National Wheat Outlook

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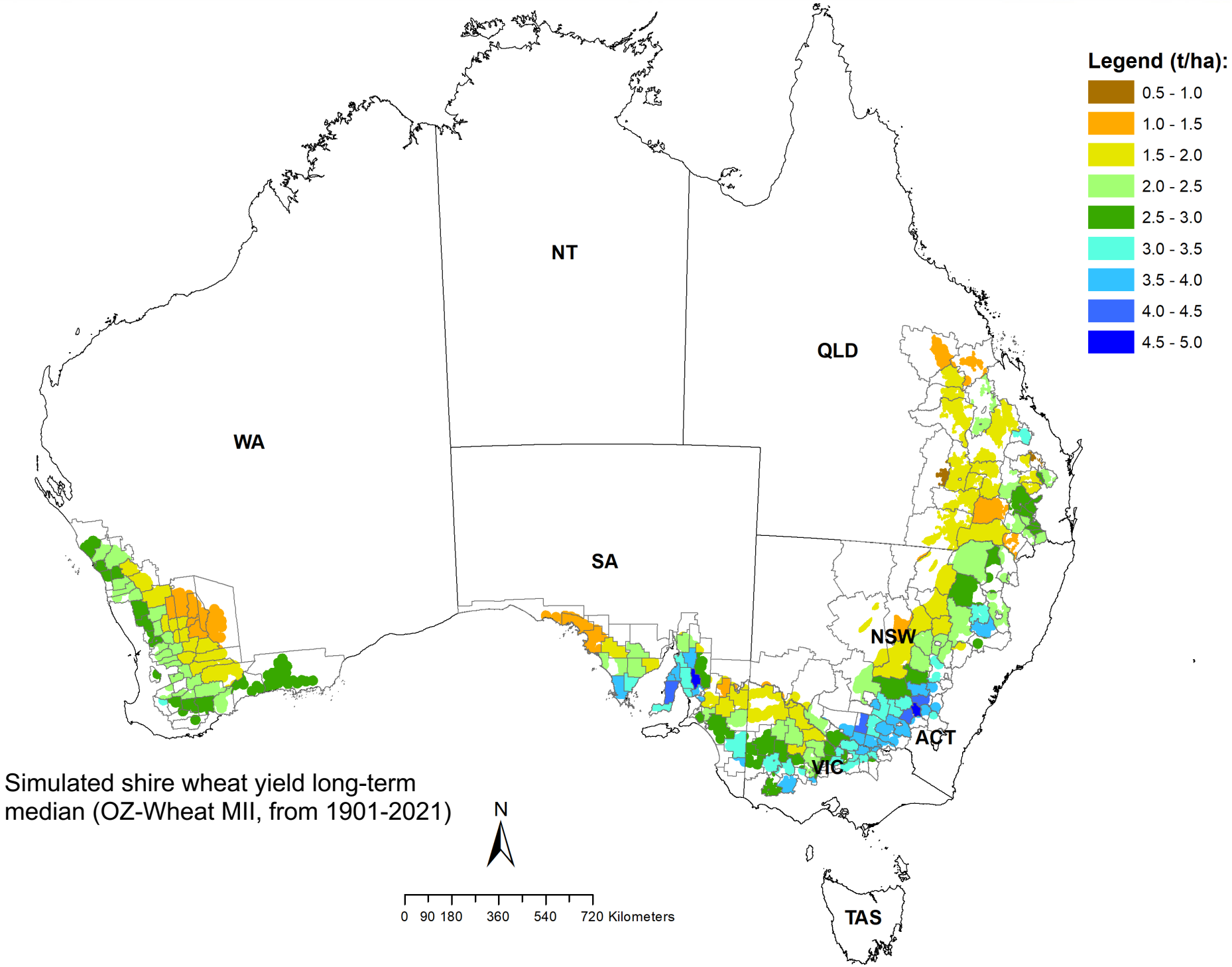
