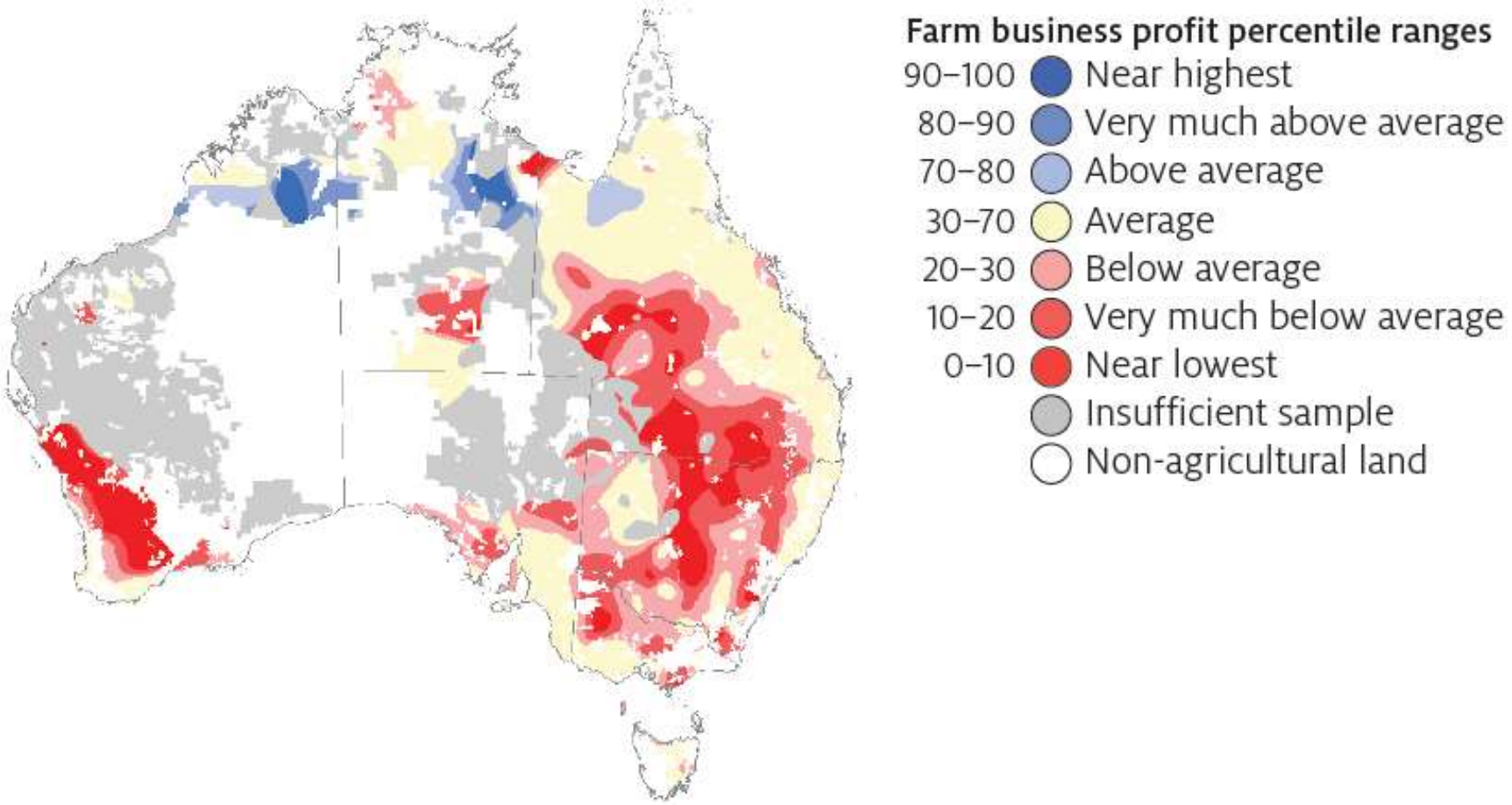
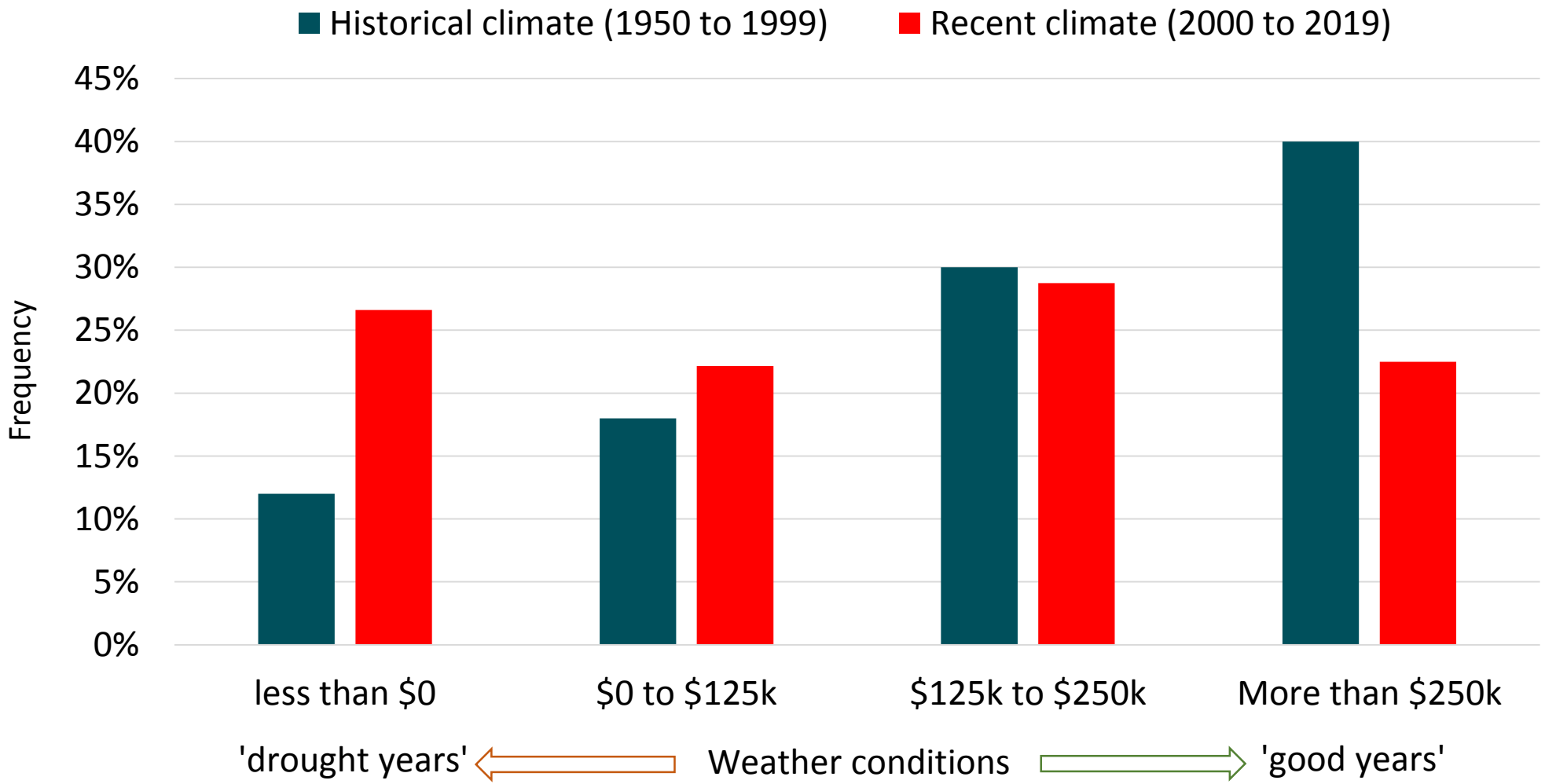
Effect of 2000 to 2019 climate on broadacre farm profit, relative to 1950 to 1999



