National Wheat Outlook

June 2022
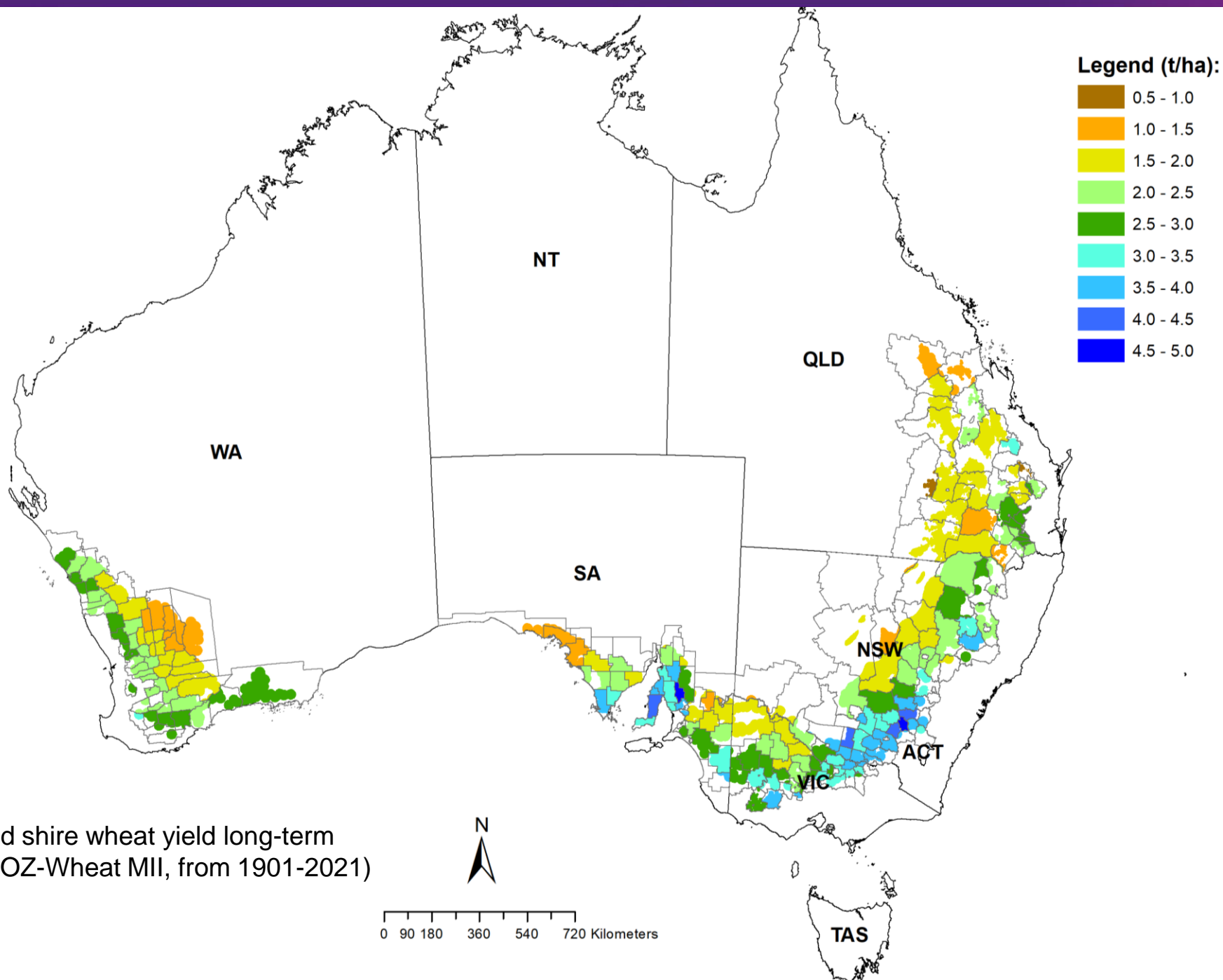