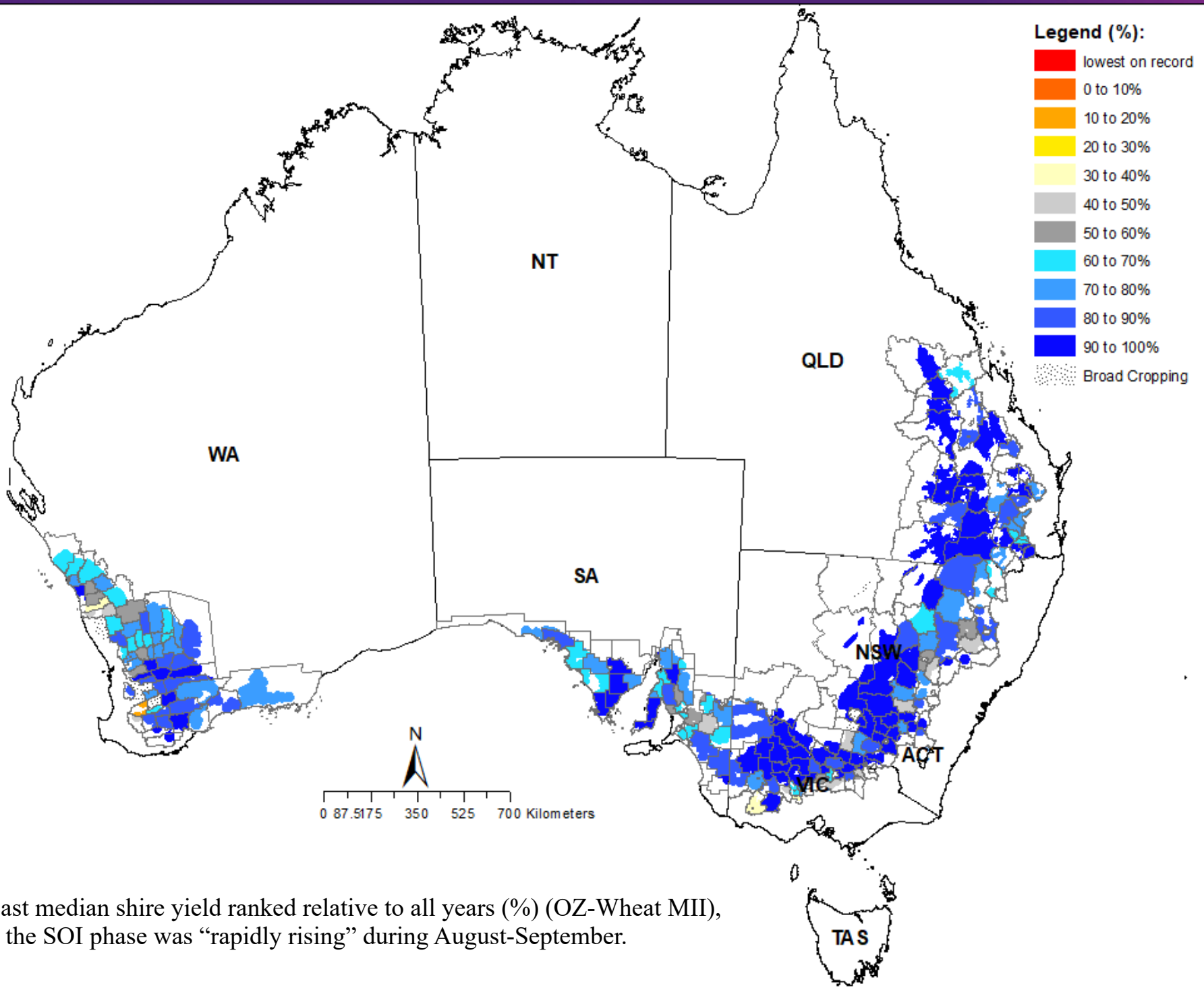
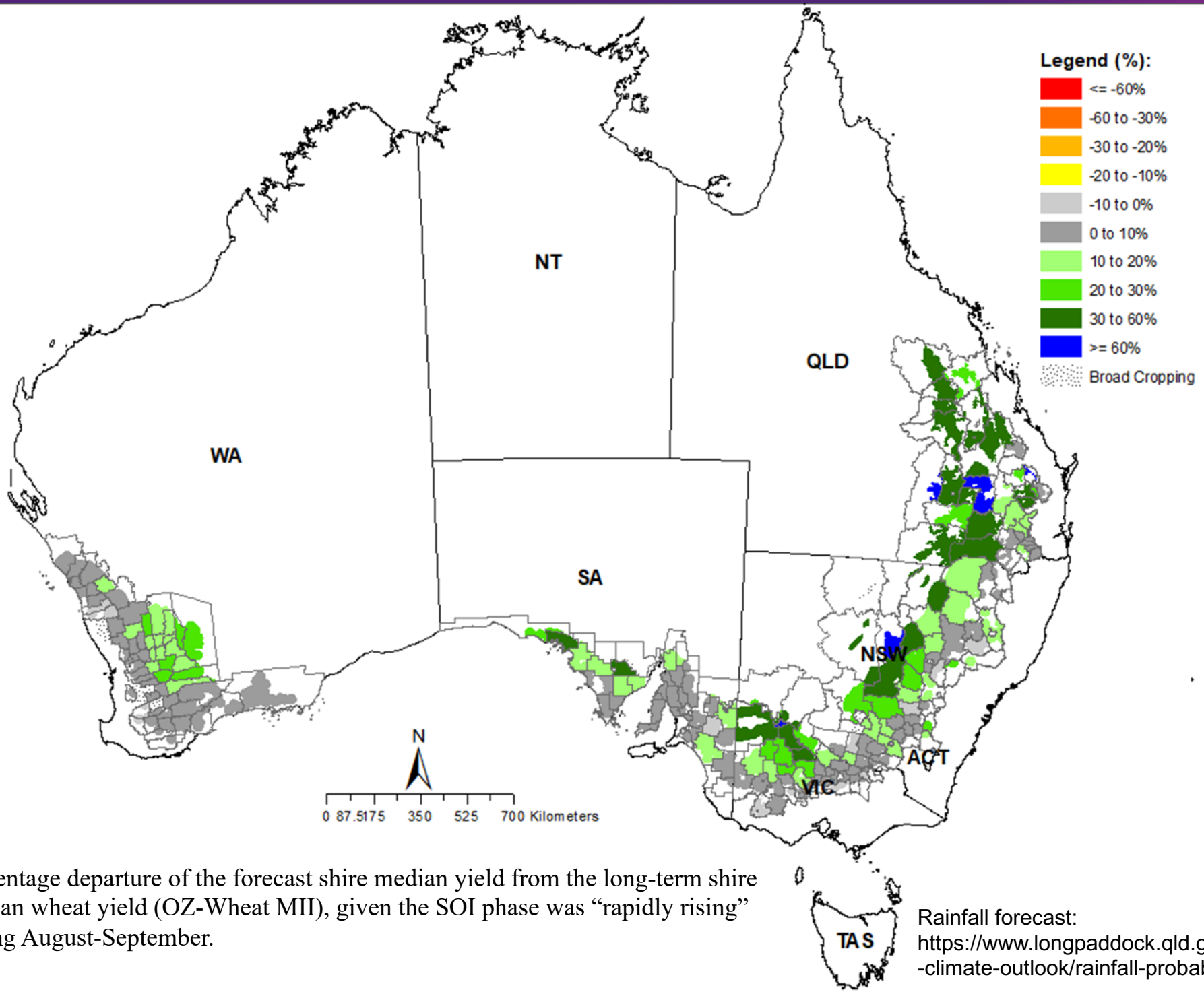


