

National wheat yield forecast: September 2017

The national wheat yield outlook is for a below average yielding crop falling in the bottom tercile when compared to the previous 115 years (23rd percentile). However, large variation in likely yield outcomes exists between states. More specifically, yield prospects have reduced further with predicted percentile yield rankings relative to all years of 8th, 22nd and 26th for QLD, NSW and WA, respectively. Conversely, SA (46th percentile) and VIC (66th percentile) have predicted median yield outcome close to and above the long-term expected yield for that region (Figure 1).

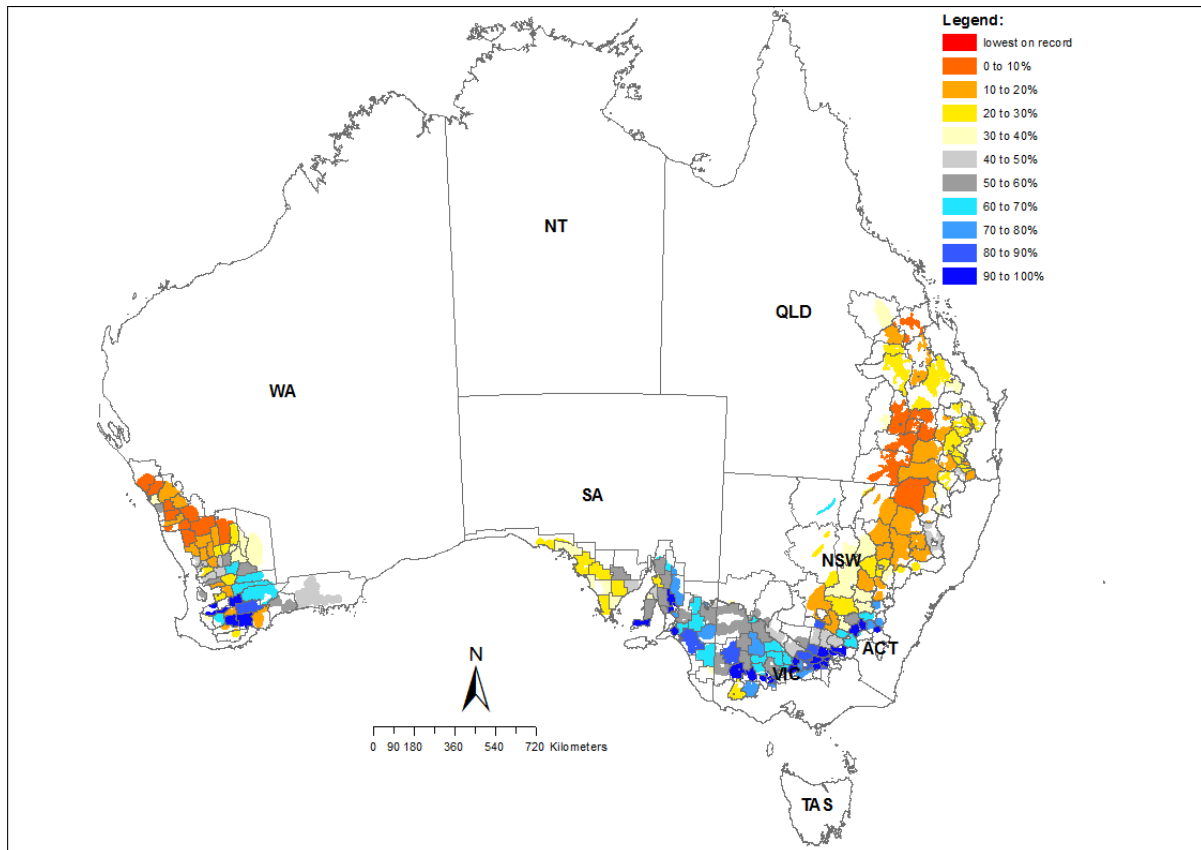


Figure 1: Forecast median shire yield ranked relative to all years (%), given the SOI phase was “consistently positive” during July/August. Any areas coloured in light GREY to dark RED are expected to have crops below to very much below the long-term median yield expectation, whereas areas coloured from dark GREY to dark BLUE are expected to be above to very much above the long-term shire wheat yield median expectation. Grey shaded areas are showing predicted shire yield outcomes similar to climatology.

Descriptive note: This forecast was derived from integrating starting soil water conditions and the seasonal rainfall outlook based on the southern oscillation index at the start of June. The OZ-Wheat MII model, a regional scale crop simulation model, was used for this analysis. 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 the Australian Bureau of Statistics (ABS) for the period 1975 – 2000, 2005 & 2010 (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, MI). For the updated MII 75% of the 237 shire have $R^2 > 0.60$.