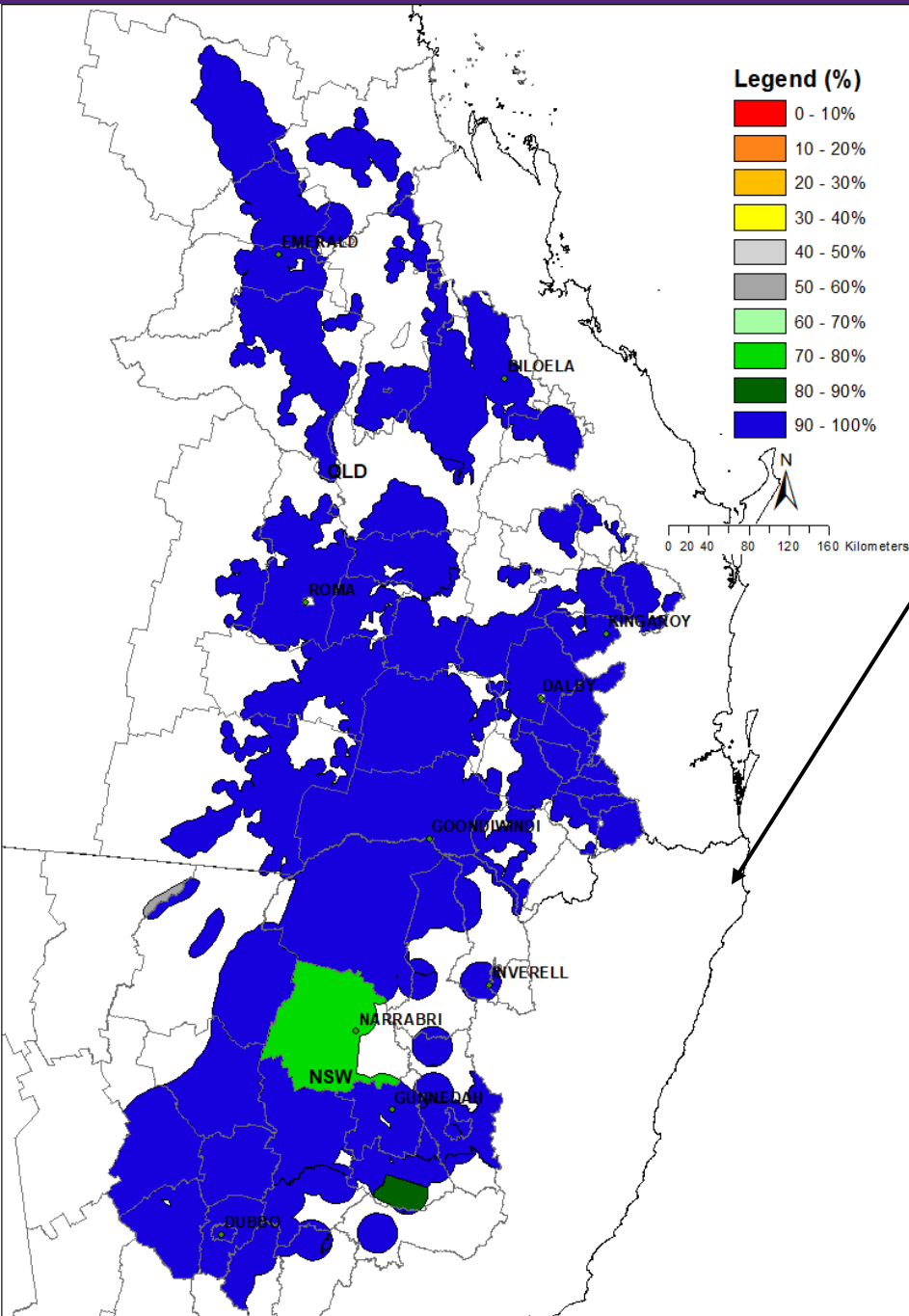
Contact
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