

SEASONAL CROP OUTLOOK

Sorghum – January 2015

SUMMARY

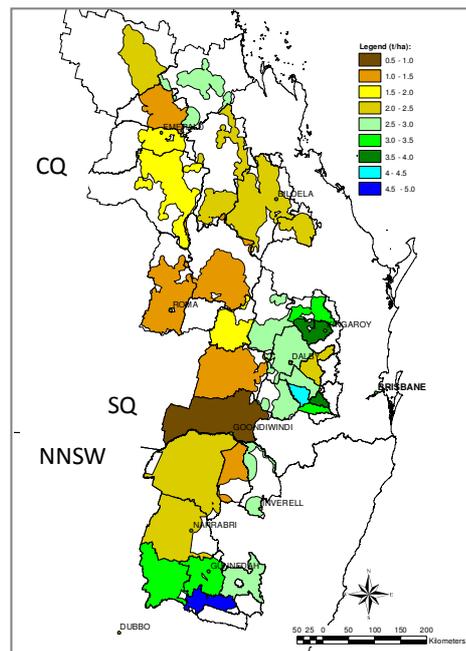
Good rainfall, at end of December, has improved the outlook across most of the summer grains cropping region. However, for the 2014/15 summer crop, chances remain below average to exceed the long-term median sorghum yield across most of the north eastern Australian (NEAUS) summer cropping region. This resulted from a combination of starting soil water conditions and projected seasonal rainfall for that region under current negative SOI conditions. There are regional variations though. Widespread average to above average rainfall is needed, during next couple of months to further induce good summer plantings particularly in the northern regions of the NEAUS summer cropping region.

GENERAL CONDITIONS

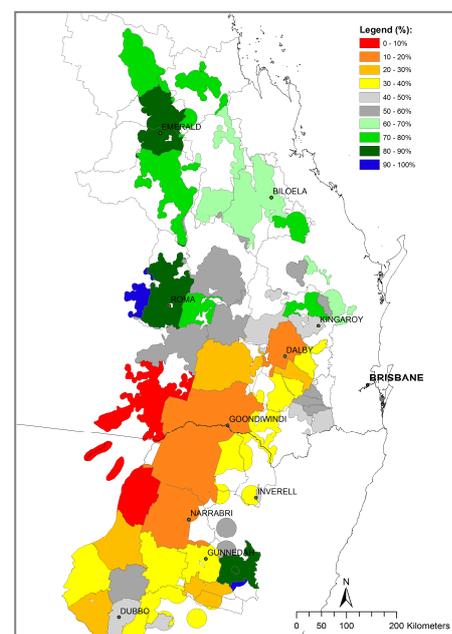
At the end of December, average to above average rainfall were recorded across most of the state's summer cropping region. This is likely to create good planting opportunities in some parts of southeast QLD, while in central QLD sowing can occur much later till early of February. Estimated stored soil moisture levels (simulated through winter fallow using APSIM) improved across most areas across most of the summer cropping region. However, almost the entire southern summer cropping region is showing low to medium soil water recharge levels (<40%) (Map 2). In Contrast, the soil recharge levels increased to high (~70%) in most of the Far South Western QLD and Central QLD summer cropping region. Widespread above average rainfall is needed over the next couple of months to induce further planting opportunities, specifically in CQ where late plantings can occur till early February. The recent pattern of the SOI ("consistently negative") indicates reduced chances to receive above average rainfall in most of NEAUS cropping region for the next 3-months (www.longpaddock.qld.gov.au).

OUTLOOK

This regional sorghum crop outlook is based on the assumption of cropping after winter fallow. The benchmark for this outlook is the simulated long-term median shire sorghum yield within the broad NEAUS cropping region (Map 1). The median yield is based on predicted performance over the past 111-years using an agro-climatic model for sorghum with long-term rainfall records (see descriptive note for more details). Probability of exceeding the long-term shire median yield for this year is shown in Map 3. Any areas coloured in light grey, yellow and red have a poor to very poor chance of having crops above the long-term median yield, whereas areas coloured in dark grey, green and blue have good to very good chances of producing higher yielding crops. Map 3 is derived by considering conditions up to date (end of December) and projecting forward based on rainfall conditions in years with SOI phase similar to this year i.e. "consistently negative" in Nov/Dec. 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 (e.g. heat waves). The short fallow period is simulated from 1st April and long-fallow soils are likely to show increased soil water profiles from that indicated here.



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



Map 2: Aggregated soil water recharge status (%) as at 1st January 2015. Winter fallow simulated from 1st of April 2014. Soils with longer fallow are likely to show higher water recharge levels.

