

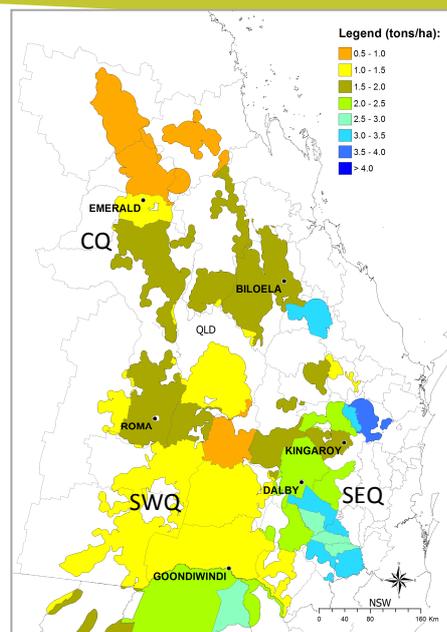
SEASONAL CROP OUTLOOK

Wheat – August 2015

SUMMARY

The current winter crop outlook for the state as a whole indicates a predicted crop yield (1.45 t/ha) similar to the long-term expectation (50th percentile ranking over all years). However, large variation in the expected yield outcome exists across the state's broad cropping region. Almost all of Central QLD, Maranoa and central Darling Downs are showing yield outcomes ranked in the bottom tercile (33%) of all years, while most parts of South West QLD and southern Darling Downs have yield outcomes close to the top 25% of all years (60th to 80th percentile). However, widespread above average rainfall is needed during the next couple of months to significantly improve the current cropping season outlook, specifically in most parts of CQ. Note that almost all atmospheric and ocean indicators of ENSO are currently indicating an El Niño event continuing to strengthen towards the spring/summer of 2015. This is likely to increase the chances of a dry finish to the winter crop season.

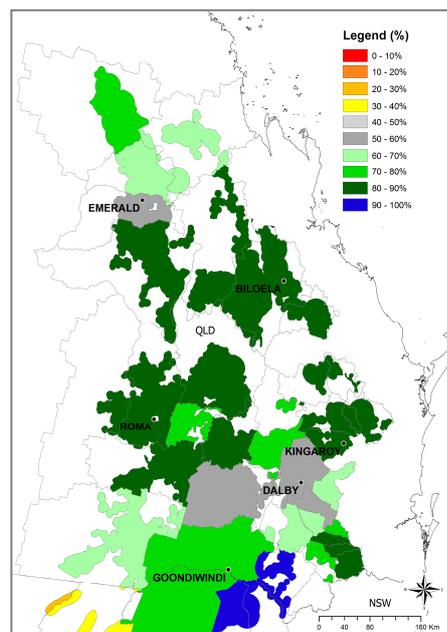
The likely range of yield outcomes remains relatively wide. This range will narrow further over the next few months as the outlook is updated through the season. Seasonal rainfall projections using historical analogue years based on SOI phases become more skilful for much of Queensland at this time of year. Previous years in history that had a similar SOI phase at end of July to this year included 1997 and 2004



Map 1: Long-term median simulated shire yield (111 years)

GENERAL CONDITIONS

Rainfall recorded during July was above average across most of South West and Far South Western parts of the state's cropping region, while most parts of Central QLD received below average rainfall for that period. The remainder of the state's cropping region received average rainfall during July. This resulted in some further planting opportunities. For areas that had not yet been planted, soil water profiles were >80% full for central parts of the state's cropping region, while some parts of the central Darling Downs and northern CQ were at two-thirds full (Map 2). The recent pattern of the SOI remains "consistently negative" for the June-July period, and indicates a highly reduced chance of above average rainfall in most parts of the QLD cropping region, over the next 3-months (www.longpaddock.qld.gov.au). Should the SOI remain consistently negative through August, the chances of average rainfall for all cropping regions of the state will continue to be low. Progress of the SOI should be followed closely during the next few months, particularly as the Bureau's ENSO Tracker remains in an El Niño event (since 12 May, www.bom.gov.au), which is likely to strengthen further during late spring/summer of 2015.



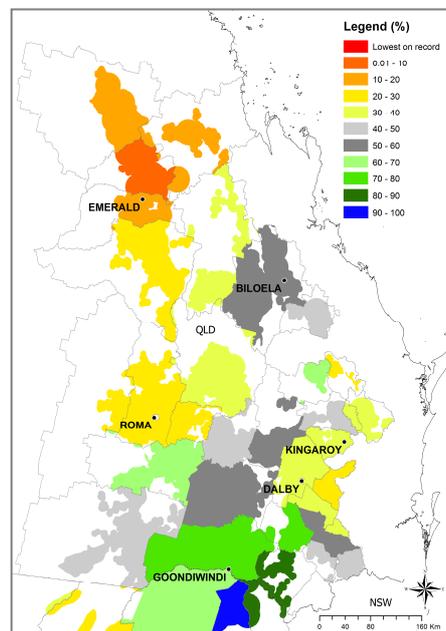
Map 2: Aggregated soil water recharge status (%) as at 1st August 2015. Summer fallow simulated from 1st of October the previous year.