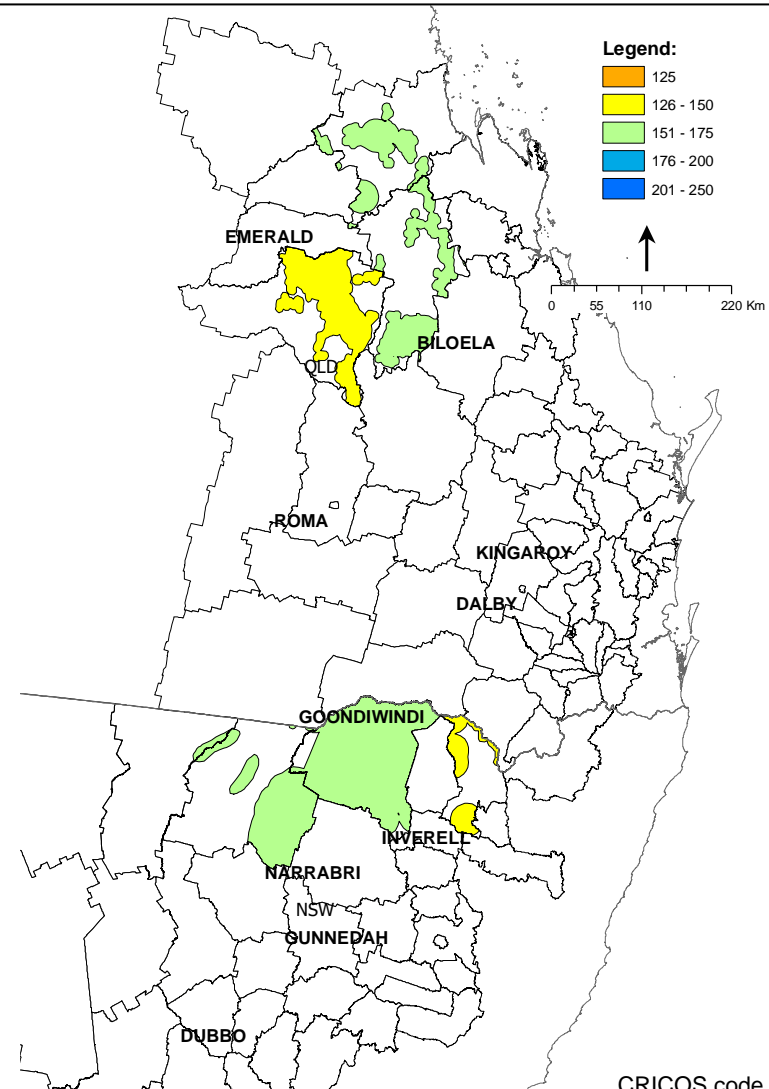Queensland Alliance for Agriculture and Food Innovation