Simulated shire wheat yield long-term median (OZ-Wheat MII, from 1901-2021)



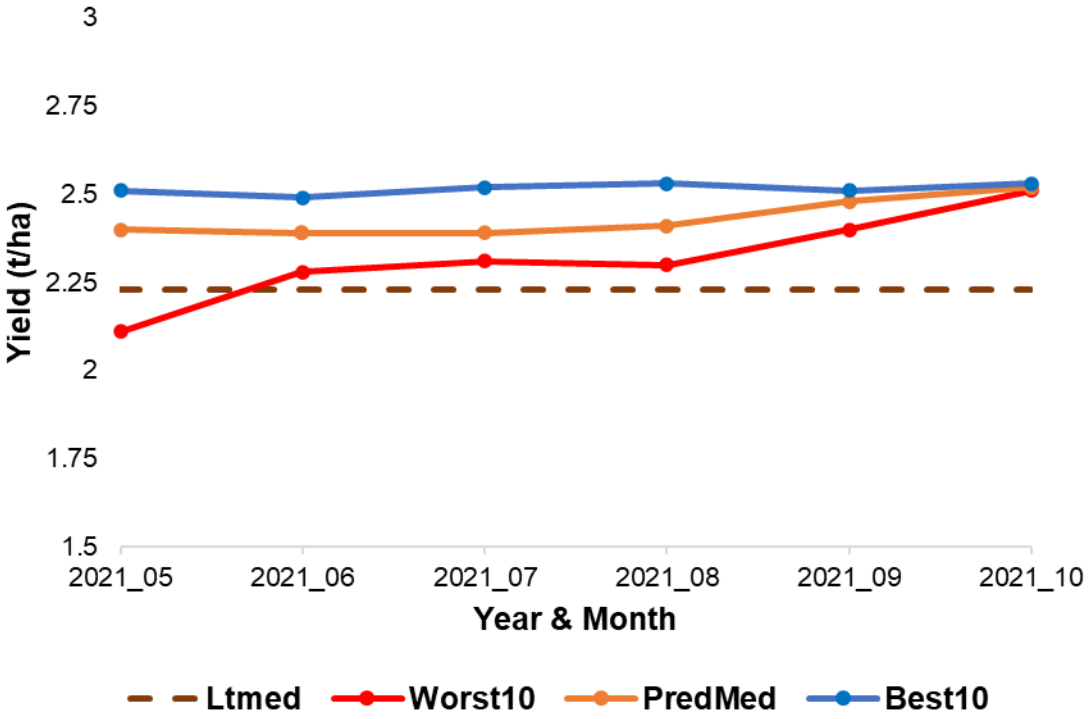
Forecast median shire yield ranked relative to all years (%) (OZ-Wheat MII), given the SOI phase was “rapidly rising” during August-September.



Percentage departure of the forecast shire median yield from the long-term shire median wheat yield (OZ-Wheat MII), given the SOI phase was “rapidly rising” during August-September.

Rainfall forecast:
https://www.longpaddock.qld.gov.au/seasonal-climate-outlook/rainfall-probabilities/

State and National wheat outlook distribution: 1st October 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.

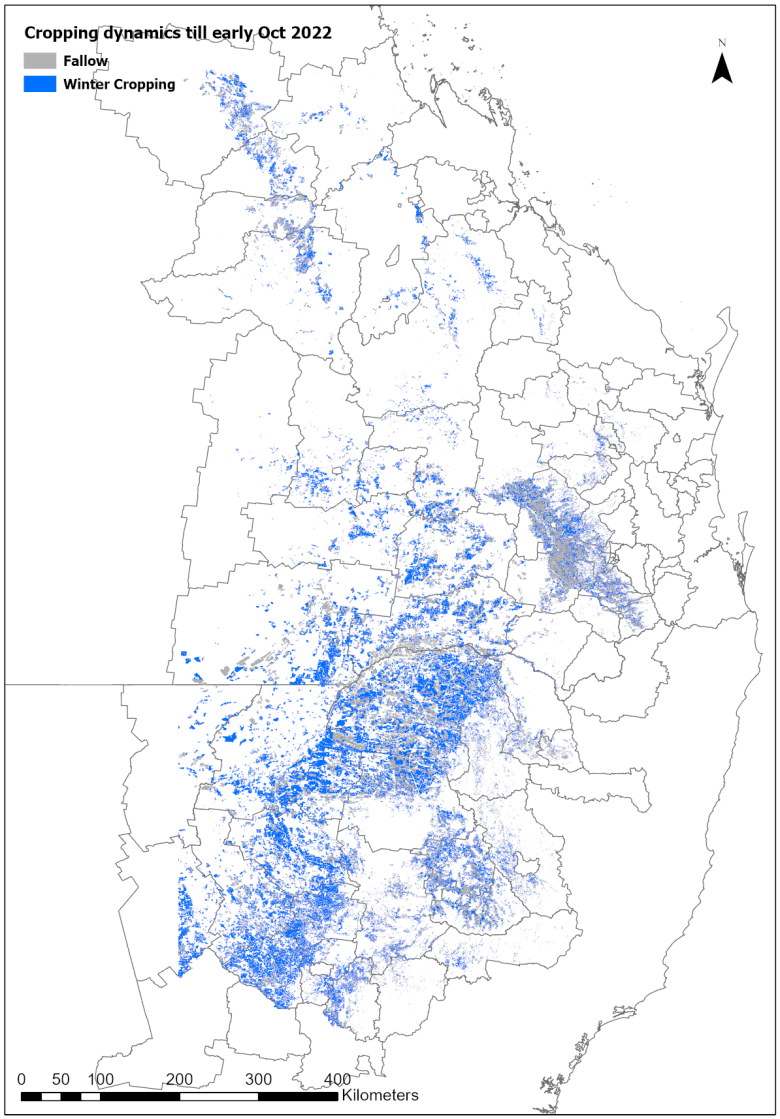
Pred% - Forecast median yield ranked relative to all years (%)

