Climate adjusted productivity on cropping farms
The slowdown and the rebound

Neal Hughes
Water and Climate section
Australian Bureau of Agricultural and Resource Economics and Sciences

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Total Factor Productivity (TFP)
Climate change

Rainfall decile ranges

- Highest on record
- Very much above average
- Above average
- Average
- Below average
- Very much below average
- Lowest on record

Rainfall has been very low over parts of Australia during the southern growing season.

Southern growing season (April–October) rainfall deciles for the last 20 years (1996–2015). A decile map shows where rainfall is above average, average or below average for the recent period, in comparison with the entire rainfall record from 1900.
A ‘data-driven’ approach
Climate adjusted productivity

- TFP
- Climate adjusted TFP
- Climate effect
- Climate effect (15 year av.)

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Effect of climate on productivity since 2000-01

Climate effect on productivity
2000–01 to 2014–15

- < -20%
- -20 to -10%
- -10 to -2%
- 2 to 10%
- > 10%
Climate adjusted wheat yields

Wheat yield
Climate adjusted yield
Climate effect
Climate effect (15 year av.)

Tonnes/HA

Climate adjusted wheat yields

- Wheat yield
- Climate adjusted yield
- Climate effect
- Climate effect (15 year av.)

Tonnes/HA

- 1977-78
- 1982-83
- 1987-88
- 1992-93
- 1997-98
- 2002-03
- 2007-08
- 2012-13
- 2016-17
Climate adjusted wheat yields

Tonnes/HA

Wheat yield
Climate adjusted yield
Climate effect
Climate effect (15 year av.)

ABARES 2016-17 wheat yield estimate
Farm sensitivity to climate

TFP
Climate adjusted TFP
TFP in wet conditions
TFP in dry conditions

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Farm sensitivity to climate

% change
-50 -40 -30 -20 -10 0 10 20 30

Average conditions Wet year effect Dry year effect
Change in ABARES farm sample, 2000s vs 1990s

Change in sample density
(farms per square km per year)

-100% > 100%
Key points

- Cropping farm productivity ground to a halt in the mid 1990s
- Productivity has rebounded strongly over the last 10 years
- Climate change is affecting cropping farm productivity
- Farmers are adapting