

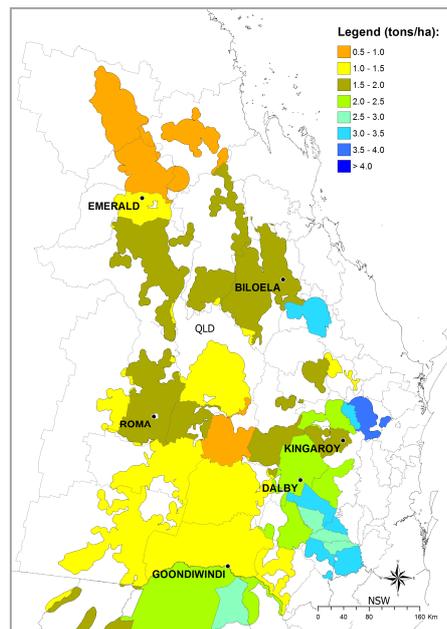
SEASONAL CROP OUTLOOK

Wheat – May 2015

SUMMARY

At present, this *early* in the winter crop growing season, *starting soil water conditions* and the *seasonal rainfall outlook* indicate that chances are close to normal for an above median wheat yield during the 2015 wheat-growing season across most of Queensland. There is however some variation within the state's cropping region with most parts of eastern and central QLD's cropping region showing average to slightly above average chances of exceeding the long-term median wheat yield. The exception is for some parts of south-western QLD having slightly reduced chances of exceeding the long-term shire wheat median. Widespread above average rainfall is needed during the next couple of months to induce good planting opportunities and improve current cropping season conditions. Note that all atmospheric and ocean indicators of ENSO are currently predicting a late development of an El Niño event during the southern hemisphere spring/summer of 2015.

However, the likely range of yield outcomes is still very wide. This range will narrow considerably 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 towards the end of June-July and it is recommended to follow the development of the SOI during the next couple of months closely.

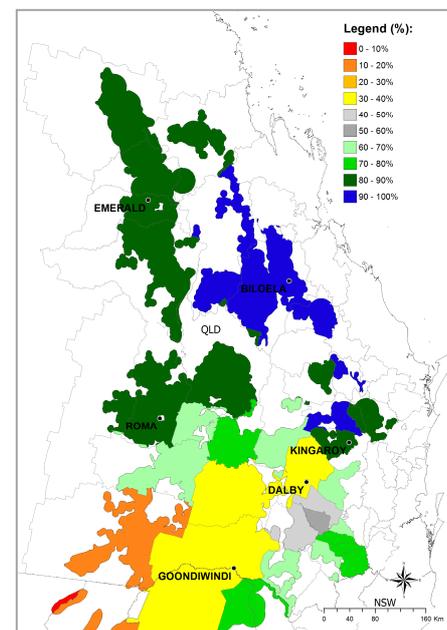


Map 1: Long-term median simulated shire yield (111 years)

GENERAL CONDITIONS

Rainfall recorded during the summer fallow cropping period (previous six months) were mostly average across most parts of the state's cropping region with the exception of parts of CQ and SEQ, which received slightly above average rainfall during that time. This resulted in good replenishment of soil water levels in most of the CQ and SEQ cropping region (Map 2). In contrast, most of SWQ had soil moisture profile levels slightly recharged to below (20-40%) the potential soil moisture profile levels.

The recent pattern of the SOI, "consistently negative" for the March-April period, indicates chances similar to climatology i.e. 50:50 of above average rainfall in most parts of the QLD cropping region, over the next 3-months, respectively, (www.longpaddock.qld.gov.au). This however, will change depending on the movement in the SOI as the season progresses over the next month. Crops sown into profiles with low soil water are more dependent on in-crop rainfall, and in such situations forecasts based on SOI phases can be most useful. Progress of the SOI should be followed closely during the next few months, particularly as the Bureau's ENSO Tracker is at ALERT status (www.bom.gov.au) suggesting the likelihood of an El Niño event during late spring/summer of 2015. This could result in a drier than normal finish to the current winter crop season.



