

## Summary

### The 2016 Season

While the Western Australian grain crop for 2016 remains on track for a large harvest, frosts through September have thwarted what was expected to be a record harvest and in particular taken the gloss off the season for growers in eastern districts and the Lakes region.

September saw the coldest average minimum temperatures on record across most of the grainbelt. Frost events occurred regularly from August in many districts and caused localised losses in early sown barley and wheat crops. Two very cold frosts on September 17/18 and 23/24 in the Lakes region have caused large losses of grain in barley and wheat with lesser effect on canola and lupins. Cereal yield potential has declined by around 25% in this region as a result. The frosts have resulted in a reduction in the GIWA Crop forecast of around 1 million tonnes from the forecast a month ago to around 16.8 million tonnes.

While the frosts have had a big negative impact, the cool weather will also have a positive impact on crops. Evaporation has been low enabling grain yield potential to be fulfilled by the remaining levels of soil moisture. Heat shock can severely limit grain yield and quality and this is unlikely to have an impact this year based on the current predicted weather patterns through to harvest.

In the Albany zone, crop growth has been restricted by the cold temperatures and reduced sunshine. Reports indicate that growth is about two weeks behind that normally expected for this time of the year. This is not expected to have a negative impact on yields, other than delaying maturity and the start date for harvesting.

In the Geraldton zone, canola has been swathed in the northern districts and deliveries to the Geraldton port have started. Canola swathing in other regions will commence shortly for very early sown canola.

The outlook for grain quality is mixed. The very high yield potential in most regions will result in average grain protein levels for wheat and barley. For barley, grain staining in early maturing crops is a concern, but protein levels and grain size for malting grades will be good.

Generally oat yields have not been affected by frost and quality of the oats harvested is expected to be very good.

Canola oil quality will be high with oil content expected to average around 48% and higher.

Lupin yields will be high in the Geraldton and Kwinana zones with excellent pod set apparent. In the Albany and Esperance zones, large leafy crops and constant cloud has reduced pod set and is expected to reduce yield potential.

### 2016 WA Crop Production estimates (tonnes)

Port zone	Wheat	Barley	Canola	Oats	Lupins	Field pea	State total
Kwinana	5,076,000	1,067,000	617,000	435,000	188,000	13,000	7,396,000
Albany	1,772,000	1,211,000	445,000	293,000	55,000	7,000	3,783,000
Esperance	1,250,000	829,000	411,000	17,000	20,000	24,000	2,551,000
Geraldton	2,349,000	144,000	228,000	12,000	413,000	1,000	3,147,000
<b>Totals</b>	<b>10,447,000</b>	<b>3,251,000</b>	<b>1,701,000</b>	<b>757,000</b>	<b>676,000</b>	<b>45,000</b>	<b>16,877,000</b>
Compared to Sept forecast	-3.6%	-8.2%	-2.4%	0%	-1.3%	-8.2%	-4.2%
Compared to 2015 harvest	13.6%	5.8%	10.2%	47.6%	49.6%	28.6%	13.9%

*Note: The grain totals reported are for whole farm production. This includes on-farm seed and feed requirements as well as trade outside of the CBH network.*

## **Kwinana Zone**

### **The Midlands**

Frost events across the Midlands region have impacted on yield potential, principally for crops in eastern districts from Miling to Dalwallinu. While this is disappointing the overall impact will be localised and grain production overall for the region remains likely to be well above average.

Grain quality will be at least average with most concern being for lower protein levels in wheat. High yields are likely to reduce protein potential. Staining in early sown barley crops is a high risk if rainfall occurs in October as the crops mature.

Lupin yields will be above average with excellent pod set in secondary and tertiary branches.

### **Kwinana East**

Frosts in August and late September have significantly damaged crops in the eastern half of the Kwinana East zone. In particular, the Nungarin district has suffered potential losses of around 20% to wheat and barley.

The cool weather through September has been good for grain fill in cereals and canola, but not so for chickpea crops with no pod set to date. Field pea crops have suffered from frost and may yield poorly.

While October rain will be welcome, and will boost yield potential, for the majority it is not essential to still achieve current yield potential. In districts north of Great Eastern Highway, further rain will be welcomed with “tipping” starting to be seen in wheat. The strong winds in the first few days of October have also hastened drying of barley crops.

