

Seasonal Crop Outlook

Wheat - June 2008

Summary

At the end of May, current soil water conditions and the seasonal rainfall outlook indicate that chances of an above median wheat yield during the 2008 wheat-growing season are below average for most of Queensland. There is however some variation within the state's cropping region with some areas (e.g. Central Burnett) showing a near average chance (i.e. 40-60%) of exceeding the long-term median wheat yield, while areas in SWQ and some shires in SEQ regions are showing a below average chance (i.e. <30%) to well below average chance (i.e. <10%) of exceeding the long-term median wheat yield, respectively. This mainly reflects the patterns of fallow rainfall and consequent soil moisture replenishment as well as the reduced chances of rainfall during the next 3-months based on the prevailing SOI phase (i.e. "rapidly falling") at the end of May. Wide spread above average rainfall is needed during the next few weeks to induce good planting opportunities and improve the current wheat outlook.

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 at the end of June and it is recommended to follow the development of the SOI during the next month closely.

General conditions

Although average rainfall was recorded during the summer fallow across most of the state's cropping region, drier conditions prevailed during the late summer/autumn period (March to May). During May, most regions had average rainfall with the exception of some Western areas and southern Downs areas recording below average rainfall for that period. Overall, this caused poor replenishment of soil water levels in most of these areas during May (Map 2). More specifically, some areas in SEQ showed below half-full (i.e. 50%) soil moisture profile levels, while some areas of the Darling Downs (e.g. Murilla) have recharged to only 40% of potential soil moisture profile level, on average. The remainder of the state's cropping region have recharged subsoil moisture levels between three-quarters (i.e. 75%) and full (90%) of the potential soil moisture profile levels, on average.

The recent pattern of the SOI ("rapidly falling" for the April-May period) indicates reduced chances of above average rainfall for most wheat-growing regions over the next 3 months (www.longpaddock.qld.gov.au).

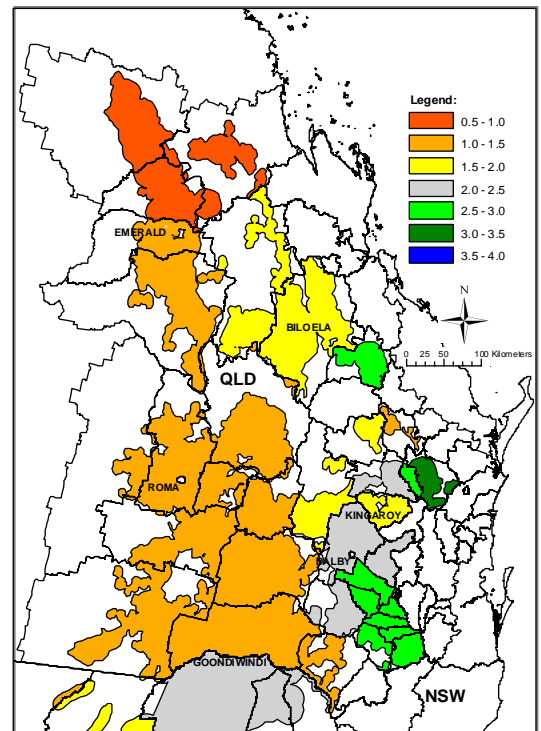
Crops sown into profiles with low soil water are more dependent on in-crop rainfall, and in such situations forecasts based on SOI phases can be most useful. Progress of the SOI should be followed closely during the next few months as changes at this time can have significant impact.

Outlook

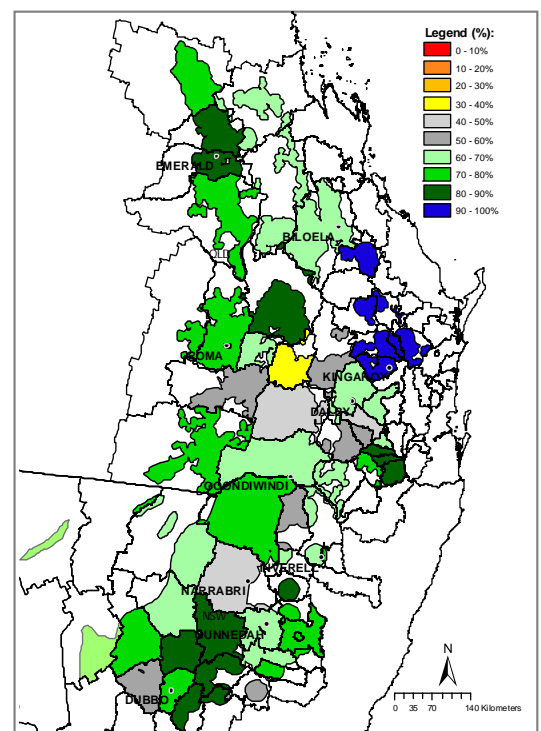
This regional wheat crop outlook is based on the assumption of cropping after summer fallow. The benchmark for this outlook is the simulated long-term median shire wheat yield within the broad cropping region of Queensland (Map 1). The median yield is based on predicted performance over the past 107 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. **continued back page...**

Map 2 & 3 are derived by considering conditions up to the end of May and projecting forward based on rainfall conditions in years from the historical record with SOI phase similar to this year - "rapidly falling" in April/May. 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.



