

SEASONAL CROP OUTLOOK

Wheat – October 2018

SUMMARY

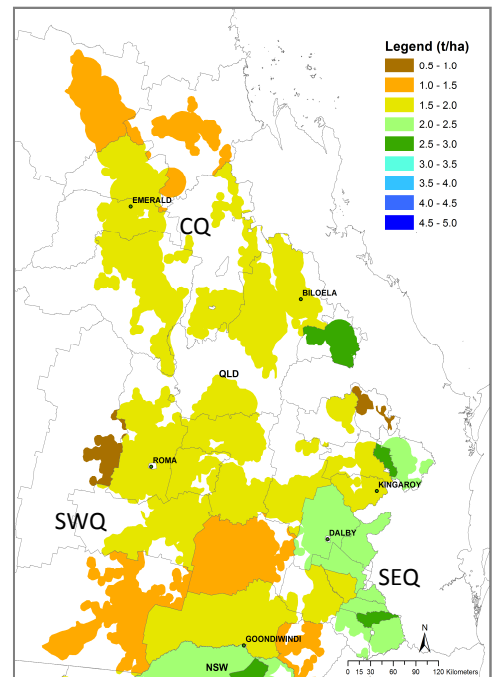
The winter cropping season is now approaching harvest in most areas of QLD. The current winter crop outlook as a whole has now firmly consolidated to be very much below average with a predicted crop yield of 1.39 t/ha. This is 25% below the long-term median yield expectation and within the lowest 7% relative to all years. Specifically, all regions have yield outcomes ranked in the worst 20% of all years, while some northern parts of CQ and southern SEQ have yield outcomes falling below the 10th percentile relative to all years. With harvesting occurring across most parts of the state the range of yield predictions has nearly fully converged. While some climate models are showing some easing in the likely development of a late El Niño the Bureau of Meteorology's (BOM) ENSO Outlook remains at El Niño WATCH status, which will mainly effect the start to the coming summer cropping season.

GENERAL CONDITIONS

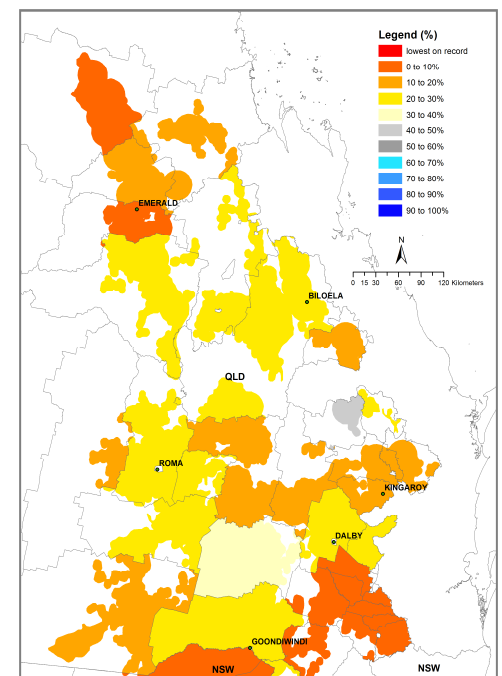
Although some areas recorded average rainfall during September it was very patchy and highly variable across the state's winter cropping region. Some areas especially, in SEQ and northern CQ have recorded their lowest rainfall on record during the last six-months. This resulted in no respite to the poor crop yield prediction across almost the entire winter cropping region of the state. Harvesting of early planted crops has been in full swing in most parts of CQ where crops have been planted early. While, some crops, unfortunately, have been cut for hay in SEQ due to poor yield. As much of the season has now passed rainfall during October has less overall effect. The recent pattern of the SOI, "consistently near zero" at the end of September, indicates chances similar to climatology of above average rainfall in most parts of the state's cropping region over the next 3-months (www.longpaddock.qld.gov.au). Most global climate models remains suggestive of possible El Niño development during the next month or two (www.bom.gov.au/climate/enso/). *Note: this outlook is only applicable to a summer (short) fallow period.*

OUTLOOK

This regional wheat crop outlook is based on the assumption of cropping after summer fallow. The benchmark for this outlook is the simulated long-term median shire wheat yield within the broad cropping region of Queensland (Map 1). The median yield is based on predicted performance over the past 118-years using an agro-climatic model for wheat with long-term rainfall records (see descriptive note for more details). The percentile and percentage departure of the forecast median for this season from the long-term median shire wheat yield are given in Maps 2 & 3, respectively. Any areas coloured in yellow to red are ranked below to very much below the long-term median, while areas coloured in green to blue are ranked above to very much above the long-term median. And areas in grey are ranked similar to the long term median shire wheat yields relative to all years.



Map 1: Simulated long-term median shire yield derived from 1901 to 2017 using 2018 technology.