Source: ABARES 2019
https://www.agriculture.gov.au/abares/publications/insights/effects-of-drought-and-climate-variability-on-Australian-farms

Farm climate risk has increased

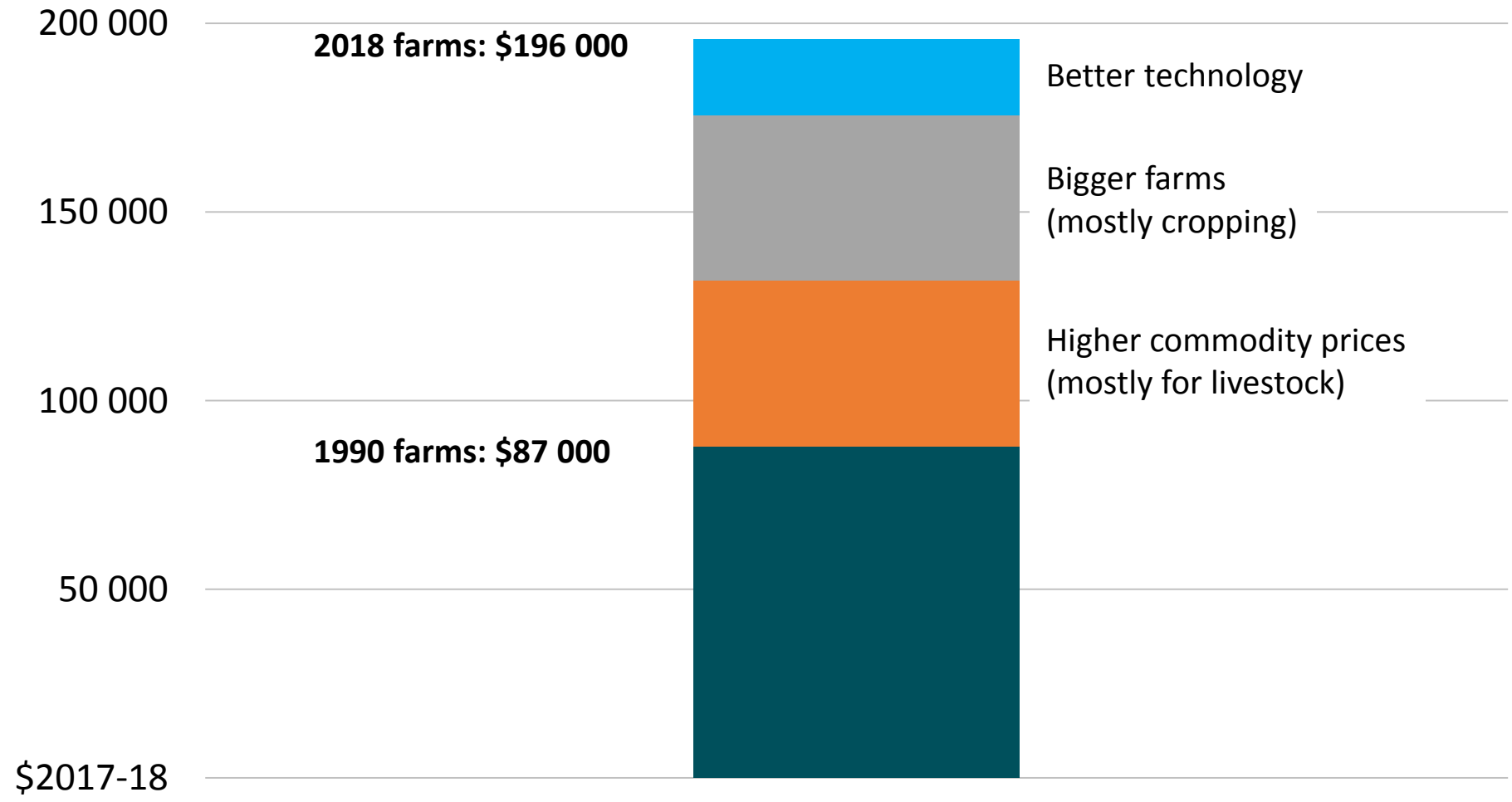
Distribution of profits for a typical cropping farm (% of years in each profit range)