E: a.potgieter@uq.edu.au
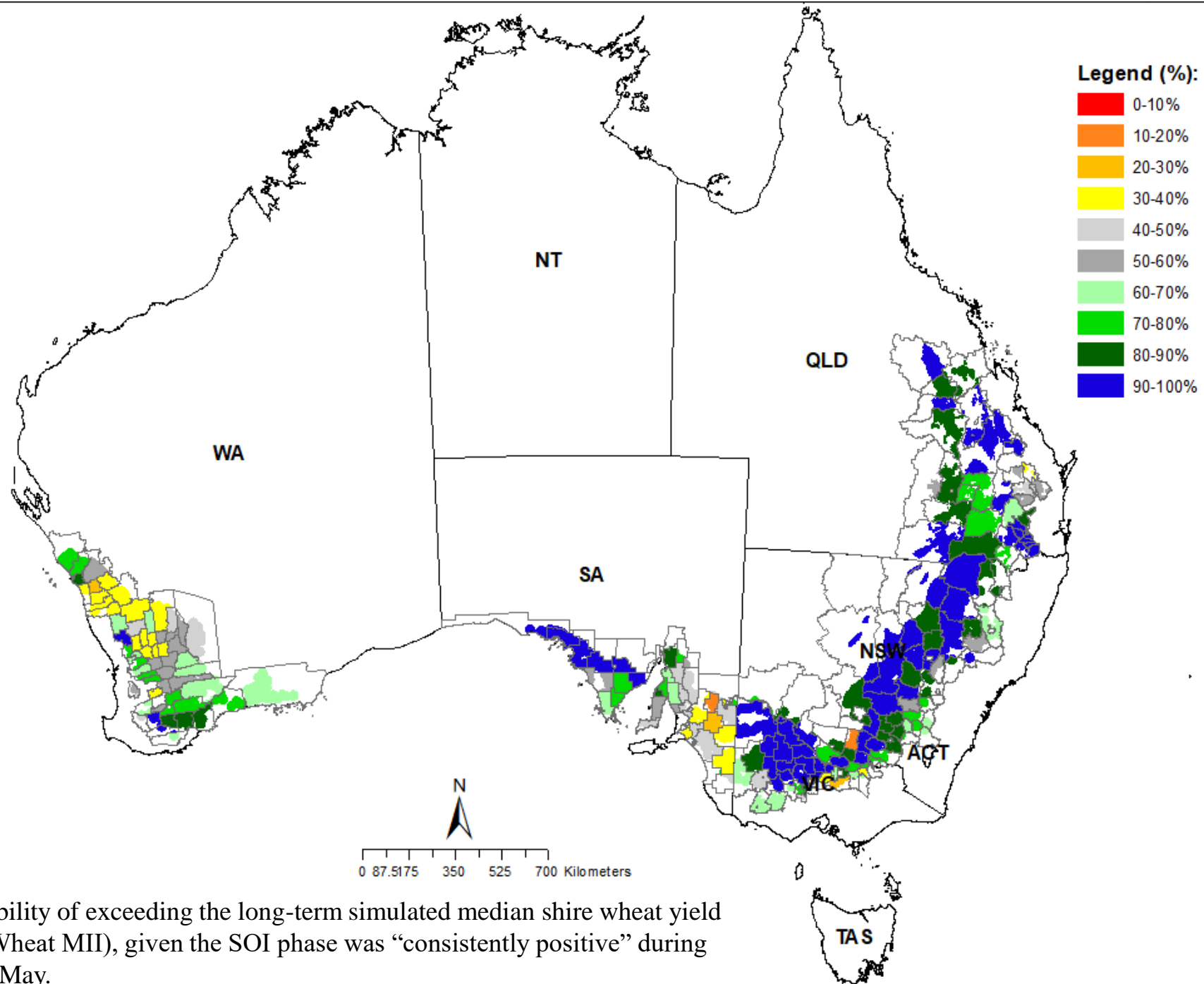T: +61 7 535 15085

