Digiscape:
A one-platform solution for seasonal climate integration into Agriculture

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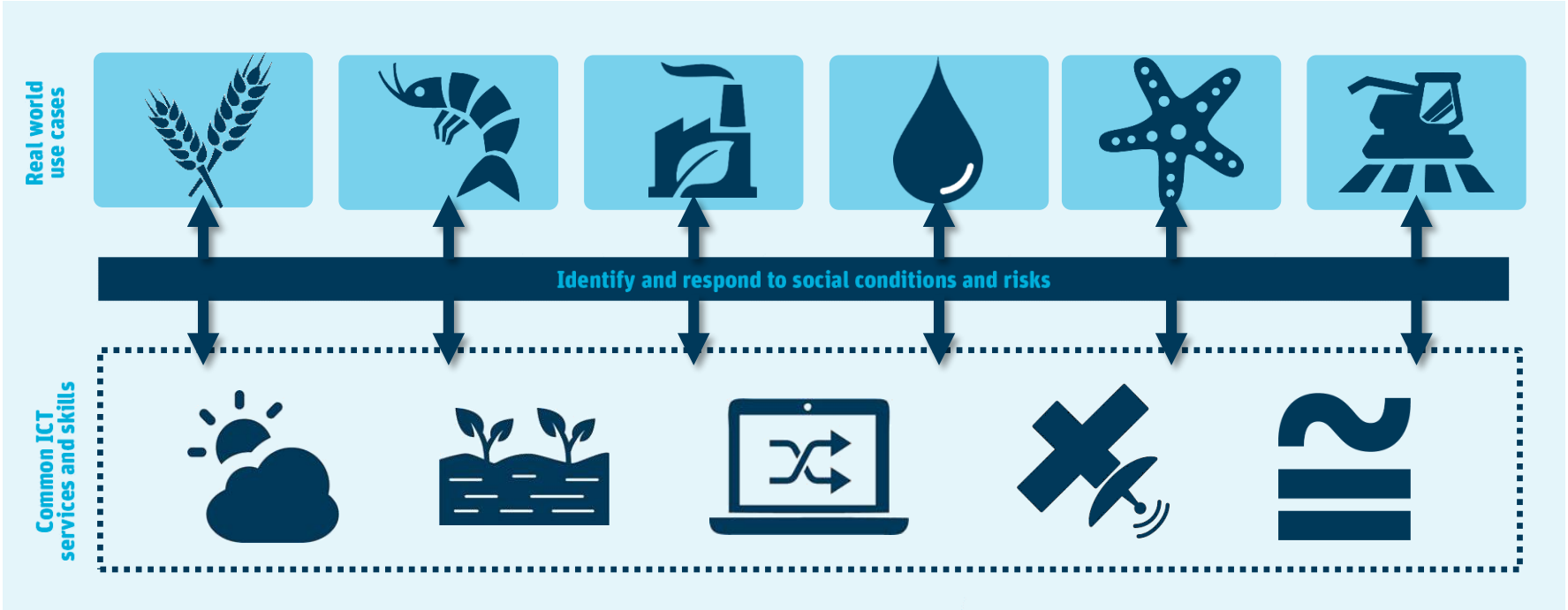
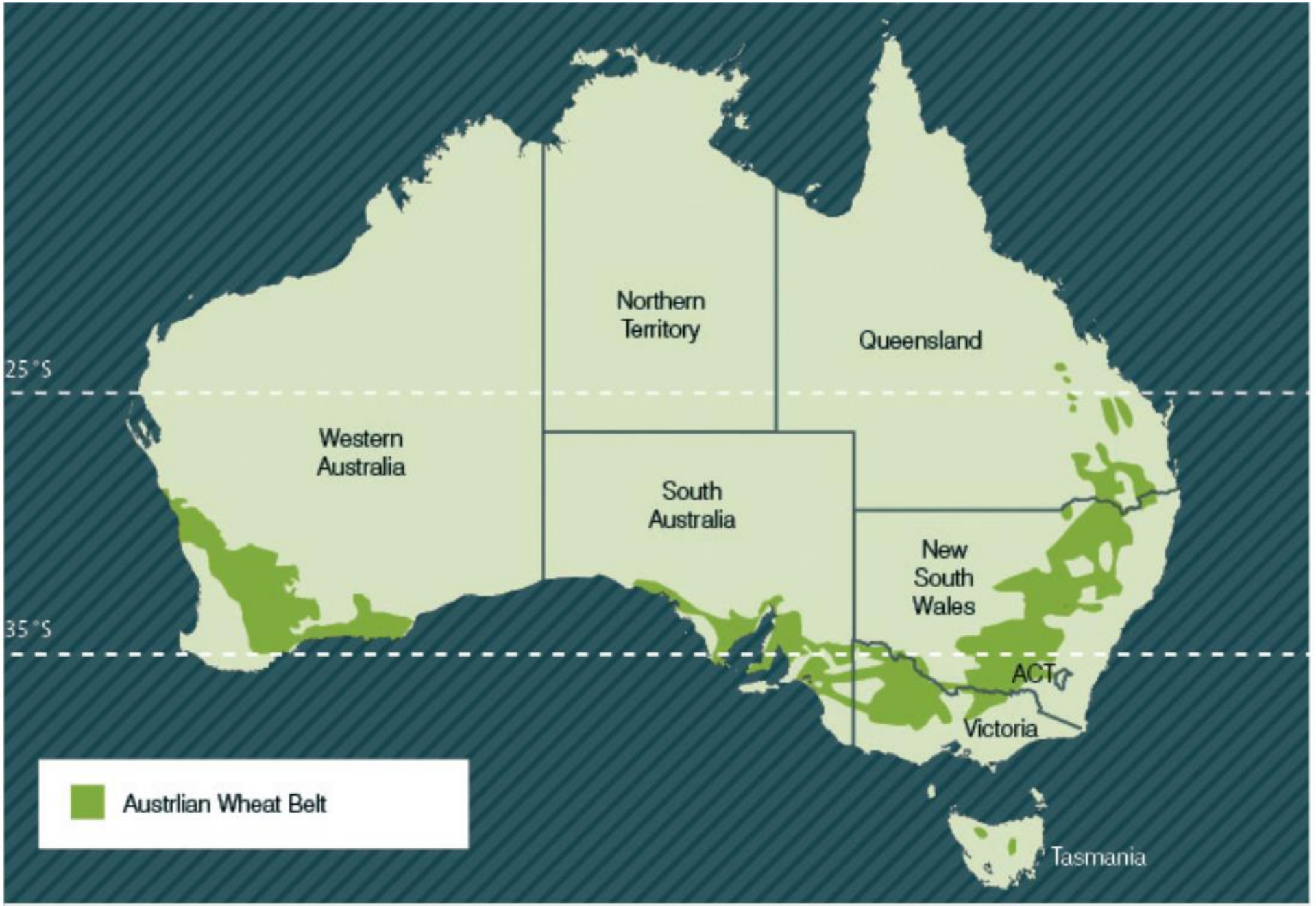
April 2019