Map 1: Simulated median shire yield



Map 2: Aggregated soil water recharge status (%) as at end of May 2008 (APSIM).

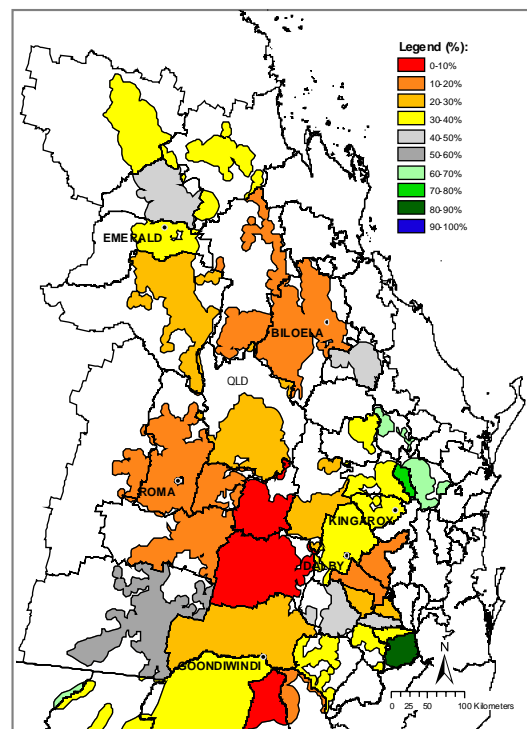
Outlook (continued)

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). Although soil moisture levels are reasonable in most parts of the state's cropping area the 3 monthly rainfall outlook indicates a slightly reduced chance for receiving normal rainfall across most of the state's cropping area. This caused a slight downward trend in shire yield expectations from the previous month for most shires in the cropping region. The current state wheat outlook, at this very early stage in the season, varies across most of the state's cropping area. Almost all shires show below average chances (< 40%) of exceeding the long-term median shire wheat yield (Map 3). Although chances are close to average (40- 60%) for some areas in Central Burnett, CQ and Far South West, some shires in the western Downs region (e.g. Murilla, Tara) are showing very much reduced chances (10% or less) of exceeding the long-term shire wheat yield expectation. Note that although it is still early in the planting period for most areas, widespread above average rainfall during the next few weeks is needed to significantly improve the current wheat yield outlook for most of the state's cropping region.

It should be noted that at this stage of the season, there is a wide range of likely yield outcomes for the 2008 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.

Poor crop chance

At present, this early in the growing season, some areas in CQ are showing a slightly increased chance (10 – 20%) of the shire yield falling in the worst 10% of all years, while most areas in western darling Downs are showing a much increased chance (i.e. > 30%) of shire yield falling in the worst 10% of all years. The remainder of the state had chances similar to or below the long-term expectation i.e. 10% (data not shown).



Map 3: Probability of exceeding the long-term median simulated shire yield.

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

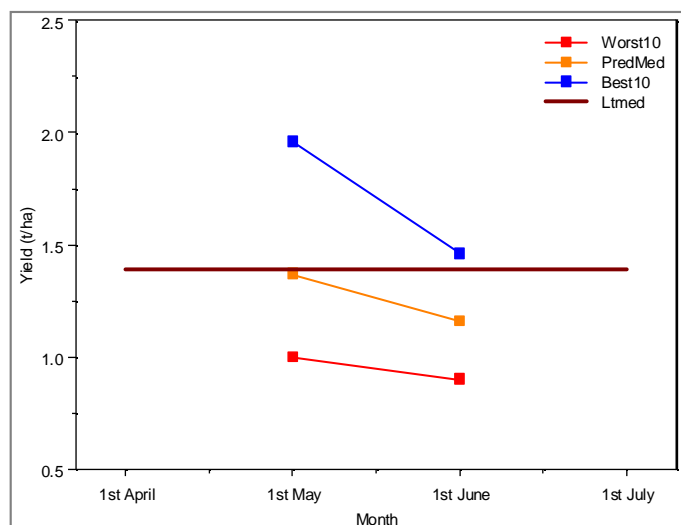


Figure A: State level yield forecast trajectories (10th, 50th & 90th percentiles).

Descriptive Note:

The seasonal wheat outlook is based on the integration of (i) a simple agro-climatic wheat stress index model (OzWheat) (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 winter fallow on starting soil moisture conditions. The model input parameters for each shire (i.e. plant 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)

State outlook

The current state wheat outlook shows a forecast median yield at the end of May this year as 1.16 t/ha, which is below the long-term median of 1.39 t/ha. There is however, a 10% chance that the state yield could be as low as 0.9 t/ha or as high as 1.46 t/ha. At present - this early in the season - the forecast indicates a below average chance of a median-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 July and remainder of the cropping season can 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	0.65	0.94	1.35	1.29
SEQ	1.74	1.95	2.41	2.20
CQ	0.78	1.08	1.41	1.24

All regions of the state have forecast medians below the long-term median expectation. This downward trend from the previous month is mainly caused by the current rainfall outlook (i.e. 'rapidly falling') and poor nature of the replenishment during March to May of starting soil moisture profiles in most of Queensland'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. The current SOI phase ("rapidly falling" in April/May) indicates slightly reduced chances of above average rainfall during the next 3-months for most of the state's wheat-growing regions. 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.