Simulated shire wheat yield long-term median (OZ-Wheat MII, from 1901-2021)

Aggregated soil water recharge status (%) for NE AUS cropping region as at 1st June 2022. Fallow simulated from 1 October 2021 with 10% available water at that time (using APSIM)

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Probability of exceeding the long-term simulated median shire wheat yield (OZ-Wheat MII), given the SOI phase was "consistently positive" during April-May.

Legend (%):
- 0-10%
- 10-20%
- 20-30%
- 30-40%
- 40-50%
- 50-60%
- 60-70%
- 70-80%
- 80-90%
- 90-100%

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QAAFI

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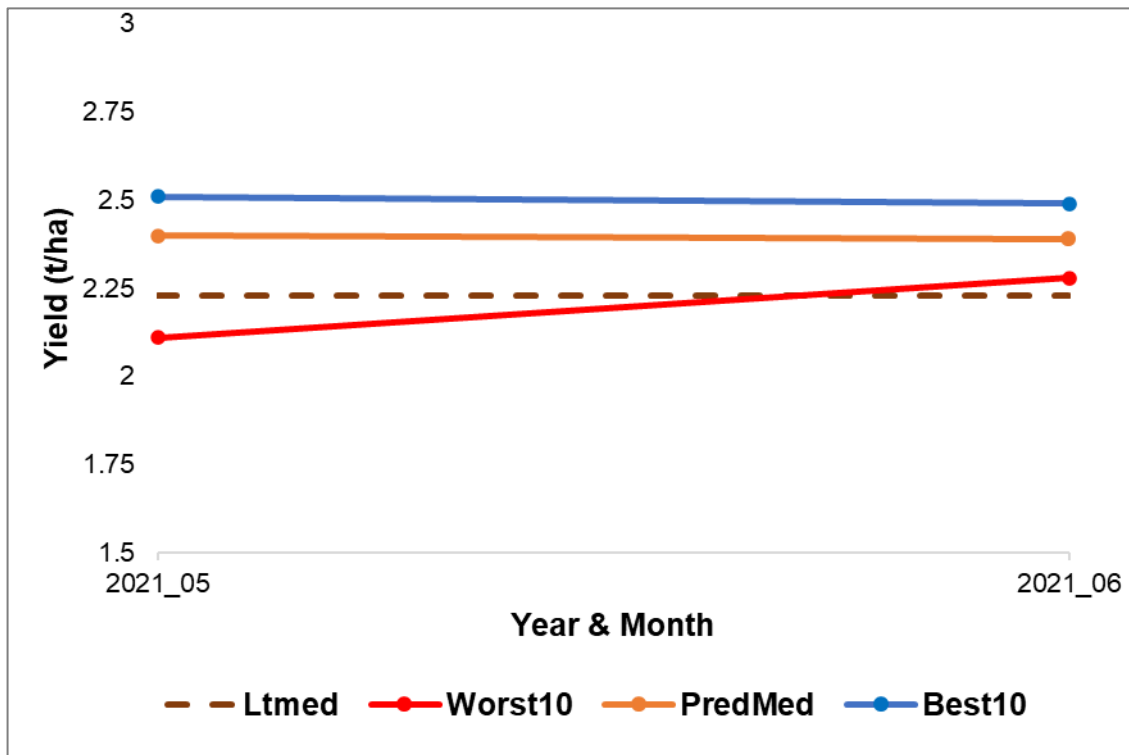Government

Legend (%):