Source: ABARES *farmpredict*

Farm adaptation and adjustment

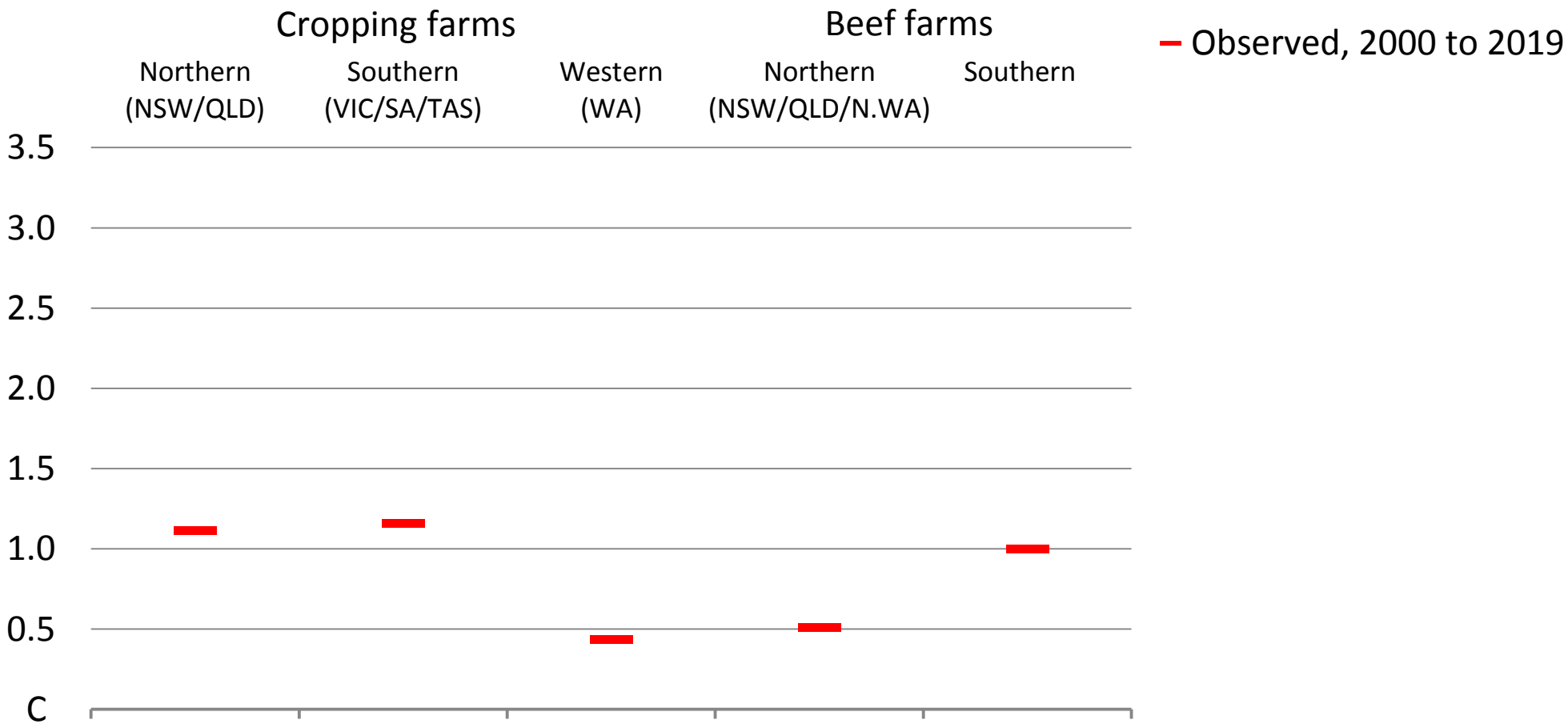
Simulated average farm cash income, long-run average (1950 to 2019) climate conditions



Source: ABARES *farmpredict.*

Climate change projections

Change in summer (Nov.-Mar.) av. max. temperature for Australian farms, relative to 1950-1999



Source: CSIRO, ABARES estimates. Notes: 6 Global Climate Models (GCMs) and 2 emission scenarios (RCP 4.5 and RCP 8.5)

