

SEASONAL CROP OUTLOOK

Sorghum – March 2016

SUMMARY

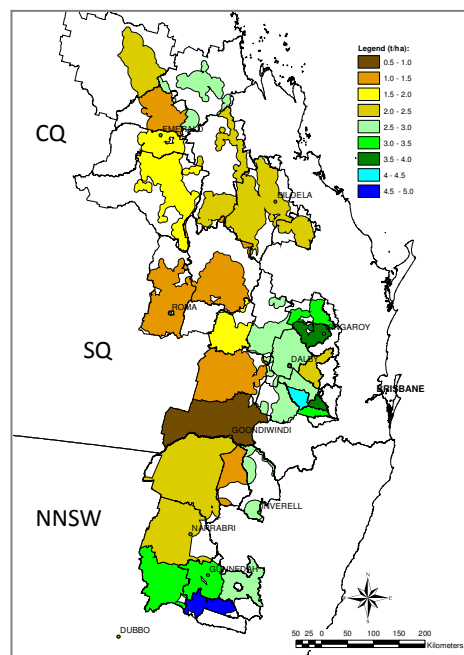
Final predicted crop outcomes converged to slightly above the long-term average sorghum yield across most parts of north eastern Australia's (NEAUS) summer cropping region for 2015/16. With the summer crop season nearing a close, current climate, soil moisture conditions and seasonal rainfall outlook indicate an average sorghum yielding crop of 2.52 t/ha (59th percentile), 2.22 t/ha and 3.51 t/ha at National, QLD and NNSW levels, respectively. There remains, however, some variation in the outlook among local regions. Specifically, Central Queensland (CQ) shows below average crop yield expectations (18th percentile), while southern QLD (SQ) and northern NSW (NNSW) are showing yield outcomes slightly above (62nd) and well above (83rd percentiles) the long-term median yield expectation, respectively.

GENERAL CONDITIONS

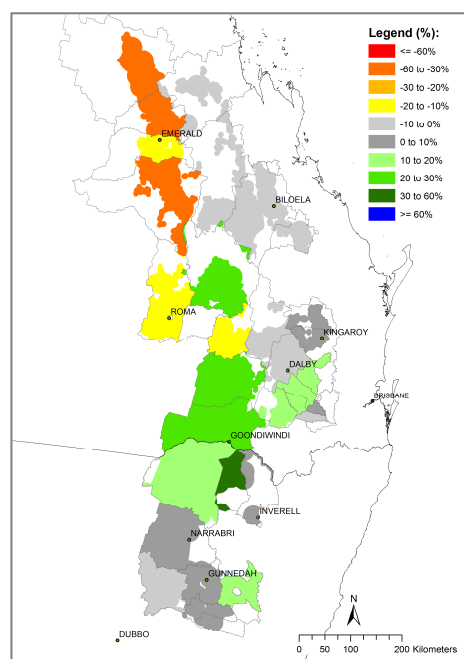
Most areas of CQ recorded above average rainfall during February resulting in some very late planting opportunities for that region. However, later plantings often result in a reduction in final crop yields and will be further impacted by the poor start to the current summer season. In contrast, rainfall during February was average for QLD and below average for NNSW. Mean temperatures remained slightly above average for February across most parts of the NEAUS cropping region. This resulted in a dry finish to the season and favourable harvesting conditions for earlier planted crops in most of the southern parts of the NEAUS cropping region. Harvesting has finished for most early planted sorghum crops in NNSW and SQ, while some later planted crops are approaching maturity. The recent pattern of the SOI ("consistently negative") indicates chances similar to climatology (50:50) of receiving above average rainfall in most of NEAUS cropping region for the next 3-months (www.longpaddock.qld.gov.au). The exception is for some parts of NNSW, which has a slightly increased chance of above average rainfall during the next three months.

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 114-years using an agro-climatic model for sorghum with long-term rainfall records (see descriptive note for more details). The percentage departure of the forecast median for this season from the long-term median shire sorghum yield is given in Map 2. Map 3 shows the current forecast shire median yield ranked relative to all years. 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 2 & 3 are derived by considering conditions up to date (end of January) and projecting forward based on rainfall conditions in years with SOI phase similar to this year - "consistently negative" in the January to February period. 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).



Map 1: Long-term median simulated shire sorghum yield (114 years)



Map 2: Percentage departure of the current forecast median shire yield from the long-term shire median yield.