Four Industrial Revolutions

Digiscape Future Science Platform



And the Social Scientists!

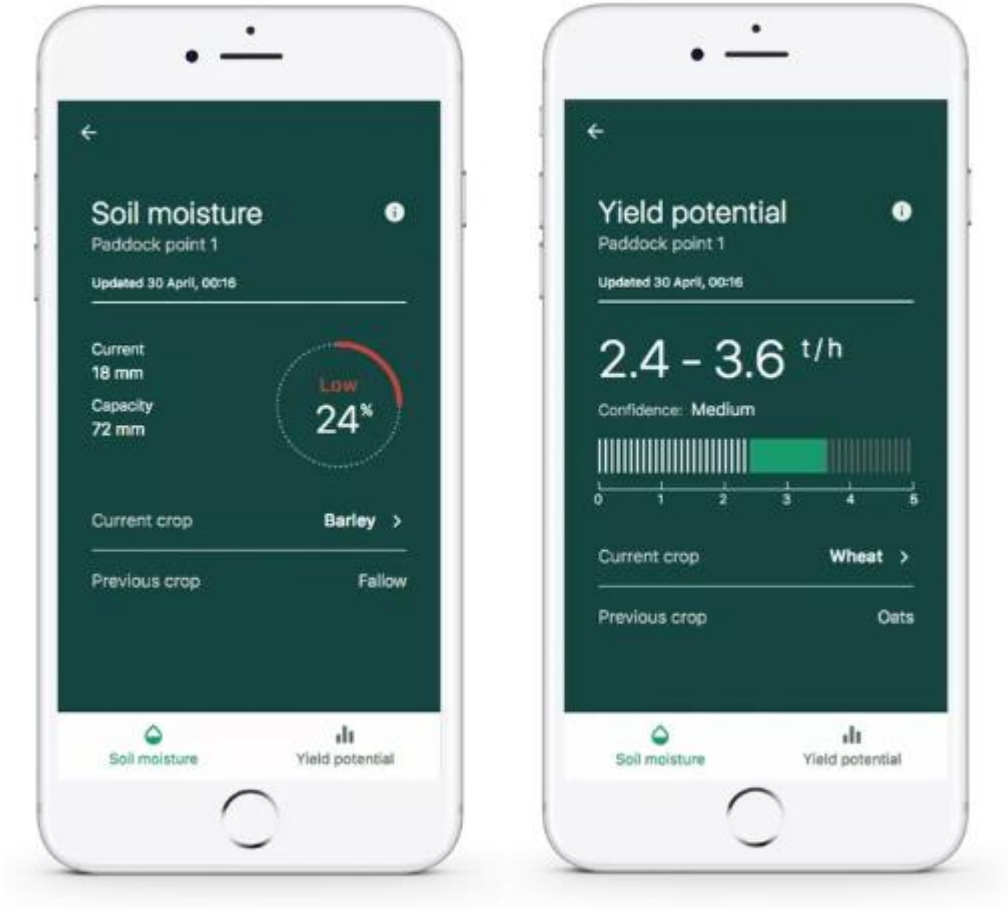


Source: Australian Centre for International Agricultural Research, Australian Government, 2011

GRAINCAST – Finding the value of Yield Predictions

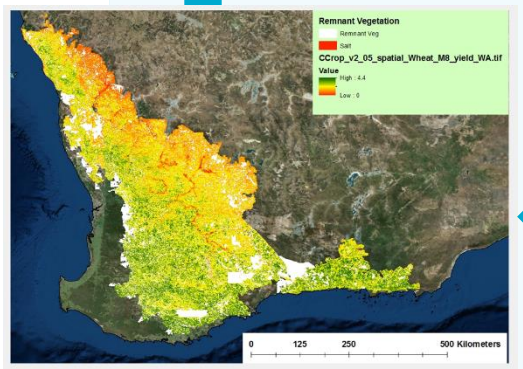
To estimate yield you need to know:

- **The future climate**
- **Soil type**
- **What has been planted**
- **Management decisions**
- **On-going crop decisions.**