The recharge of the starting soil moisture profile levels in combination with the current below average seasonal rainfall outlook resulted in a below average chance (20-40%) of exceeding the long-term median yield for most areas of NNSW and northern Darling Downs, while most parts of CQ, Far South Western QLD and southern Darling Downs are having chances close to or slightly above average to exceed the long-term median sorghum yield for those regions.

However, it should be noted, that at this stage of the season, the range of likely yield outcomes for the 2014/2015 season (see Regional Outlook section) are still wide as much of the growing season remains in the projected forecast. Updating each month, as the season progresses, causes the range of yield outcomes to narrow towards the final realised yield at the end of the season.

POOR CROP CHANCE

At present, chances for this season’s sorghum crop to fall below the worst 10% (crop yield) of all years remains low for CQ and Far South Western QLD, while parts of the NNSW and southern QLD are showing a slightly increased chance of falling in that category (i.e. below the worst 10% of all years, data

not shown).

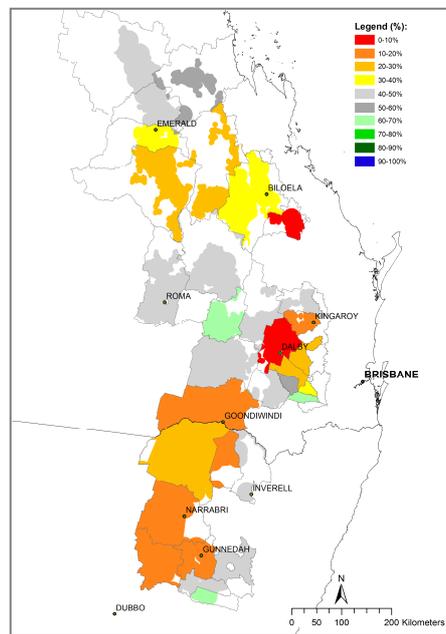
It should be noted that these values are calculated as broad indicators for shire scale. They do not apply to farm level.

STATE OUTLOOK

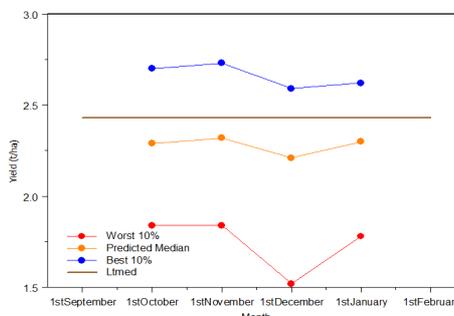
The current regional outlook shows the forecast median yield for the entire NEAUS’ sorghum-cropping region at the start of January as 2.30 t/ha, which is slightly below the long-term median of 2.43 t/ha (Graph A). There is however, a 10% chance that the state yield could be lower than 1.78 t/ha, or higher than 2.62 t/ha. At local regional level, Central Qld (CQ) and Southern Qld (SQ) and northern NSW (NNSW) (see Map 1), the forecast yield (t/ha) ranges are as follows:

Region	Worst 10%	Median (50%)	Best (%)	Lt median
CQ	1.44	1.98	2.28	2.08
SQ	1.53	2.26	2.69	2.50
QLD	1.55	2.08	2.49	2.24
NNSW	2.47	2.85	3.42	3.10

At this early stage of the season, CQ and NNSW regions are showing yield expectations close to the long-term regional sorghum yield expectation, while SQ and QLD are showing yield expectations slightly below the long-term regional sorghum yield expectation. However, a wide range of possible outcomes still exists, which will narrow as the season progresses and the actual climate experienced is incorporated in the analysis. The current SOI phase (“consistently negative” in Nov-Dec) indicates chances to receive above average rainfall are well reduced across most parts of NE Aus summer crop region over the next 3-months. Widespread above average rainfall is needed over the next couple of months to further induce sowing opportunities across the entire region.



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



Graph A: NEAUS sorghum yield forecast trajectories (10th, 50th and 90th percentiles).

DESCRIPTIVE NOTE:

The seasonal sorghum outlook is based on the integration of (i) a simple agro-climatic sorghum stress index model (SSIM) (i.e. Bare fallow routine - Ritchie, 1972; Sorghum 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 sorghum model is run from 1 April the year before harvest in order to account for the influence of the winter fallow on starting soil moisture conditions. The model shire input parameters (i.e. plant available water content, planting rain & stress index period) have been selected based on the best fit when calibrated against actual shire sorghum yields from the Australian Bureau of Statistics (ABS) for the period 1983 - 1997. Cross-validated correlations ranged from 0.6 to 0.9 within the main sorghum producing shires of NE Australia (31 in total). (Potgieter et. al., 2005)