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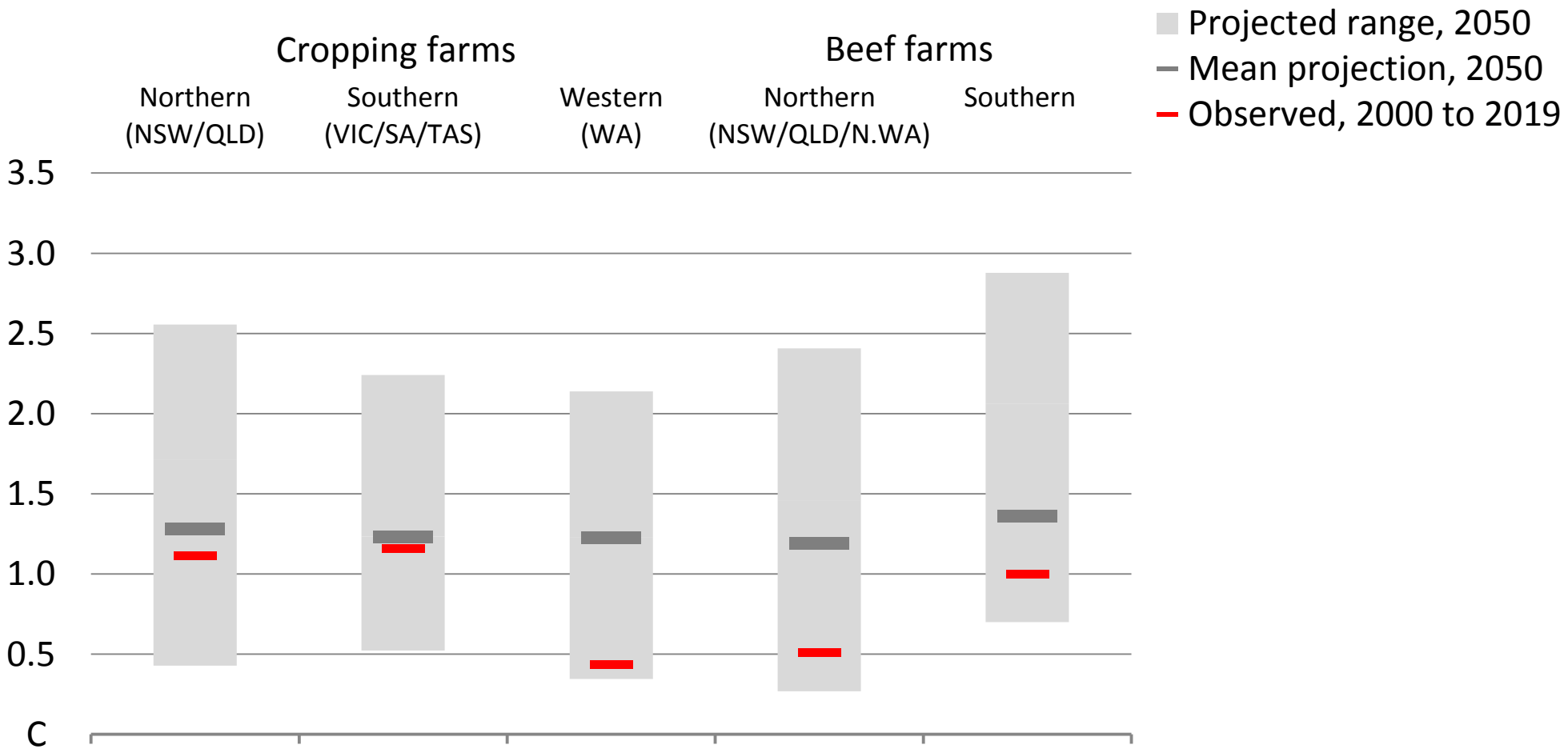

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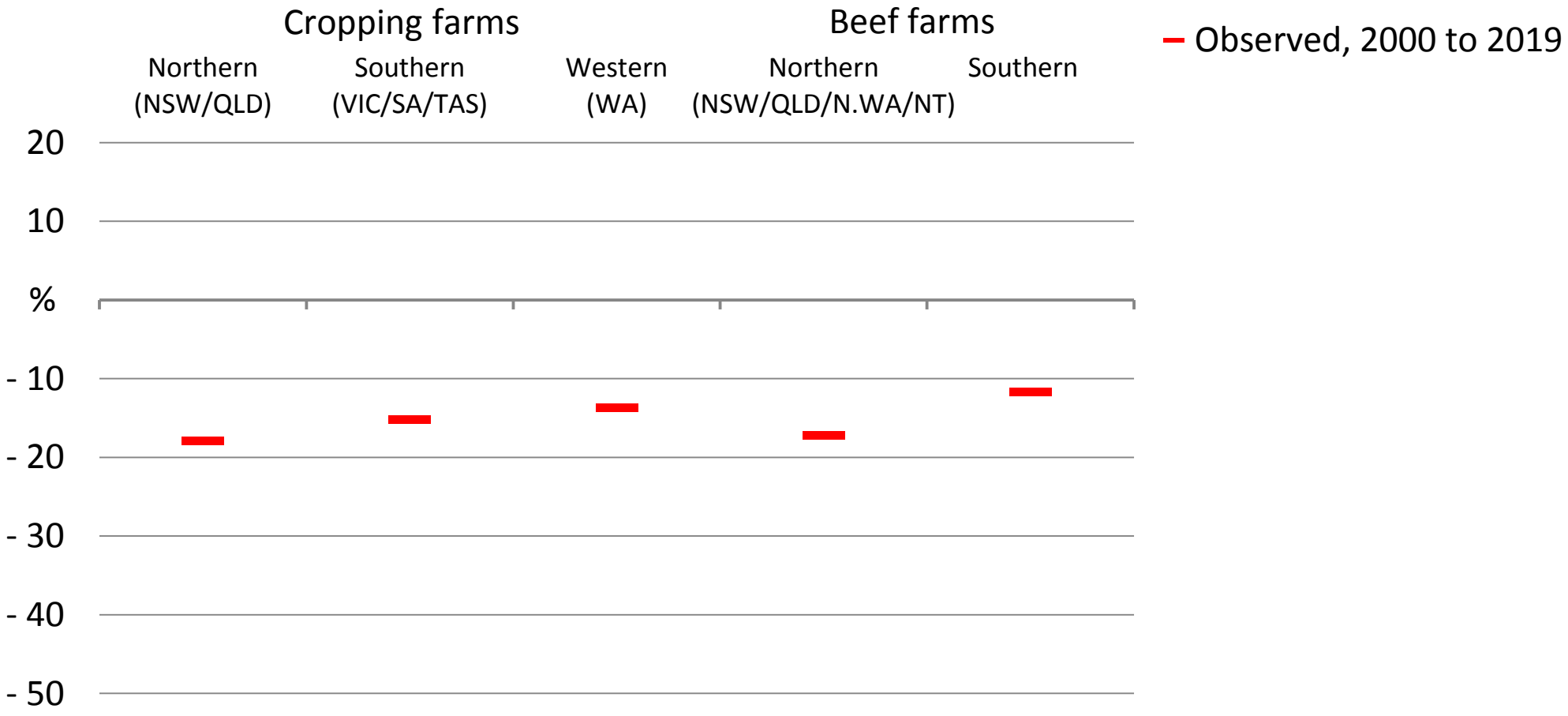
Climate change projections