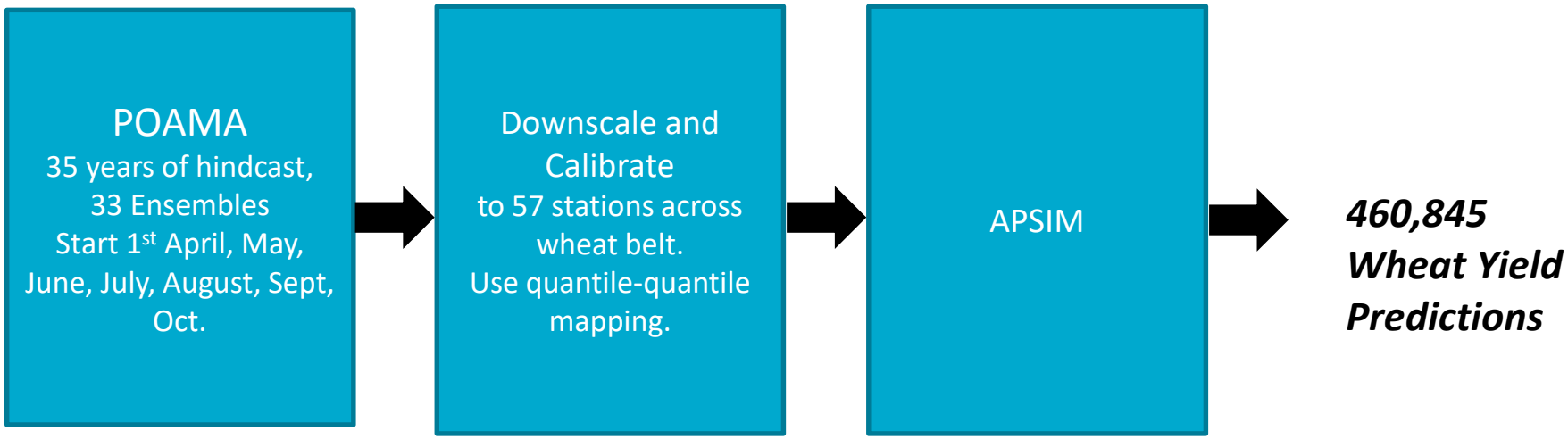
Graincast: Interlocking Yield Forecasts

CBH GROUP



Ground Truth

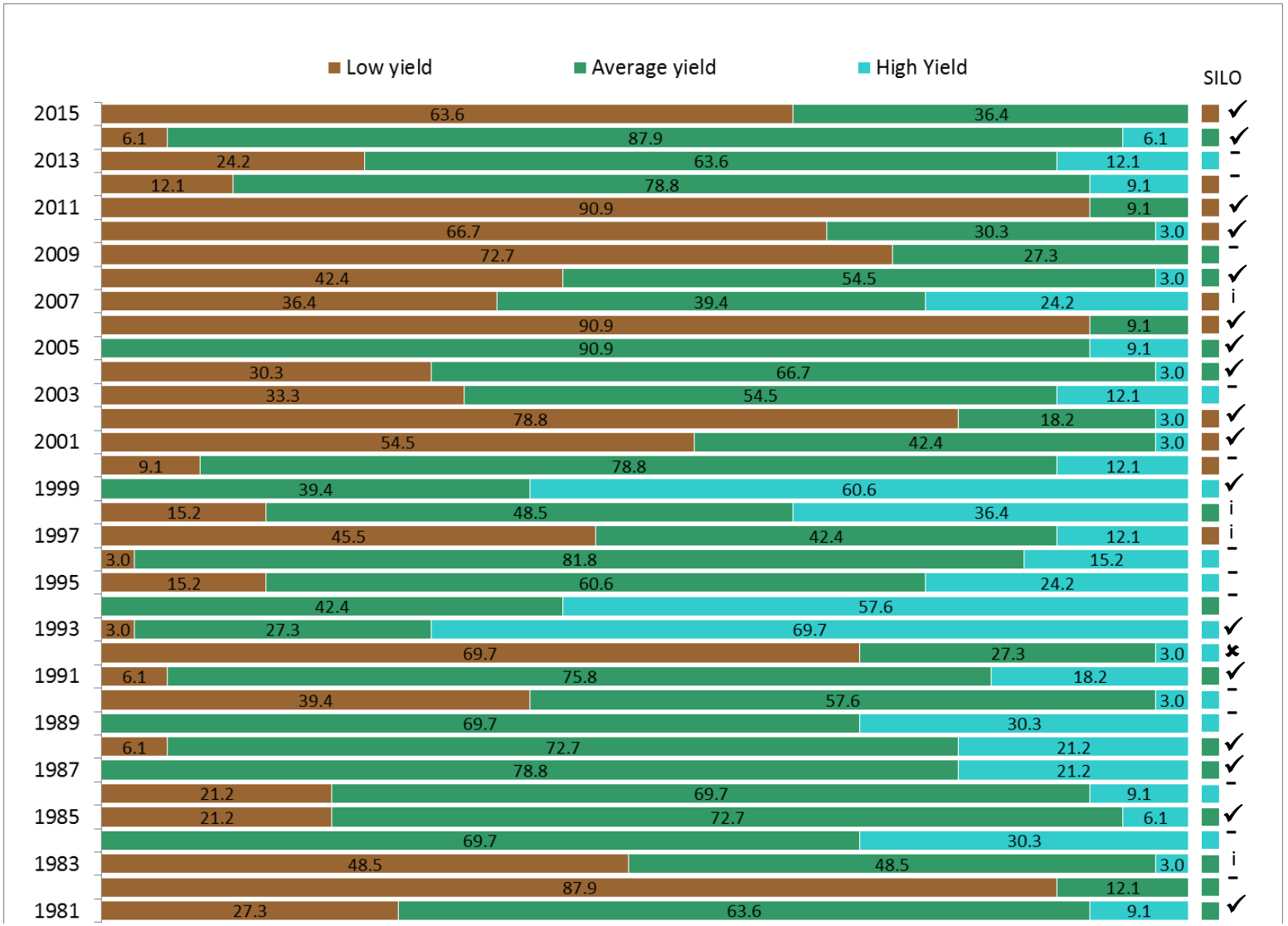
CSIRO