### **Kwinana West**

Frost events have been widespread in the Kwinana West zone with yield affected by around 15% overall. Losses for individuals have been high. Frost has had a bigger impact in eastern districts of the zone.

Barley crops have been more tolerant to frost than wheat but with early sown crops suffering the most. Losses of 15 to 20% will be common, with overall losses at about 5 to 10%.

Oat and canola crops do not seem to have suffered from frost damage to any significant degree.

There are a few aphids in canola crops causing localised concern but of no real significance.

Wheat protein is likely to be below average with the high yields forecast. A lot of nitrogen has been used but the high yields will see reduced protein levels.

Early sown barley will have good protein levels, suitable for Malt Grade, but if there is significant October rainfall events early maturing crops could suffer staining.

Canola crops will have high oil percentages in all districts.

Harvest is expected to commence in late October.

## **Albany Zone**

### **Lakes region**

The Lakes region suffered two very severe frost events, on 17/18 and 23/24 September, causing widespread damage to crops in the Hyden, Varley, Lake King and Newdegate districts.

Barley crops have suffered more than wheat. However, wheat crops have been affected with crops in the Kulin and Kondinin districts less affected than crops in the eastern districts. Later sown barley crops have not been affected to the same extent.

Canola crops have also suffered frosted pods with the pods now empty of grain or with few grains. Yield reductions are likely.

Lupins have suffered frost damage but with fewer pods because of the large biomass of crops, the impact on yield is expected to be less.

Oat crops appear to be far less affected and generally yield and quality should be excellent.

Hay cutting commenced in the last half of September. Growers are looking for fine weather to cure swaths before baling.

Canola crops are almost ready for desiccation, especially for crops sown in late March and early April. Harvest should start for these Canola crops in late October. Canola sown later during mid April to May will mature in mid November.

Grain quality overall will be variable. Grain size is likely to be good, but colour staining is a risk and protein will be below average. Frost is not likely to have an impact on grain quality at this stage. For

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frosted barley crops, grain protein may be higher than average due to the reduced yields of these crops.

### **Southern Albany Zone**

The cold winter has continued through September in the lower Albany zone, restricting crop growth. Solar radiation levels are 10% below average as a consequence of the amount of cloudy days the region has experienced. Minimum temperatures have regularly dipped below zero in most districts but not for long enough periods to cause real concerns. Crop development has also not been at the vulnerable stage to date to see widespread frost damage.

The districts north of Kojonup and west of Wagin have enjoyed a near perfect season to date, with no waterlogging. Waterlogging continues to be a problem from Kojonup south to Albany with no time left now for suffering crops to make a reasonable recovery in terms of yield.

Barley crops are starting to flower in the southern districts of the Albany zone, which is much later than would normally be expected.

Canola crops have suffered from frosts and may lose 5% of potential yield, with crops in the Darkan district hit hardest.

Wheat is at flag to ear emergence, about three weeks later than seen in 2015. This is a good measure of how cold this winter has been. Powdery mildew continues to be a problem.

Leaf rust is starting to become apparent in Bass and Flinders barley varieties.

Lupins are showing lots of growth but with low primary podding, with average yields still expected.

### **Esperance Zone**

September rainfall has been extensive in the southern districts, resulting in on-going losses to waterlogging. Elsewhere in the Zone, September rainfall was average.

Swathing of canola will commence in the next week or so. There are concerns about regrowth causing contamination in the swath. Harvest is expected to commence in mid to late October.

Grain protein in wheat and barley is likely to be below average with high yields resulting in most wheat crops returning protein levels of 10 to 10.5%. While adequate nitrogen has been applied, high yields and leaching has reduced the effectiveness of the applied nitrogen in terms of protein content of the grain.

Malt barley quality should be good but colour and staining may be a problem.

Canola crops should have high oil content percentages of around at 48 to 50%.

Harvest will be drawn out due to the wet conditions and grain drying will be important to enable harvest to be completed efficiently.

Frost events have not been widespread in the Esperance Zone. However, there are indications of frost damage to crops in the northern Mallee districts.

Overall forecast yields have been reduced by 100 to 200 kilograms per hectare due the impact of increasing waterlogging in coastal districts and the impact of limited frosts in the Mallee.

### **Geraldton Zone**

The season overall, continues to be very good to excellent with high yields expected for most crops in the Zone.

Swathing of canola crops has commenced in the northern districts with deliveries to start in earnest in early October. Swathing has commenced in the Coorow district for very early sown Canola crops.