- $\le -60\%$
- -60 to -30%
- -30 to -20%
- -20 to -10%
- -10 to 0%
- 0 to 10%
- 10 to 20%
- 20 to 30%
- 30 to 60%
- $\ge 60\%$
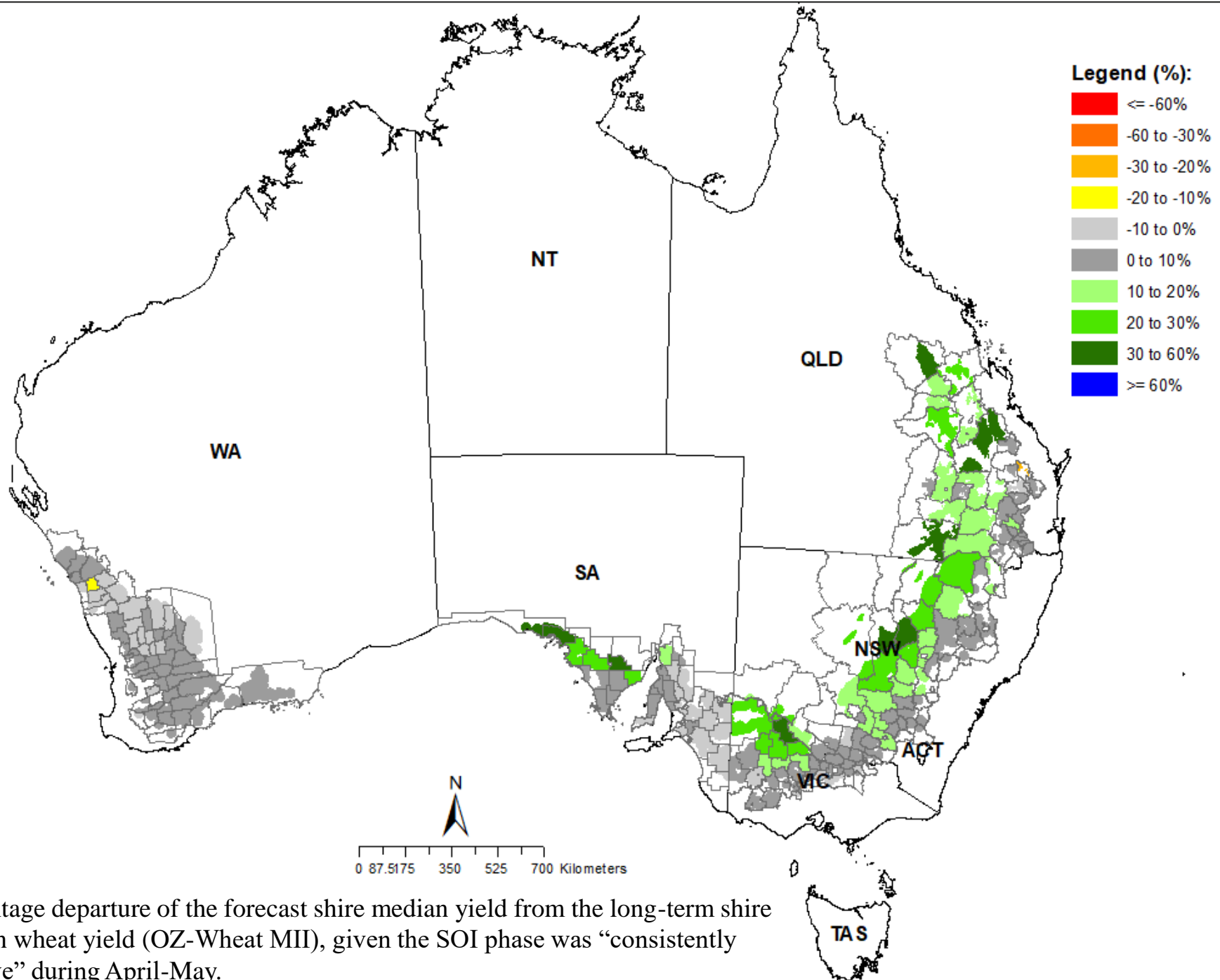
Percentage departure of the forecast shire median yield from the long-term shire median wheat yield (OZ-Wheat MII), given the SOI phase was "consistently positive" during April-May.

State and National wheat outlook distribution: 1ˢᵗ JUNE 2022

Worst10 - forecast 10th percentile

Best10 - forecast 90th percentile

PredMed - Forecast median

Ltmed - Long-term median yield;

DFY% - Departure of forecast median from long-term median yield as a percentage.

Pred% - Forecast median shire yield ranked relative to all years (%)

Previous years, during the last 30 years, that had similar SOI phase were 1985, 1989, 2000, 2010, 2014 (source: www.longpaddock.qld.gov.au).

National & State scales Summary

Region	Worst10	PredMed	Best10	Ltmed	Pred%	DFY%
AUS	2.28	2.39	2.49	2.23	80%	7
NSW	2.79	2.91	3.06	2.55	86%	14
QLD	2.04	2.24	2.44	1.93	84%	16
SA	2.45	2.68	2.87	2.51	75%	7
VIC	2.53	2.8	2.94	2.51	85%	12
WA	1.9	2.02	2.16	2	57%	1

OZ-Wheat MII: Regional scale crop simulation model developed by UQ QAAFI.

Descriptive note:

The seasonal wheat outlook is based on the integration of (i) a simple agro-climatic wheat stress index model (Oz-Wheat MII) (i.e. Bare fallow routine - Ritchie, 1972; Wheat stress index model adapted from - Fitzpatrick and Nix, 1969; Nix and Fitzpatrick, 1969), which is sensitive to water deficit or excess during the growing season, (ii) actual climate data up to the forecasting date and (iii) projected climate data after that date. These projected data are drawn from historical analogue years based on similarity to the prevailing phase of the Southern Oscillation Index (SOI) (Stone et al., 1996). The Oz-Wheat model is run from 1 October the year before sowing in order to account for the influence of the summer fallow on starting soil moisture conditions. The model input parameters for each shire (i.e. potential available water content, planting rain & stress index period) have been selected based on the best fit when calibrated against actual shire wheat yields from Australian Bureau of Statistics (ABS) for the period 1976 – 2000, 2005, 2010 & 2015 (MII). Cross validated spatial correlation when predicting the shire wheat yields for the 2000 season (MI) was 0.8 across all main wheat producing shires in Australia (Potgieter et. al., 2006). For the updated MII 75% of the 237 shire have R2 > 0.60.