Percentage change in winter (Apr.-Oct.) rainfall for Australian farms, relative to 1950-1999



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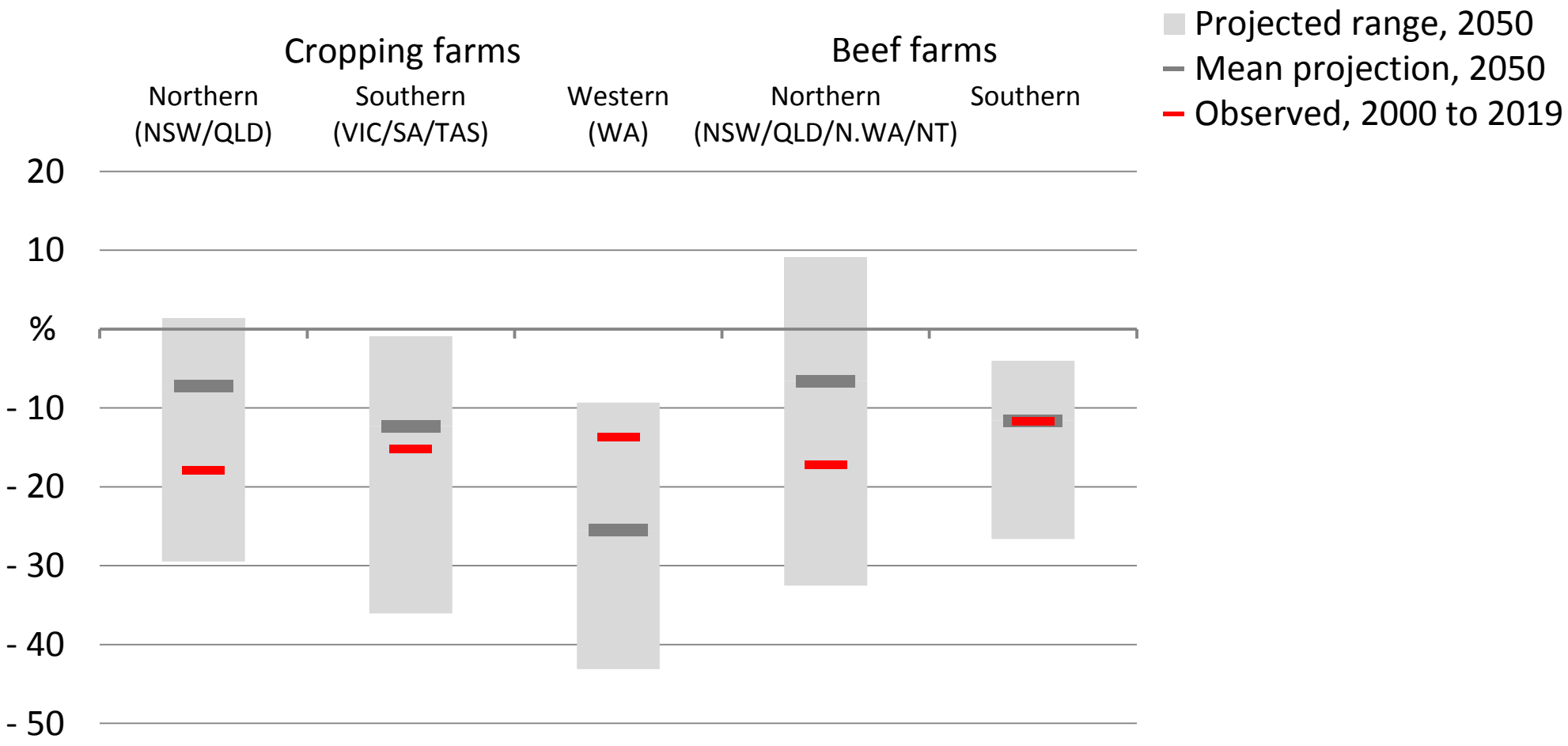