Brown et al. (2018)

Example: Forecast in June for Ouyen (the best one!)

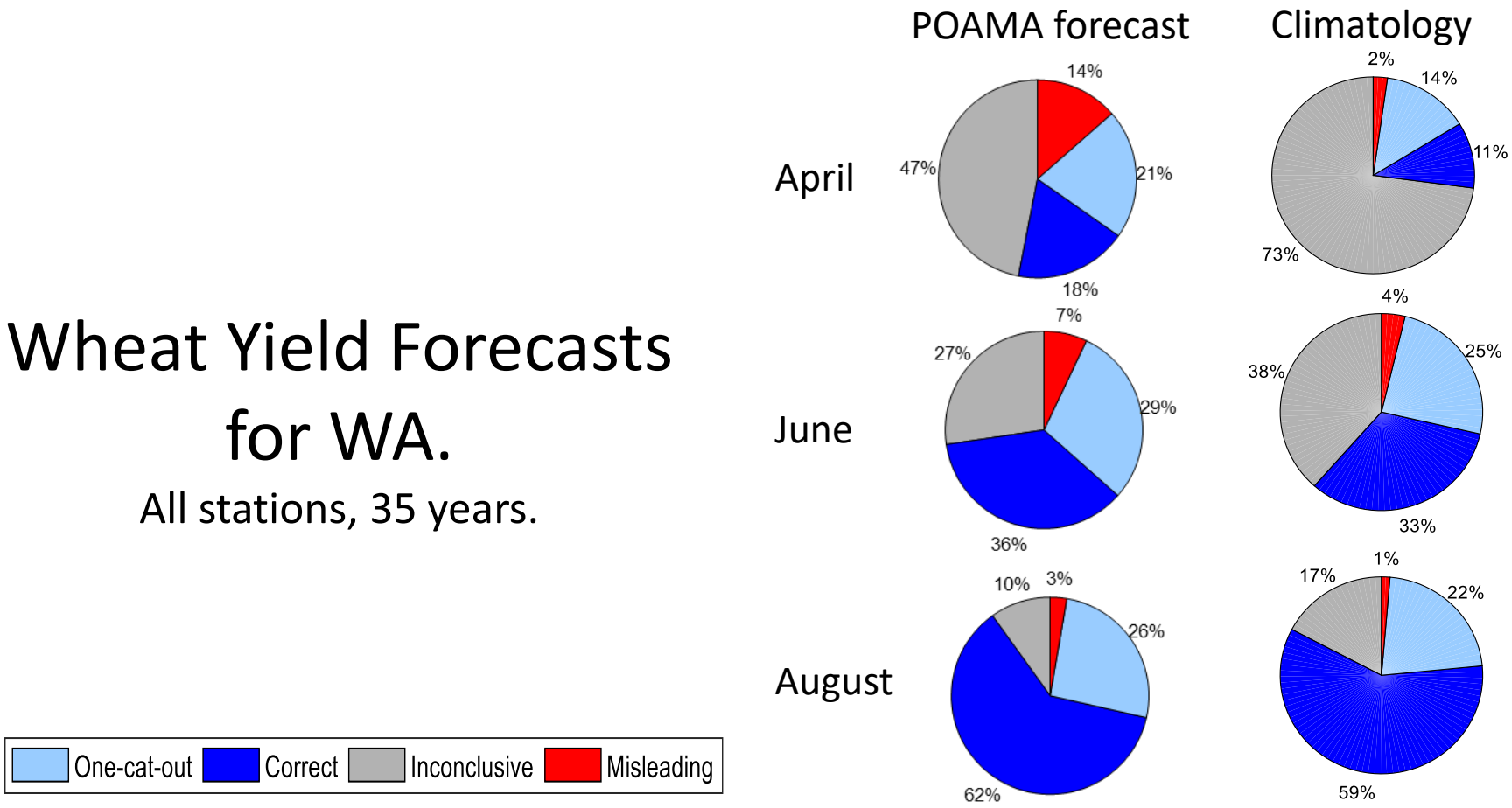
Percentage of 33 ensembles in each category



