Seasonal Crop Outlook

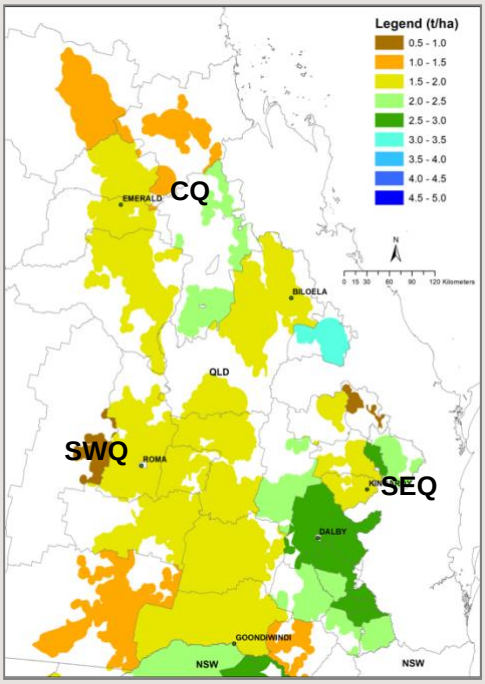
October 2020

Summary

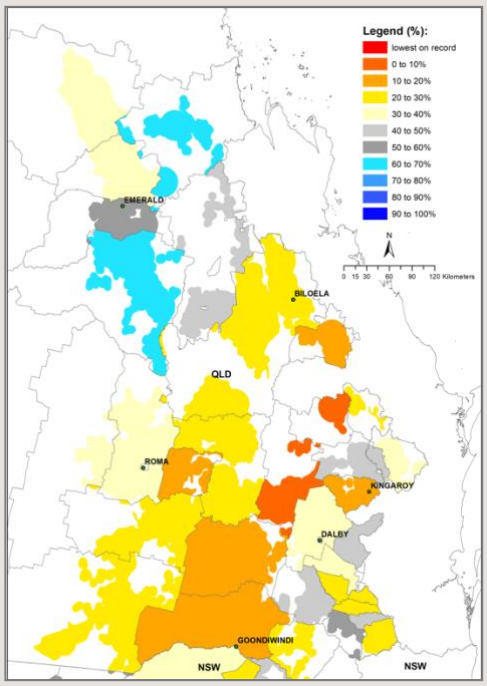
With the winter cropping season nearing an end, prospects continue to deteriorate towards a below average winter cropping season with a predicted wheat yield of 1.53 t/ha at state level. This is 19% below the long-term median yield expectation of the state. This outlook incorporates current soil water conditions and the seasonal rainfall outlook based on the southern oscillation index (SOI). Overall, the crop outlook for the state as a whole will finish below average. Specifically, SWQ and SEQ have yield outcomes ranked in the bottom 25% of all years and yield departures of -27% and -19% from the long-term median, respectively. Conversely, CQ has yield outcomes close to the long-term expectation (39th percentile and -6% below the long-term median).

General Conditions

Rainfall recorded during September was below to very much below average across most of SEQ's cropping region. In contrast, the remiander of the state recorded avarega rainfal during that peirod. Rainfall during last 6 months (April to Septmeber) remaind below average fro almost all of QLD's cropping region. The recent pattern of the SOI, "consistently positive" for the August-September period, indicates slightly increased 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). In addition, further cooling of the sea surface temperature (SST) has occurred during September across the tropical Pacific Ocean and all climate models have now moved into a La Niña mode and is likely to continue into January 2021 (www.bom.gov.au/climate/enso). However, a wet finish to the winter cropping season might increase the risk of diseases and harvesting problems, especially for late sown crops. 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 120-years with current technology.