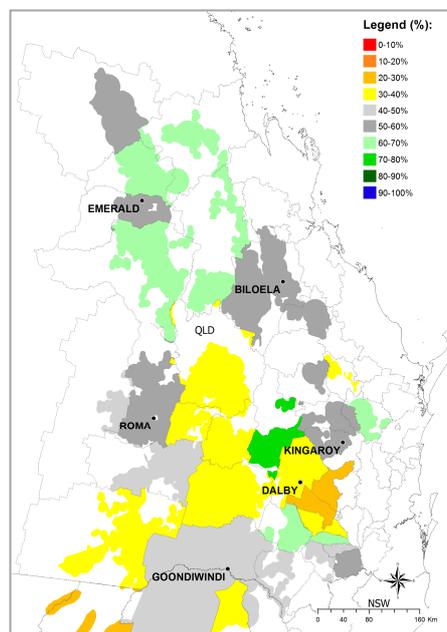
Map 2: Aggregated soil water recharge status (%) as at 7th May 2015. Summer fallow simulated from 1st of October the previous year.

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). The probability of exceeding the long-term median shire wheat yield for the coming season is shown in Map 3. Any areas coloured in yellow to red have a low chance of exceeding the median yield, whereas areas coloured in green to blue have high chance.

Map 3 is derived by considering conditions up to the end of April and projecting forward based on rainfall conditions in years from the historical record with SOI phase similar to this year - “consistently negative” in March/April. 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 very early stage in the season, varies across most of the state’s cropping area. Specifically, chances of exceeding the long-term median yield are slightly above average (60% - 70%) for most areas in CQ and some parts of SEQ. In contrast, most parts of far SWQ and some central parts of the Darling Downs (in SEQ) are showing a close to or slightly below average chances of exceeding the long-term shire yield expectation. Widespread above average rainfall during the next month is needed to significantly improve the current wheat yield outlook for most of the state’s cropping region and to induce further plantings, especially in the southern parts of the state.

It should be noted that at this stage of the season, there is a wide range of likely yield outcomes for the 2015 season (see State Outlook section) as all of the growing season remains in the projected forecast. The current seasonal climate forecast skill will improve towards the end of July. Updating of 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: Probability of exceeding the long-term simulated median shire wheat yield.

POOR CROP CHANCE

At present, this early in the growing season, almost all areas in the state’s cropping region are showing chances similar to climatology(0 to 10%) with the exception of some shires in SWQ having a moderately increased chance (20% to 30%) for the shire wheat yield falling below 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.

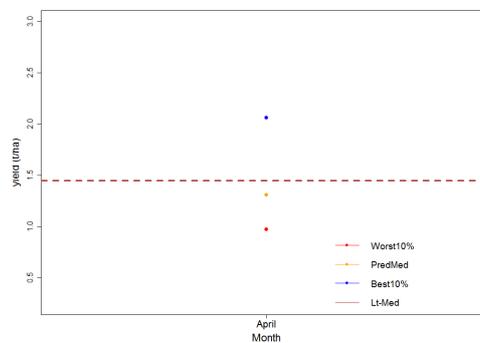
STATE OUTLOOK

The current state wheat outlook shows a forecast median yield at the end of April this year of 1.31 t/ha, 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 0.97 t/ha or higher than 2.06 t/ha. At present - this early in the season - the forecast indicates a close to average-yielding crop for the state. However, keep in mind that it is very early in the growing season and that 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	Worst 10%	Median (50%)	Best 10%	Lt median
SWQ	0.59	1.14	2.04	1.28
SEQ	1.95	2.25	2.81	2.36
CQ	0.96	1.37	1.72	1.32

Forecast medians for SEQ (2.25 t/ha) and SWQ (1.14 t/ha) are slightly below the long-term median expectation regional wheat yields, while yield outcomes in CQ is slightly above the long-term median for that region. The SOI phase of “consistently negative” at end of April indicates chances close to climatology (40%-60%) 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 couple of months, specifically with an increased likelihood of the development of an El Niño event during spring/summer of 2015 (www.bom.gov.au).



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)