Previous years, during the last 30 years, that had similar SOI phase were 1983, 1989, 2001, 2005, 2009, 2011, 2012, 2016 source: www.longpaddock.qld.gov.au).

National & State Summary

Region	Worst10	PredMed	Best10	Ltmed	Pred%	DFY%
AUS	2.51	2.52	2.53	2.23	99%	13
NSW	3.03	3.03	3.03	2.55	98%	19
QLD	2.52	2.52	2.52	1.93	98%	31
SA	2.69	2.76	2.81	2.51	85%	10
VIC	2.89	2.9	2.91	2.51	95%	16
WA	2.13	2.14	2.15	2	85%	7

Likely Cropped Areas for North-eastern Australia land use areas. Cropping period 15 March to 1 October 2022. Winter crop % relative to previous 6 years at 1 Oct using high resolution satellites.



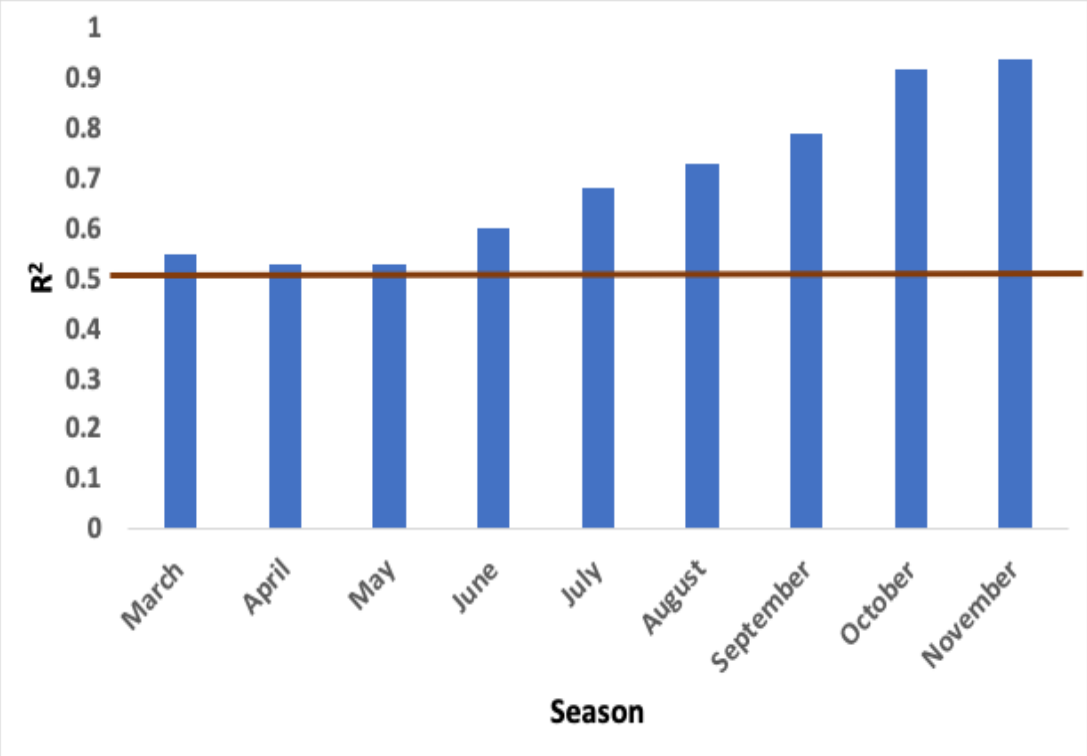
Total Winter Crop (ha)	Fallow (%)	Winter Cropping (%)
4,721,855	55	12

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.