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Policy options

- Adaptation
  - Drought resilience / R&D
  - Drought support can slow industry adjustment

- Risk management
  - Climate risk is a constraint on investment
  - Missing market for drought insurance
  - Index-based insurance could provide a way forward

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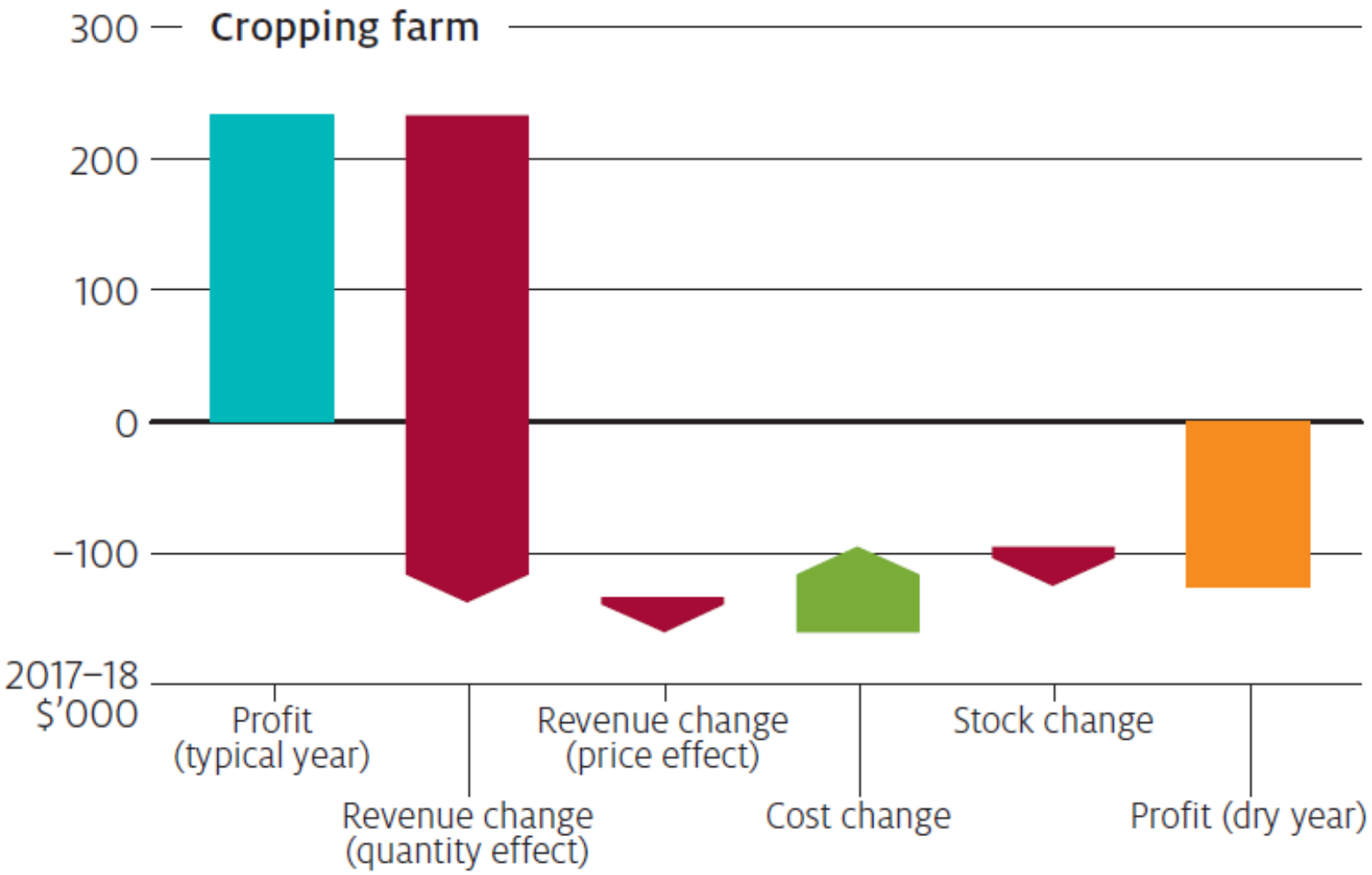
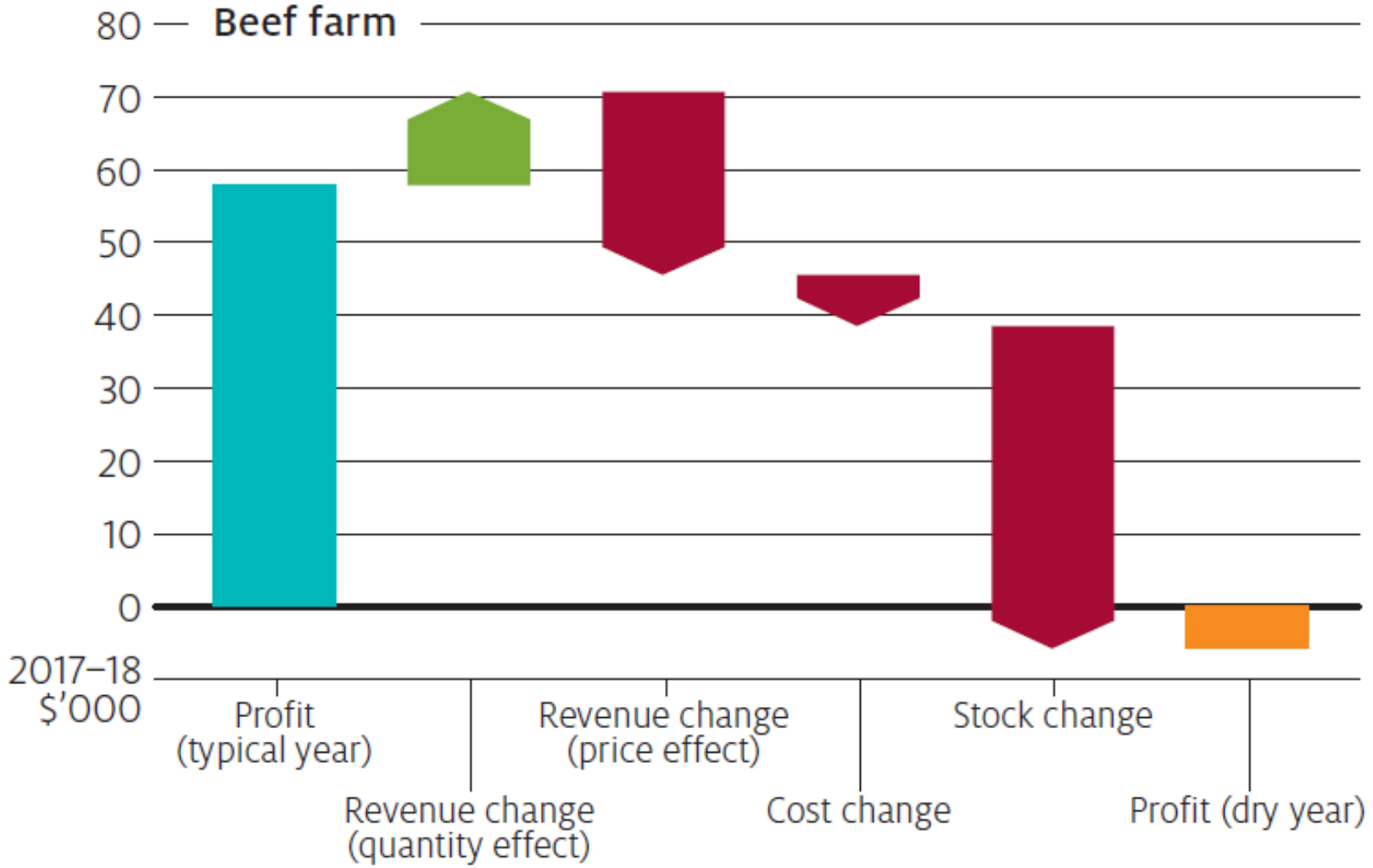
Example: cropping farm during a drought



