SEASONAL CROP OUTLOOK

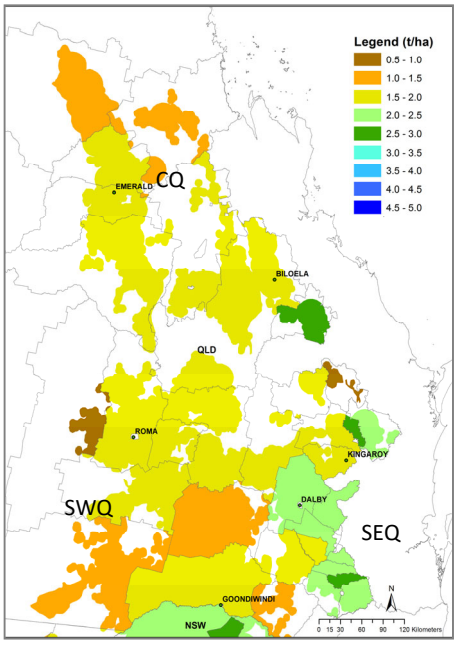
Wheat – October 2019

SUMMARY

With the winter cropping season nearing an end, prospects continue to deteriorate towards a very much below average winter cropping season with a predicted wheat yield of 1.35 t/ha at state level. This is 28% below the long-term median yield expectation of the state. Overall, current soil water conditions and the seasonal rainfall outlook indicate high chance for a below average wheat crop for the 2019 winter season for Queensland. The exception is for most parts of CQ that has predicted crop yield outcomes ranked in the top tercile (30%) of all years. In contrast, all of southern QLD has yield outcomes close to the worst 10% of all years (< 10th percentile). These regional variations are also reflected in the deviation of final predicted yields from the long-term medians for each region.

GENERAL CONDITIONS

Rainfall recorded during September was below to very much below average across most of the state's cropping region. In contrast, however, the prospect for winter crops are looking more favourable for CQ (Map 2), since most parts of CQ recorded average rainfall during the July to September period and had reasonable sowing rains. The recent pattern of the SOI, "rapidly falling" for the August-September period, indicates highly reduced chances of receiving above average rainfall in most parts of the state's winter cropping region over the next 3-months (www.longpaddock.qld.gov.au). Note: this outlook is only applicable to a summer (short) fallow crop management scenario. Longer fallow soils will have higher yield expectations.

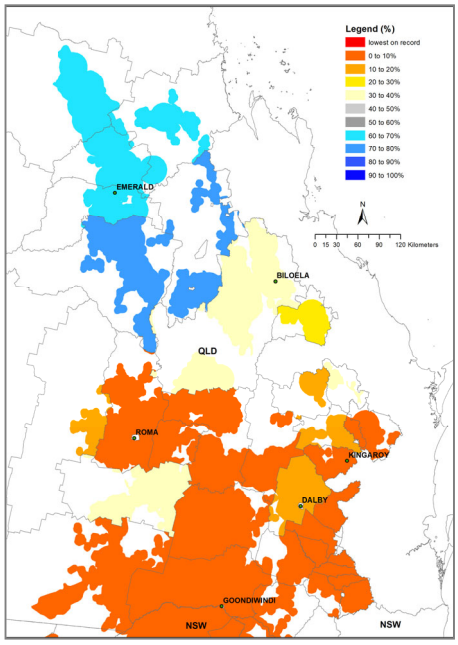


Map 1: Simulated long-term median shire yield derived from the last 119 years using current technology.

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 119-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. 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 3 is 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 - "rapidly falling" 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. This outlook is derived assuming only a summer (short) fallow period.



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

Keep record of your own field/crop areas via our PaddockWatch portal (www.paddockwatch.com.au); Online report is available at: www.qaafi.uq.edu.au/industry/crop-outlook

WORKING TOGETHER WITH THE QUEENSLAND GOVERNMENT

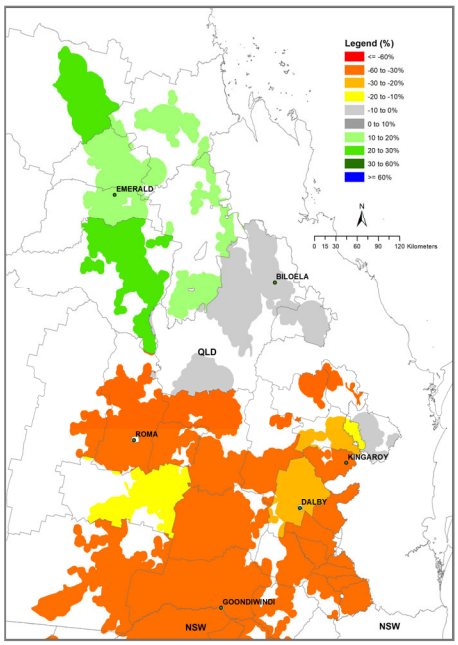
The current state wheat outlook is for a very poor crop across most of the state's southern cropping region. Forecast yield outcomes (Map 2) vary geographically with almost all of SEQ and SWQ cropping regions falling below the 10th percentile of all years (i.e. in the lowest yielding 10% of years). However, for most parts of CQ the predicted crop yields ranked in the 60th to 80th percentile range relative to 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 (i.e. worse than -30%) for almost the entire SWQ and SEQ regions. The exception is for most parts of CQ, which have predicted yield outcomes above the long-term median (10% to 30%). Note that this forecast only takes into account those areas that could be planted.

Poor Crop Chance

Most parts of southern QLD are showing significantly increased chances for wheat yield falling in the bottom 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.



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

State Outlook

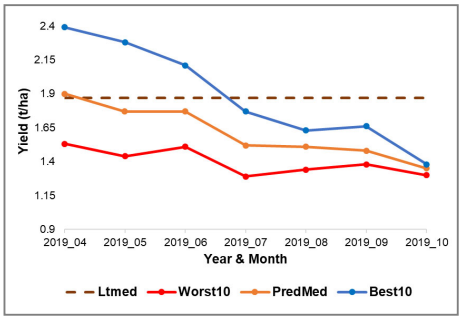
At this stage in the winter crop season, the current state wheat outlook shows a forecast median yield at the end of September of 1.35 t/ha. The predicted state yield is 28% below the long-term median expectation of 1.87 t/ha (Graph A). The forecast distribution has now converged to below the long-term median expectation and 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
SWQ	0.89	-45	2nd	1.63
SEQ	1.48	-37	3d	2.37
CQ	1.87	+11	68th	1.69

DFY is the percentage departure of the forecast shire median yield from the long-term shire median wheat yield. Lt is the long-term. Percentiles are calculated for forecast median yield relative to all years.

Apart from CQ, predicted yield outcomes have worsened further due to the continued dry spell. Specifically, predicted yield for CQ is 1.87 (t/ha), which is 11% above the long-term median. In contrast, SEQ and SWQ have yield outcomes of 1.48 and 0.98 t/ha, which are very much below long-term median expectation.



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 $R^2 > 0.60$.

Working together with the Queensland Government