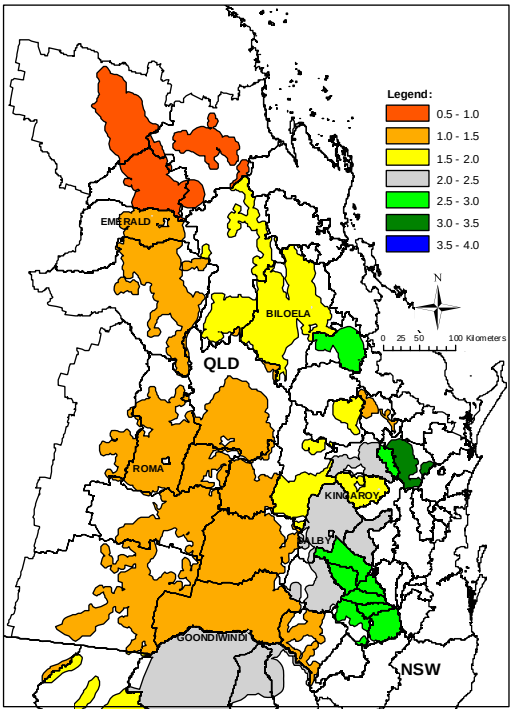
Seasonal Crop Outlook

Wheat – June 2009

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 2009 wheat-growing season are average for most of Queensland. There is however some variation within the state's cropping region with some areas in CQ showing an above average chance (>60%) of exceeding the long-term median wheat yield, while chances vary in other parts. SWQ and SEQ regions are showing near average (40% to 60%) to a slightly below average chance (30% to 40%) 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 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.



Map 1: Simulated median shire yield (t/ha)

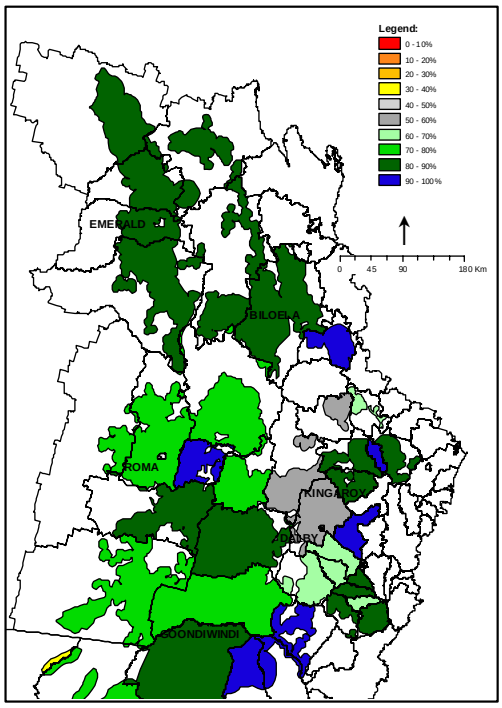
General conditions

Most areas of the state's cropping region recorded average to above average rainfall in May with the exception being some areas in northern parts of the central Highlands. This has induced some plantings in most of the state's cropping shires, especially those areas that had good replenishment of subsoil moisture levels. Replenishment of subsoil water levels was high in most of these areas during May (Map 2).

More specifically, most of the state's cropping region recharged to above three-quarters full soil moisture profile levels, with the exception being for some areas of the northern Downs, which have recharged to only 50% of potential soil moisture profile level. The recent pattern of the SOI ("rapidly falling" for the April-May period) indicates slightly reduced chances of above average rainfall for most wheat-growing regions, especially in southern QLD, 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.

Map 3 is 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. *It should be noted that these values are calculated as broad indicators for shire scale. They do not apply to farm level.*



Map 2: Aggregated soil water recharge status (%) as at start of June 2009. Fallow simulated from 1 October with 10% available water at that time.

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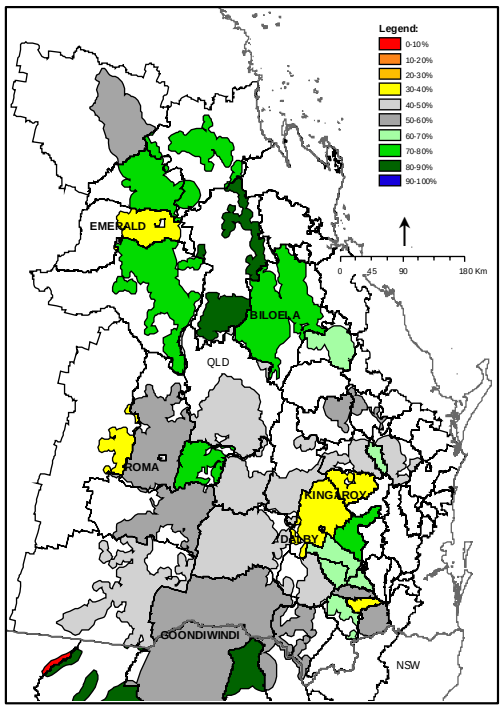
Outlook

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 108 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 a high chance.

Although soil moisture levels are reasonable in most parts of the state's cropping area the 3-monthly rainfall outlook indicates a reduced chance of receiving normal rainfall across most of the state's southern cropping area. This mainly contributed to 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 average chances (40-60%) of exceeding the long-term median shire wheat yield (Map 3). Chances are above average (>60%) for most areas in the central Burnett, central Highlands and some shires in the southern Downs region. Conversely, some areas in the northern Downs are showing slightly reduced chances (30-40%) of exceeding the long-term shire wheat yield. It is still early in the planting period for most areas, so that 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.

It should be noted that at this stage of the season, there is a wide range of likely yield outcomes for the 2009 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, most areas in the state's cropping region are showing chances similar to climatology (0% to 10%) of the shire wheat yield falling in the bottom 10% of all years (data not shown).

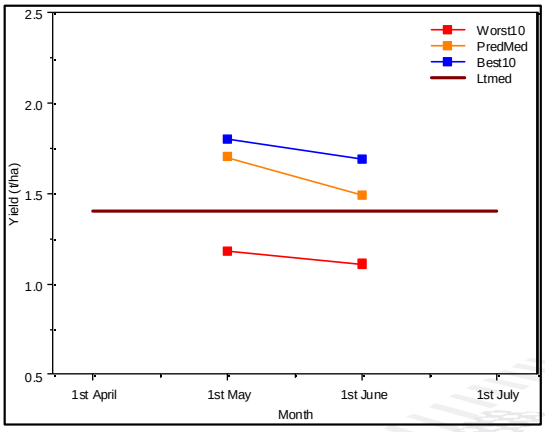


Figure A: State level yield forecast trajectories (10th , 50th & 90th percentiles).

Descriptive Note:
The seasonal wheat outlook is based on the integration of (i) a simple agro-climatic wheat stress index model (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 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 of 1.49 t/ha, which is slightly above the long-term median of 1.40 t/ha. There is however, a 10% chance that the state yield could be as low as 1.11 t/ha or as high as 1.69 t/ha. At present - this early in the season - the forecast indicates an 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 June-July and the 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	0.83	1.32	1.59	1.25
SEQ	1.9	2.23	2.53	2.23
CQ	1.06	1.37	1.61	1.29

All regions of the state have forecast medians similar to the long-term median expectation. This downward trend from the previous month is mainly caused by the current rainfall outlook. The SOI 'rapidly falling" phase in April/May indicates slightly reduced chances of above average rainfall over the next 3-months in most of the state'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.