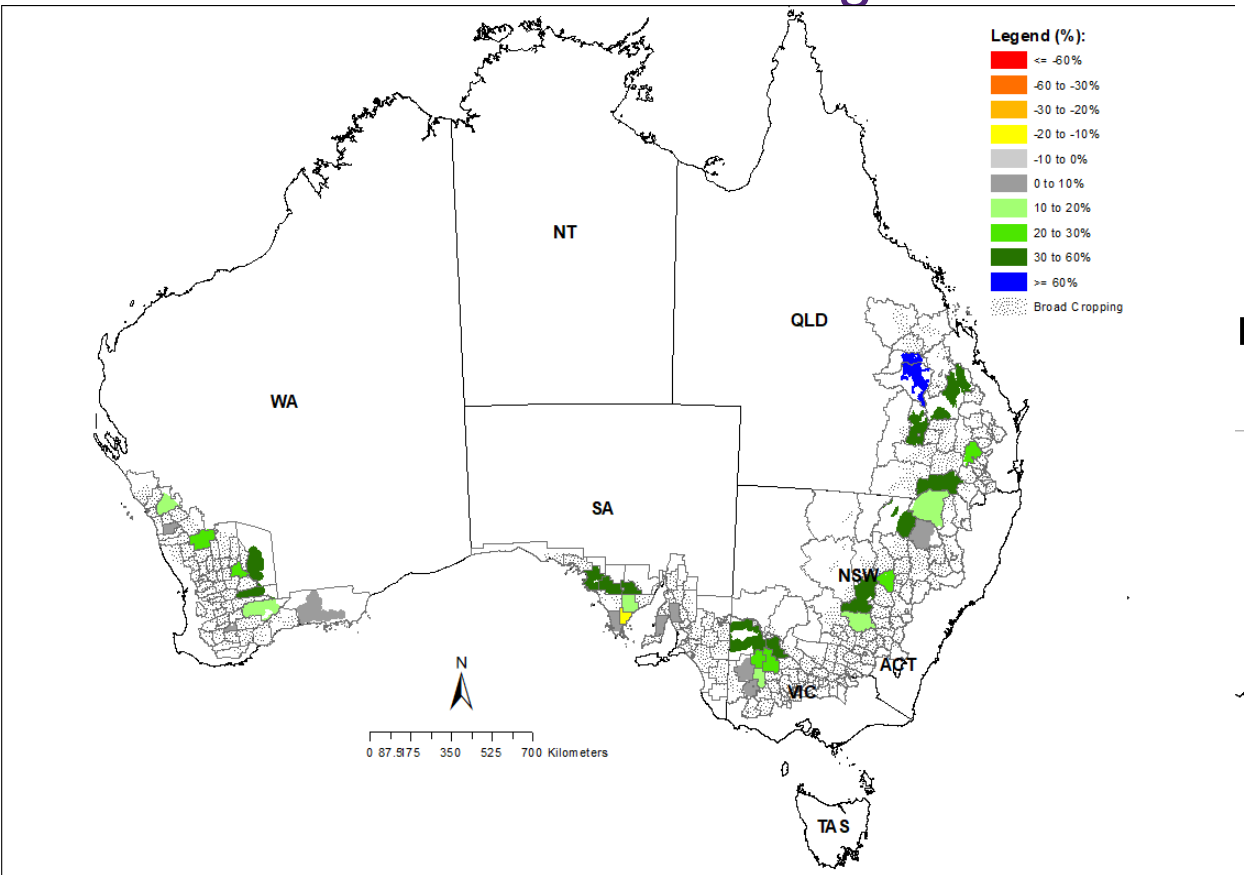
March	April	May	June	July	August	September	October	November
13	14	13	13	11	10	9	5	5



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. Predicted median yields were simulated using Oz-Wheat MII.