Brown et al. (2018) Ag and Forest Meteorology
Rodriguez et al (2018) Nature Science Reports

Wheat Yield Forecasts for WA.

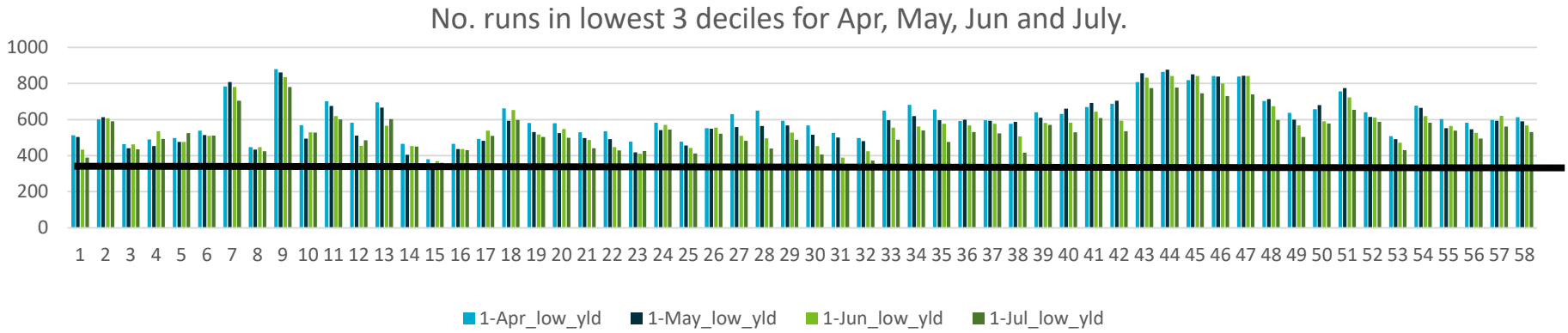
All stations, 35 years.



Brown et al. (2018)

33 ensembles x 35 years = 1155 runs @ 57 stations.