Frost events have had a small impact in the Perenjori, Dalwallinu and Carnamah shires.

Grain staining with the constant moisture will be an issue in coastal districts around Eneabba, although this is a fairly normal problem for crops in this district.

Frost has affected lupin crops in southern districts with low impact, while lupin crops are in excellent condition in northern districts. Canola crops have been largely unaffected by frost.

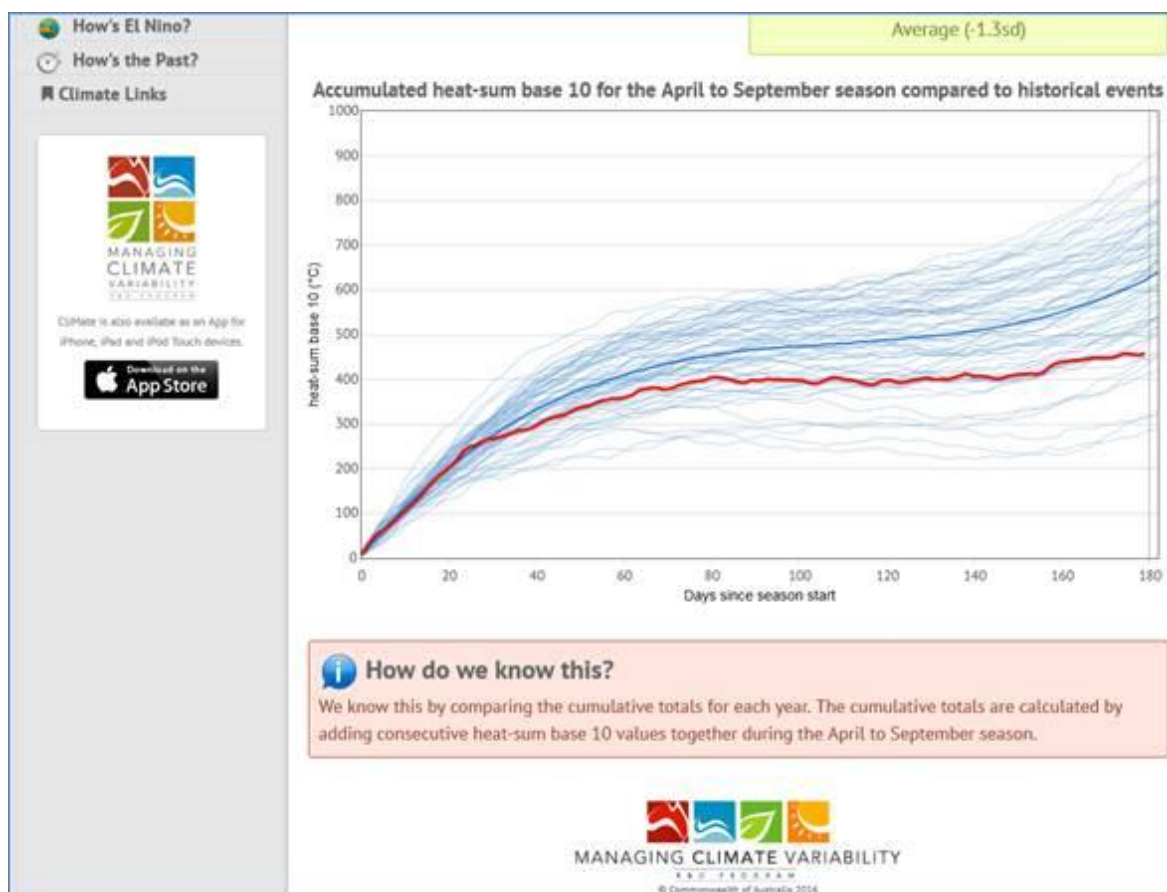
## Season Outlook

### Ian Foster, Grains Industry Directorate, DAFWA

September has seen several frost events, with the most severe probably being over 17/18 and 24/26 September. In each of these events around 70 or more of DAFWA weather stations reported temperatures below zero, with some sites recording around 16 hours below zero over two days. Details of frost occurrences can be found on DAFWA's new extreme weather events web tool at <https://www.agric.wa.gov.au/climate-weather/extreme-weather-events-tool>

This follows the pattern of a generally cooler than average growing season, with each month from May to August (and probably September as well) having below average temperatures across southern WA. See the Bureau of Meteorology's climate page at <http://www.bom.gov.au/jsp/awap/temp/index.jsp?colour=colour&time=latest&step=0&map=meananom&period=daily&area=wa>

Accumulated thermal time since April has been also below average at many sites, see the example below for Merredin and a base of 10 degrees. (from the CliMate app <http://www.australianclimate.net.au>):



The red line is 2016, and the faint blue lines are past years, indicating that many crops might be slower than normal in their development to date.