Source: ABARES 2019
https://www.agriculture.gov.au/abares/publications/insights/effects-of-drought-and-climate-variability-on-Australian-farms

Example: beef farm during a drought



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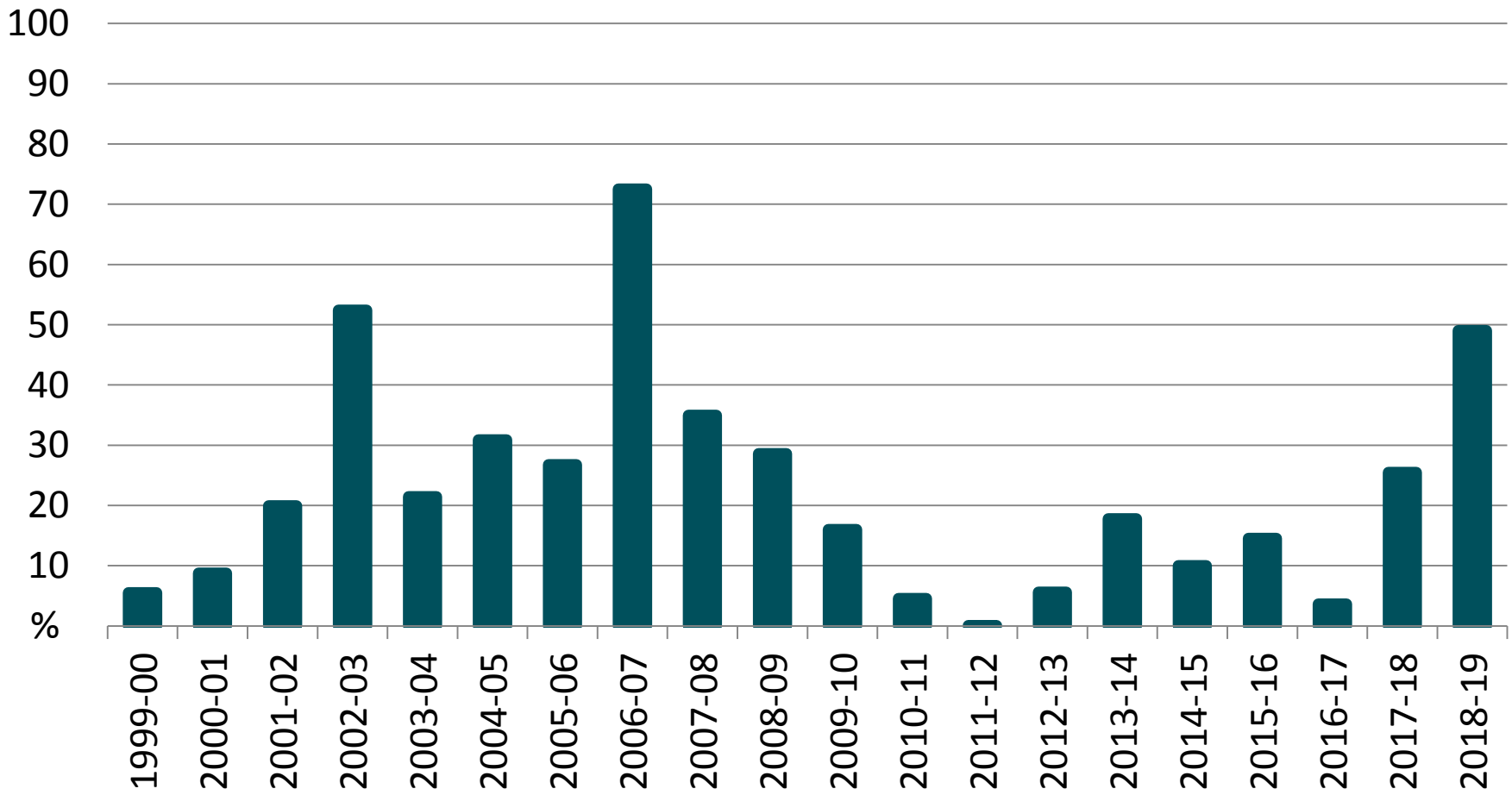
Farmer perception of drought has changed