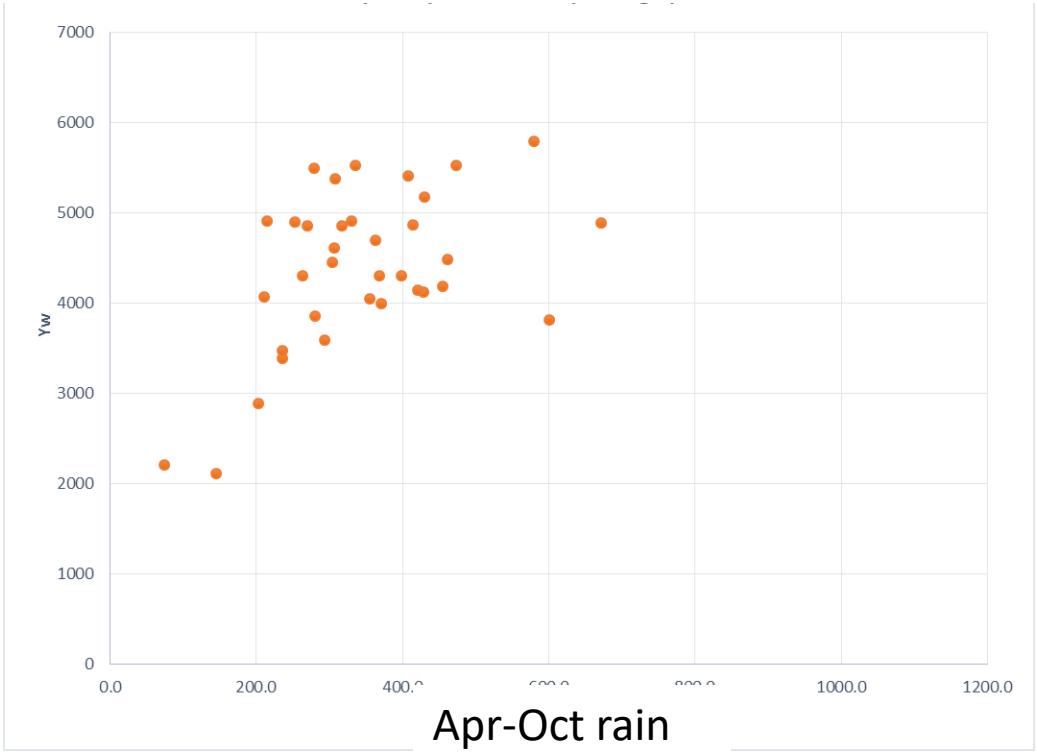
Expect ~ 30% to be in lowest 3 deciles (~347 runs)



This is clearly too many to be a statistical artefact!
Major reason for the errors in the forecast.