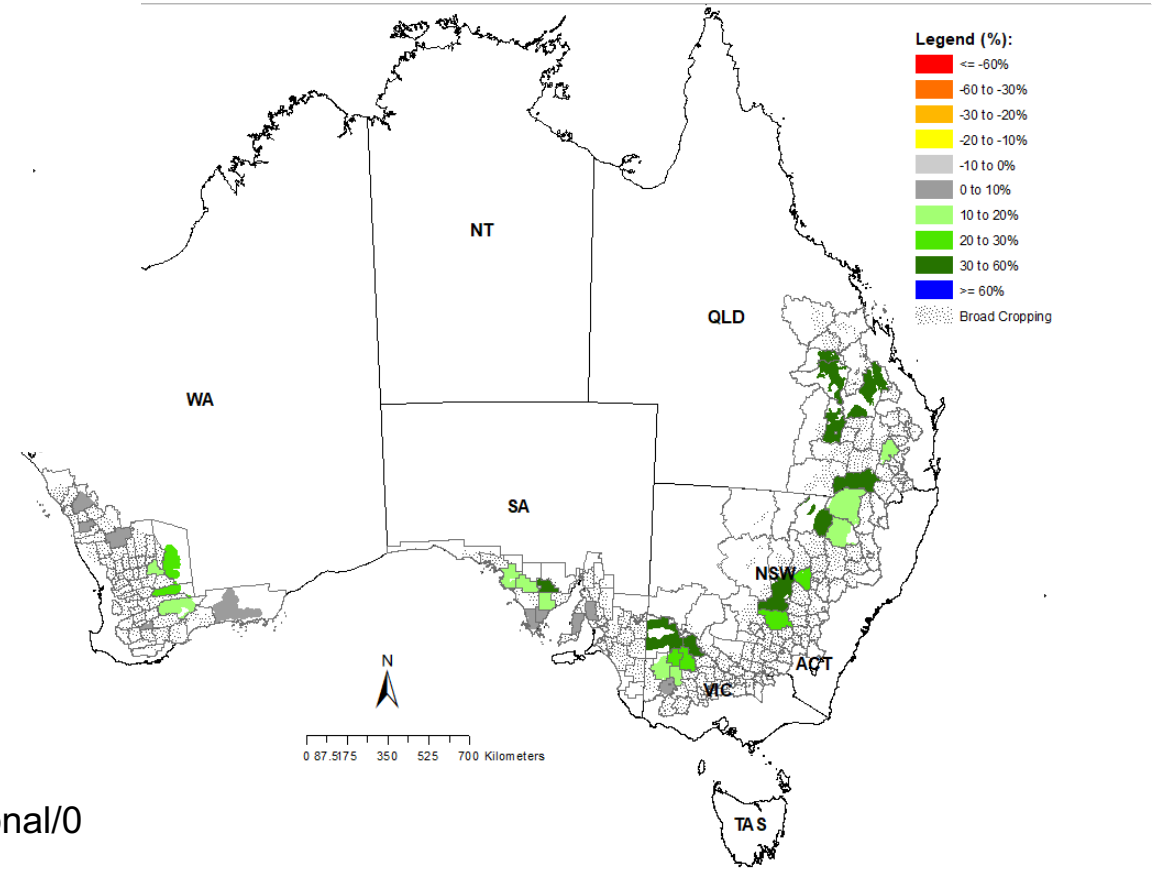
Header: Average Absolute % Deviation of simulated median yield from end of season observed yield for each month during the season. (source: Observed data is from Australian Bureau of Statistics census data from 1976-2000,2005,2010,2015).

Prototype: Predicting wheat yields using the ACCESS-S2 Global Climate Model linked to OZ-Wheat regional scale model (CropVision: ARC LP)



1st March 2022: Departure of forecast median from simulated long-term median yield as a percentage.

1st October 2022: Departure of forecast median from simulated long-term median yield as a percentage.



See rainfall forecast:
http://www.bom.gov.au/climate/outlooks/#/rainfall/median/seasonal/0