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 115-years using an agro-climatic model for wheat with long-term rainfall records (see descriptive note for more details). Forecast median shire yield ranked relative to all years (%) is shown in Map 3. Any areas coloured in light grey, yellow and red are expected to have crops below to very much below the long-term median yield expectation, whereas areas coloured dark grey, green and blue are expected to be above to very much above the long-term shire wheat yield median expectation.

Map 3 is derived by considering conditions up to the end of July and projecting forward based on rainfall conditions in years from the historical record with SOI phase similar to this year - “consistently negative” in June/July. 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. It is also only applicable to a summer (short) fallow period. The current state wheat outlook, at this stage in the season, varies across most of the state’s cropping area. Forecast yield outcomes vary geographically with almost the entire Maranoa and Central QLD cropping region falling below the 30th percentile relative to all years. Conversely, most parts of southern QLD (e.g. South West), southern Darling Downs and Dawson Callide region (in CQ) have yield outcomes ranked above the long-term median (60th - 80th percentile relative to all years). Widespread above average rainfall during the next month is needed to significantly improve the current wheat yield outlook across of the state’s cropping region, especially parts of CQ.

It should be noted that at this stage of the season, there remains a fairly wide range of likely yield outcomes for the 2015 season (see State Outlook section) as much of the growing season remains in the projected forecast. Updating with actual climate and thus shortening of the forecast period will cause the range of yield outcomes to narrow towards the final realised yield at the end of the season.



Map 3: Forecast median shire yield ranked relative to all years (%)

POOR CROP CHANCE

At present, some areas north of Emerald (included) in CQ are showing a highly increased chance (>30%) of predicted shire yield being lower than the worst 10% yield level 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.

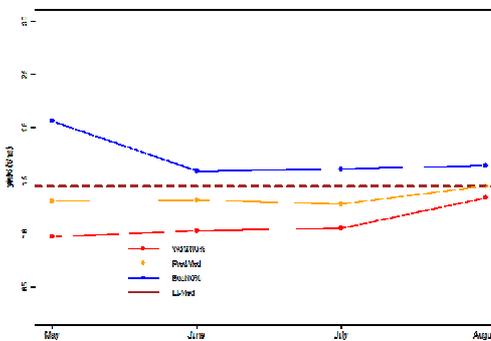
STATE OUTLOOK

The current state wheat outlook shows a forecast median yield at the end of July this year of 1.45 t/ha (50th percentile), which is similar to the long-term median of 1.45 t/ha (Graph A). There is however, a 10% chance that the state yield could be lower than 1.34 t/ha or higher than 1.64 t/ha. At present, the forecast indicates a close to average-yielding crop for the state. However, keep in mind that it is early in the growing season and the forecast considers reduced chance of rain due to the El Niño status. Widespread above average rainfall during the next 3-months is needed to improve the outlook at shire and regional scales.

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	1.00	-24%	22 th	1.32
SEQ	2.32	-2%	47 th	2.36
SWQ	1.37	7%	57 th	1.28

Simulated predicted yields for CQ is 1.00 (t/ha), which is 22% below the long-term median, while SEQ and SWQ have yield outcomes of 2.32 and 1.37 t/ha, which are close to the long-term median expectation. Rainfall in the next month could enhance yield for late planted crops in most parts of southern QLD. However, the chance of above average rainfall is poor. The SOI has remained in a “consistently negative” phase at end of July, which indicates a moderately reduced chance of above average rainfall over the next 3-months for most areas of QLD’s cropping region. There remains, however, quite a wide range of possible outcomes that will depend on conditions in the remainder of the growing season. However, given the increasing skill in forecasts as the season progresses, it is advisable to closely monitor progress of the SOI over the next month, specifically with the current El Niño event likely to strengthen further towards late spring/summer of 2015 (www.bom.gov.au). Years during the last 20 years that had a similar SOI phase at end of July were 1997 and 2004.



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) (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 - 1999. Spatial correlation when predicting the shire wheat yields for the 2000 season, which was independent of the training period, was 0.8 across all main wheat producing shires in Australia (245 in total). (Potgieter et. al., 2006)