Map 2 shows that for this season, most areas in the central Highlands of CQ have forecast yield expectations below (-30% to -10%) the long-term median yield. On the contrary, most areas of northern NSW and SEQ have forecast yields above (10% to 30%) the long-term expectation for that region. Some parts of Wide Bay Burnett, northern SEQ and central NSW have final predicted yield outcomes close to the long-term median. When comparing yield outcomes to the previous 114 years, most of CQ and some parts of Western QLD have relative yield outcomes ranked in the bottom tercile (< 30th percentile). In contrast, most areas in SEQ, South West QLD and most of NNSW are having yield outcomes close to or above the top 30% (> 70th percentile) yield outcomes compared to all yield expectations over the last 114 years. The exception is for some parts of northern Darling Downs (in SEQ), which have yield expectations close to or slightly below the long-term median.

It should be noted that at this stage of the season, the range of likely yield outcomes for the 2015/2016 season has narrowed considerably as much of the actual growing season has been included in the forecast.

POOR CROP CHANCE

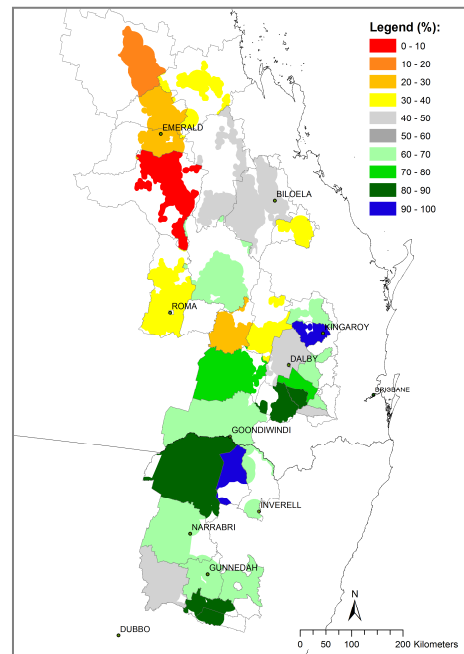
At present, chances for this season’s sorghum crop to fall below the worst 10% (crop yield) of all years remains low across all regions with the exception of some parts of the Central Highlands (south and north of Emerald) in CQ that are showing a moderately increased chance of falling in that category (i.e. below the worst 10% of all years; data not shown).

STATE OUTLOOK

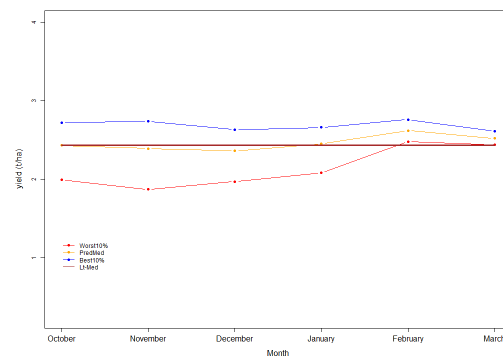
The current regional outlook shows the forecast median yield for the entire NEAUS sorghum-cropping region at the end of February has consolidated to 2.52 t/ha (59th percentile), which is slightly above the long-term median of 2.43 t/ha (Graph A). There is however, a 10% chance that the state yield could be lower than 2.44 t/ha, or higher than 2.61 t/ha. At local regional level, Central Qld (CQ) and Southern Qld (SQ), Queensland (QLD) and northern NSW (NNSW) (see Map 1), the forecast yield (t/ha) ranges are as follows:

Region	Median (50%)	Percentile (%)	Lt median
CQ	1.68	18	2.08
SQ	2.63	62	2.50
QLD	2.22	49	2.23
NNSW	3.51	83	3.13

Final predicted yield outcomes converged to slightly above the long-term median at an aggregated NEAUS level. There remains some variation across regions, with CQ showing a below average yield expectation (18th percentile) and southern QLD showing yield expectations slightly above the long-term median at 2.62 t/ha. The exception is NNSW which is having a very much above average sorghum crop yield expectation of 3.53 t/ha on average (83rd percentile). The current SOI phase of “consistently negative” in January to February indicates that chances to receive above average rainfall are close to climatology (not different from average) for most parts of the summer cropping region. Widespread average rainfall is needed over the next couple of months to further ensure good crop growth conditions especially around flowering for late planted crops.



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



Graph A: NE AUS 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 (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)