Map 2: Forecast median shire yield ranked relative to all years (%).

Map 2 and 3 are derived by considering conditions up to the end of September and projecting forward based on rainfall conditions in years from the historical record with SOI phase similar to this year - “consistently near zero” in August/September. The calculation of benchmark yields and outlook chances do not take into account effects of poor crop nutrition or damage due to pests, diseases, frosts or extreme events.

Forecast yield outcomes (Map 2) vary geographically with almost the entire state’s cropping region having yield outcomes expected to be very much below average. Specifically, yield outcomes for most of southern QLD (SWQ) are below the 20th percentile of all years (i.e. in the lowest yielding 20% of years). In addition, most parts of northern CQ and SEQ have been severely impacted by the lack of winter rainfall and have predicted yield outcomes falling within the worst 10% of all years (Map 2).

Percentage departure of the forecast median yield from the long-term expectation is shown in Map 3. The impact pattern is similar to that of the predicted percentile with large negative deviations less than -20% for most of southern SWQ and CQ. The exception is for parts of SEQ, which has predicted yield outcomes below -30% of the long-term median.

POOR CROP CHANCE

Most areas in QLD cropping region are approaching harvest or are harvested. Parts of southern QLD and northern CQ and southern SEQ are showing a significantly increased chance for wheat yield being in the worst 10% of all years (data not shown).

It should be noted that these values are calculated as broad indicators for shire scale. They do not apply to farm level.

STATE OUTLOOK

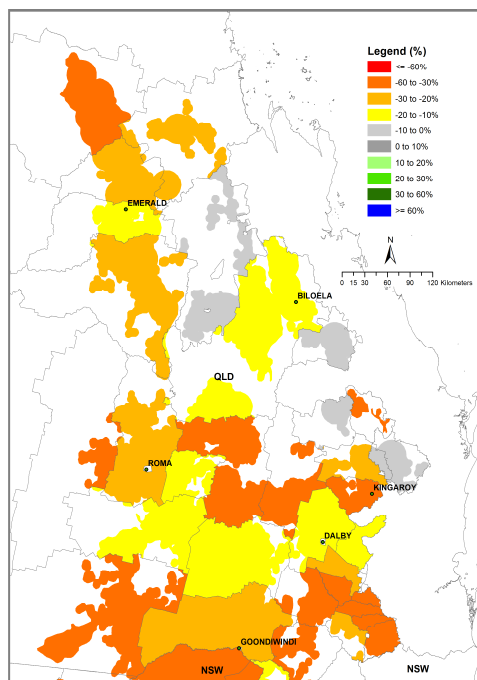
At present, the current state wheat outlook shows a forecast median yield at the end of September of 1.39 t/ha, which is well below the long-term median of 1.86 t/ha (Graph A). The entire forecast distribution has converged and falls well below the long-term median expectation. The current forecast indicates a very much below average-yielding crop for the state as a whole.

At regional level, Southwest Qld (SWQ), Southeast Qld (SEQ) and Central Qld (CQ) (see Map 1), the forecast yield (t/ha) ranges are as follows:

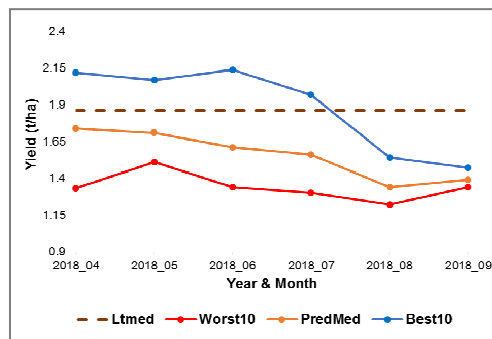
Region	Median (50%)	DFY (%)	Percentile (%)	Lt Median
CQ	1.29	-23	11	1.68
SEQ	1.73	-26	9	2.35
SWQ	1.23	-24	18	1.62

DFY is the percentage departure of the forecast shire median yield from the long-term shire median wheat yield. Lt is the long-term.

Forecast medians are very much below the long-term median expectations for all regions of the state. All regions have yield outcomes falling in the bottom 20% relative to all years. More specifically, SWQ and CQ have forecast medians of 1.23 and 1.29 t/ha, respectively. The forecast median yield for SEQ is 1.73 t/ha and falls in the worst 10% of all years. The range of possible outcomes have converged in almost all regions and harvesting is underway in most parts. Global climate models surveyed by BOM remains suggestive of possible El Niño development during early summer, which will mainly have an impact on the start to the summer cropping season.



Map 3: Percentage departure of the forecast shire median yield from the long-term shire median wheat yield.



Graph A: State level yield forecast trajectories (10th, 50th and 90th percentiles).

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 the end of the wheat crop 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 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 $R^2 > 0.60$.