A possible culprit in this is the strong negative Indian Ocean Dipole (IOD) event currently underway. One of its features is warmer sea surface temperatures around the eastern Indian Ocean, and this is clearly influencing eastern Australian rainfall this year. The impacts on WA are usually less but the enhanced temperature gradient between the tropics and higher latitudes may well be contributing to stronger low pressure systems, and the associated cold southerlies after they have passed over WA.

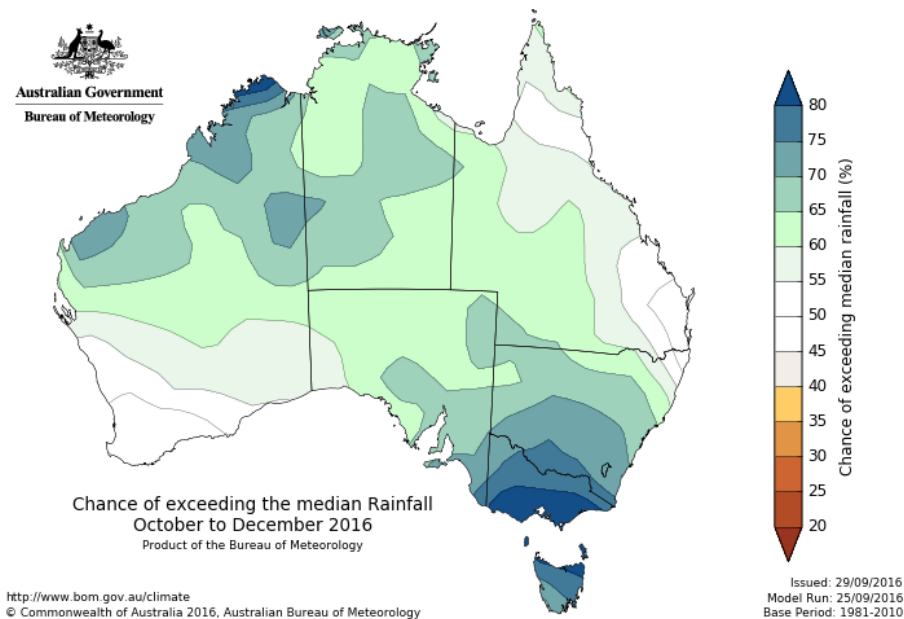
The climate models don't have much guidance for rainfall at harvest but if the IOD event continues into November there could be a chance of extra rain over the north-eastern and eastern Wheatbelt.

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**Bureau of Meteorology: 3 month outlook, October to December 2016**

**Summary**

- October rainfall is likely to be above average across northern and eastern Australia with strongest chances over Victoria, Tasmania and southern NSW. A small area in southern WA shows an increased chance of a drier month.
- October to December rainfall is also likely to be wetter than average for much of the country, except in the northeast and southwest where the chances of a wetter or drier than average three months are roughly equal.
- Historical outlook accuracy for October to December is moderate to high over most of Australia.
- October to December days are likely to be cooler than average for most of Australia. In the northern tropics, western WA and Tasmania, daytime temperatures are likely to be warmer than average.
- Overnight temperatures show a similar pattern to the daytime temperatures: cooler than average except in the northern tropics, parts of western WA and Tasmania where nights are likely to be warmer than average.
- Maximum temperature accuracy is moderate to very high over most of Australia, except for a small area in WA where accuracy is low to very low. Minimum temperature accuracy is moderate over much of the country but patchy along parts of the east coast and the northern tropics.



**Additional information can be sourced from:**

- **[DAFWA: Seasonal Climate Information](#)**
- **[DAFWA: Potential Yield Calculator](#)**
- **[BoM: WA Seasonal Rainfall Outlook, next 3 months](#)**
- **[BoM: Month to date rainfall for WA](#)**
- **[BoM: Decile rainfall for July to September 2016](#)**
- **[WX Maps:16 day rainfall outlook](#)**

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