Percentage of farmers assessing seasonal conditions as ‘drought’



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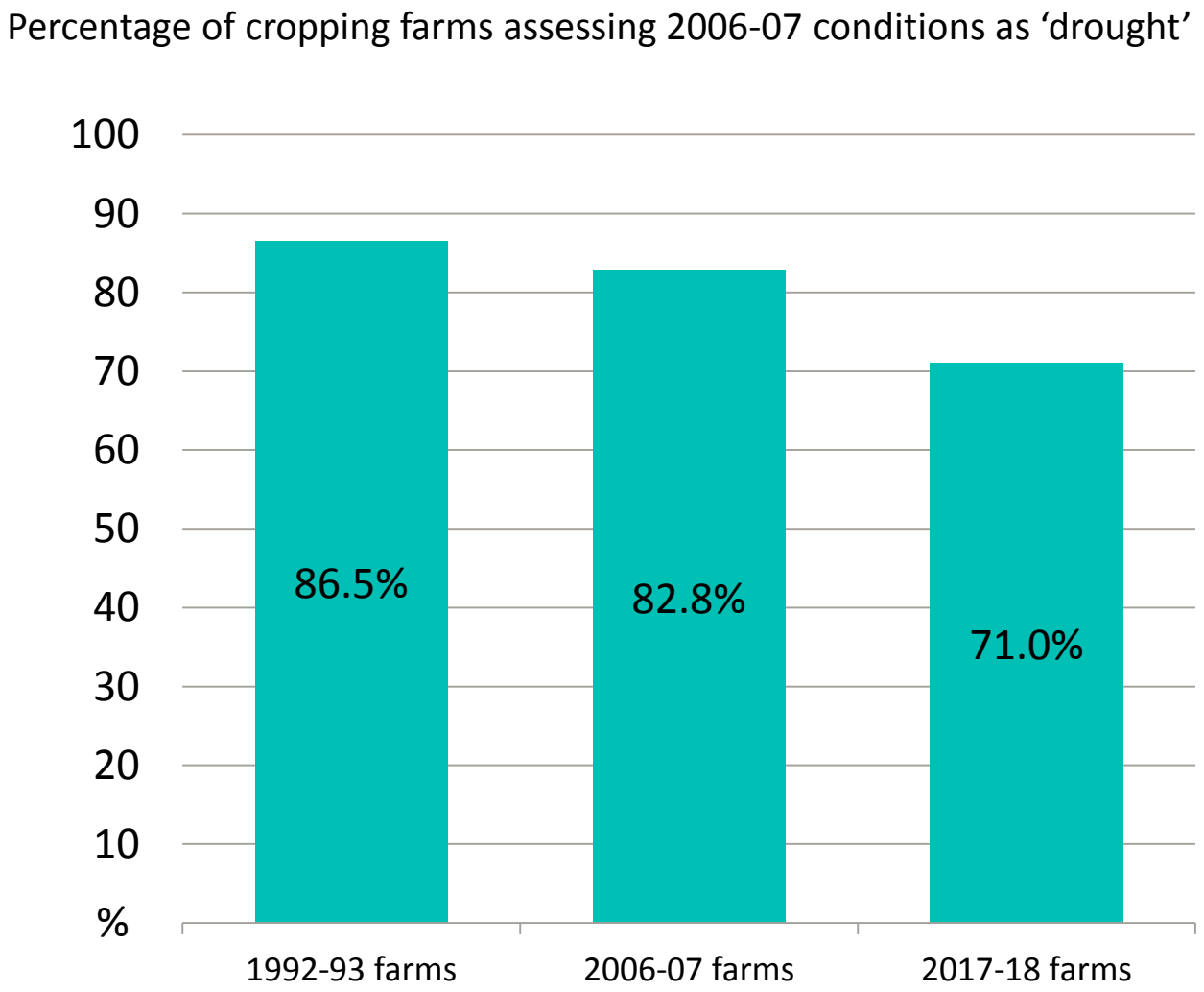

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