March	April	May	June	July	August	September	October	November
13	14	13	13	11	10	9	5	5
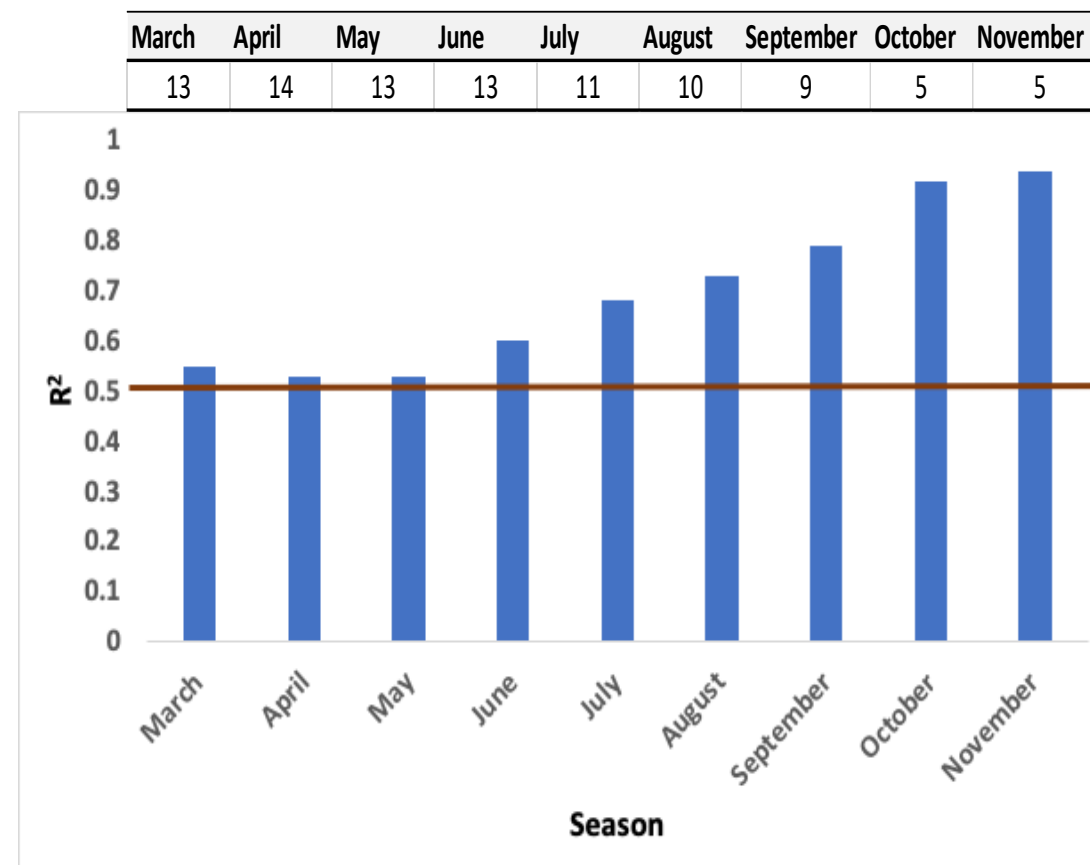
Variability explain (R^2) and lead time of forecast against observed yields at National scale from before sowing to harvest in December. Observed data is based on the last 30-years of actual Australian Bureau of Statistics (ABS) data vs forecast simulated median yield from Oz-Wheat MII.

Header: Average Absolute % Deviation of Simulated Predicted Yield vs Observed Yield from Australian Bureau of Statistics census data from 1976-2000,2005,2010,2015.

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