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

Queensland Alliance for Agriculture and Food Innovation

qaafi.uq.edu.au

CRICOS Provider Number 00025B

Contact

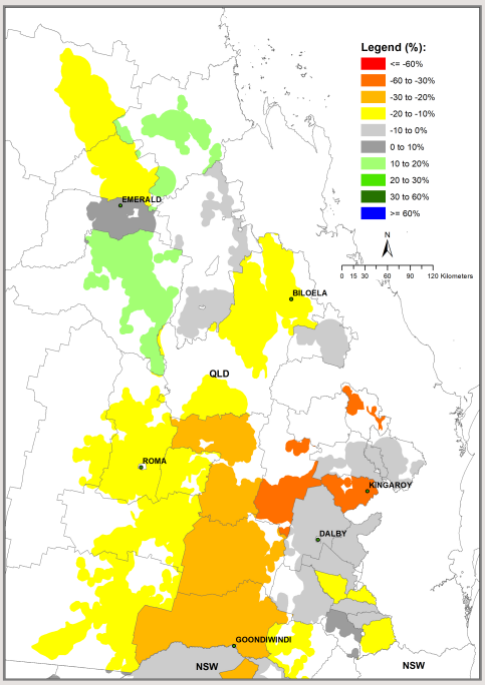
Dr Andries Potgieter
Centre for Crop Science
E: a.potgieter@uq.edu.au
T: +61 7 535 15085

Outlook

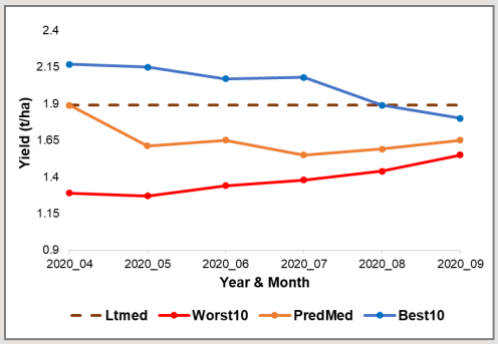
This regional wheat crop outlook is based on the assumption of cropping after summer fallow. The benchmark for this outlook is the simulated long-term median shire wheat yield within the broad cropping region of Queensland (Map 1). The median yield is based on predicted performance over the past 120-years using an agro-climatic model for wheat with long-term rainfall records (see descriptive note for more details). The percentile ranked relative to all years 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. Areas in grey are ranked similar to the long-term median shire wheat yields 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 positive" 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.

The current state wheat outlook is for a below average crop expectation across most of the state's southern cropping region. Forecast yield outcomes vary geographically with almost all of SEQ and SWQ cropping regions falling below the 30th percentile of all years (Map 2). The exception is for some parts of CQ that are having predicted yield outcomes ranked in the 60th to 70th percentile range compared 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 yields with negative deviations of -30% for most of SWQ. However, some parts of SEQ are having yield outcomes close to the long-term median (-10% to -20%). The exception is for some parts of CQ, which has predicted yield outcomes close to or above (10% to 20%) the long-term median for that region. Note that this forecast only takes into account those areas that could be planted.



Map 2: 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).

Contact

Dr Andries Potgieter
Centre for Crop Science
E: a.potgieter@uq.edu.au
T: +61 7 535 15085

Seasonal Crop Outlook

October 2020

Poor crop chance

With the sowing window now closed, some shires in SWQ are showing a highly increased chance (> 30%) for wheat yield being below the 10th percentile 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 this late stage of the cropping season, the current state wheat outlook shows a forecast median yield at the end of September of 1.53 t/ha, which is 19% below the long-term median of 1.89 t/ha (Graph A). The entire forecast distribution has now converged to below the long-term median expectation and indicates a 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	1.19	-27%	17th	1.66
SEQ	1.93	-19%	21st	2.39
CQ	1.61	-6%	39th	1.71

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.

Forecast medians for SWQ and SEQ are predicted to be below the long-term median expectations and are 1.19 t/ha and 1.93 t/ha, respectively. Conversely, the predicted yield outcome for CQ of 1.61 t/ha is similar to the long-term median for that region. With all key climate indicators now consistent with a La Niña event, the likelihood of a wet finish to the current winter crop season has increased and might increase the risk of diseases and harvesting problems

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 $R^2 > 0.60$.

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

Queensland Alliance for Agriculture and Food Innovation

qaafi.uq.edu.au

CRICOS Provider Number 00025B

Contact

Dr Andries Potgieter
Centre for Crop Science
E: a.potgieter@uq.edu.au
T: +61 7 535 15085