Rainfall-Yield relationship at Parkes, NSW

Potential Yield



Rainfall-Yield relationship at Parkes, NSW

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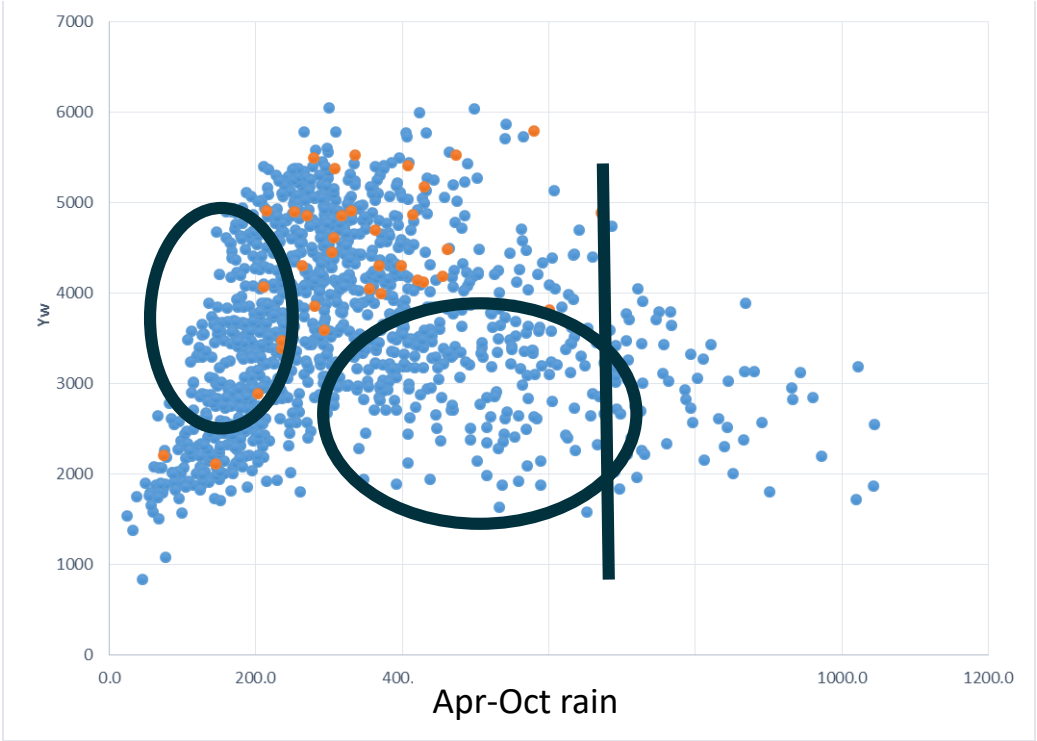


SILO ave: 377

POAMA ave: 344

AgScore:

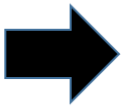
A really fancy climate model metric related to growing grains.

The Solution … on Senaps.

Called from Matlab, R or Python on desktop computer anywhere in the world.

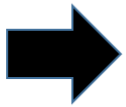
Inputs from Climate Scientist

- Location e.g. Birchip
- Time Period
  e.g. 1980-2015
- Ensemble of climate forecasts
  rainfall,
  max T,
  min T,
  radiation.



AgScore

The Senaps Black Box



Outputs back to climate scientist.

AgScore metrics

- Accuracy
- Distribution
- Comparison with climatology

NOT A REAL YIELD FORECAST

What we need to know from you (our customer):

- Would you use this tool?
- What file format would you submit to AgScore?
- What metrics are you interested in having come back?
- What sort of research questions would you address with this tool?
- Would you like to work with us on developing the tool?

Thank you

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Some Farming Enterprises:

70% of profits are made in 3 years out of 10.

Important to know which 3 years so you can maximise your profit.

YIELD PROPHET Lite

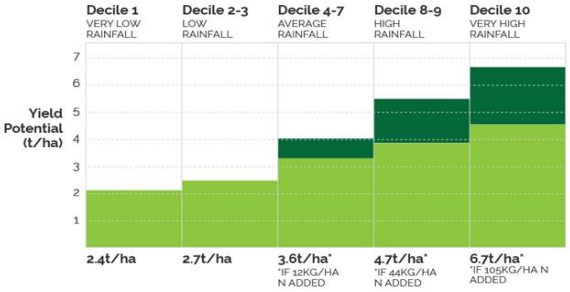
Your Selection

Crop	Grown near	Total soil water	Total soil nitrogen	Soil organic carbon
WHEAT	BIRCHIP, VIC	130mm	73kg/ha	1.5%

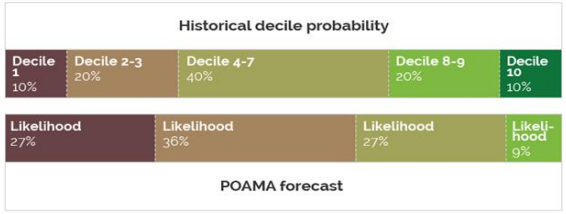
Edit these values

Results

Based on what you entered, we predict the following potential yield ranges, depending on the rainfall decile of the season finish.



POAMA predicts a greater than average chance of a dry season finish.



For more detailed data **Sign up for Yield Prophet!**

Mostly due to a really strong low yield bias at many locations!
e.g. Parkes