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The next issue of *Australian crop report* is scheduled to be released on 12 September 2017.

In the next issue:

2017–18 winter crop area estimates and production forecasts updated

2017–18 summer crop area and production forecasts

Acknowledgements
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The start of the 2017–18 winter crop season was mixed. Autumn rainfall was generally favourable in cropping regions in the eastern states (excluding South Australia), which resulted in favourable levels of soil moisture in these regions. Rainfall was generally well above average in cropping regions in Queensland and New South Wales during March and in Victoria during April. Rainfall was average to below average in most of these regions in May. Autumn rainfall was below average in most cropping regions in Western Australia and some key cropping regions in South Australia, which led to unfavourable planting conditions during autumn and early winter in these regions.

Winter rainfall is likely to be below average in most cropping regions, according to the Bureau of Meteorology's latest three-month rainfall outlook for June to August 2017 (issued 25 May 2017).

The total area planted to **winter crops** is forecast to fall by around 1 per cent in 2017–18 to 22.5 million hectares. The area planted to cereal crops is expected to decrease but the area planted to canola, chickpeas and lentils is forecast to increase. The area planted to canola is forecast to rise in all major producing states, largely reflecting favourable expected returns compared with wheat, oats and barley.

For the major winter crops, the area planted to **wheat** is forecast to fall by around 1 per cent to 12.7 million hectares and the area planted to **barley** is forecast to fall by 4 per cent to 3.9 million hectares. In contrast, the area planted to **canola** is forecast to rise by 14 per cent to 2.6 million hectares. Among other crops, the area planted to **chickpeas** is forecast to rise by 3 per cent to 1.1 million hectares and the area planted to **oats** is forecast to fall by 19 per cent to 734,000 hectares.

Total **winter crop** production is forecast to decrease by 33 per cent in 2017–18 to 40.1 million tonnes, which largely reflects an assumed fall in average yields from the exceptionally high yields in 2016–17. For the major crops, **wheat** production is forecast to decrease by 31 per cent to 24.2 million tonnes, **barley** production is forecast to decrease by 39 per cent to 8.1 million tonnes and **canola** production is forecast to decrease by 20 per cent to 3.3 million tonnes. Among other crops, **oats** production is forecast to decrease by 38 per cent to 1.2 million tonnes and **chickpea** production is forecast to decrease by 24 per cent to 1.4 million tonnes.

Table 1 Winter crop area, Australia, 2007–08 to 2017–18

Year	Unit	New South Wales	Victoria	Queensland	South Australia	Western Australia	Australia
2007–08	'000 ha	6,312	3,375	873	4,131	7,265	21,978
2008–09	'000 ha	6,295	3,492	1,208	3,979	7,899	22,901
2009–10	'000 ha	6,106	3,488	1,173	3,783	8,271	22,844
2010–11	'000 ha	6,158	3,457	1,217	3,821	7,715	22,392
2011–12	'000 ha	5,969	3,411	1,205	3,838	8,252	22,693
2012–13	'000 ha	5,852	3,457	1,222	3,776	8,097	22,421
2013–14	'000 ha	5,314	3,283	1,105	3,448	8,249	21,420
2014–15	'000 ha	5,491	3,304	995	3,639	8,313	21,760
2015–16 **s**	'000 ha	5,674	3,242	1,235	3,568	8,378	22,116
2016–17 **s**	'000 ha	5,869	3,370	1,333	3,551	8,442	22,583
2017–18 **f**	'000 ha	5,844	3,378	1,334	3,539	8,338	22,450
% change 2016–17 to 2017–18		0	0	0	0	–1	–1

f ABARES forecast. **s** ABARES estimate.
Note: Includes barley, canola, chickpeas, faba beans, field peas, lentils, linseed, lupins, oats, safflower, triticale and wheat.

Table 2 Winter crop production, Australia, 2007–08 to 2017–18

Year	Unit	New South Wales	Victoria	Queensland	South Australia	Western Australia	Australia
2007–08	kt	3,999	4,692	1,194	4,706	10,761	25,415
2008–09	kt	9,438	3,887	2,326	4,863	13,785	34,378
2009–10	kt	7,787	5,889	1,617	7,035	12,943	35,344
2010–11	kt	14,784	7,625	1,821	9,316	8,044	41,672
2011–12	kt	11,952	7,352	2,329	7,371	16,600	45,670
2012–13	kt	11,123	6,886	2,156	6,470	11,243	37,934
2013–14	kt	9,773	6,773	1,516	7,221	16,510	41,878
2014–15	kt	10,445	5,117	1,464	7,439	14,662	39,197
2015–16 **s**	kt	11,408	4,156	2,149	7,174	14,666	39,608
2016–17 **s**	kt	16,570	10,330	3,215	11,207	18,041	59,424
2017–18 **f**	kt	11,235	5,992	2,008	6,666	14,120	40,096
% change 2016–17 to 2017–18		–32	–42	–38	–41	–22	–33

f ABARES forecast. **s** ABARES estimate.
Note: Includes barley, canola, chickpeas, faba beans, field peas, lentils, linseed, lupins, oats, safflower, triticale and wheat.

Total Australian **summer crop** production is estimated to have increased by 5 per cent in 2016–17 to 4 million tonnes, as a result of large increases in cotton and rice production.

Grain sorghum production is estimated to have fallen by 46 per cent in 2016–17 to 1.1 million tonnes, reflecting falls in planted area and the average yield. Planted area fell by 39 per cent to 416,000 hectares.

Cotton production is estimated to have increased by 53 per cent in 2016–17 to 960,000 tonnes of cotton lint and around 1.4 million tonnes of cottonseed. The area planted to cotton is estimated to have more than doubled in 2016–17 to 557,400 hectares, but the average yield is estimated to have declined by 26 per cent. The average yield fell because of an increase in the share of area planted to dryland cotton. Dryland cotton is lower yielding than irrigated cotton and this season it had very low yields because of unfavourable seasonal conditions.

Rice production in 2016–17 is estimated to have been 835,000 tonnes, which is more than three times higher than in the previous season. The rise in rice production was driven by producers increasing planted area in response to plentiful supplies of irrigation water.

Table 3 Summer crop area and production, Australia, 2006–07 to 2016–17

Year	New South Wales		Queensland		Australia	
	'000 ha	kt	'000 ha	kt	'000 ha	kt
2006–07	338	1,037	545	1,099	918	2,166
2007–08	398	1,668	791	2,877	1,199	4,567
2008–09	402	1,430	746	2,350	1,156	3,794
2009–10	381	1,405	514	1,342	903	2,764
2010–11	713	2,514	790	1,901	1,514	4,446
2011–12	757	3,064	783	2,379	1,558	5,494
2012–13	712	3,205	687	2,250	1,412	5,505
2013–14	568	2,317	559	1,469	1,139	3,847
2014–15	435	2,044	696	2,134	1,149	4,262
2015–16 **s**	436	1,639	725	2,067	1,177	3,779
2016–17 **s**	646	2,317	664	1,588	1,326	3,980
% change 2015–16 to 2016–17	48	41	–8	–23	13	5

s ABARES estimate.

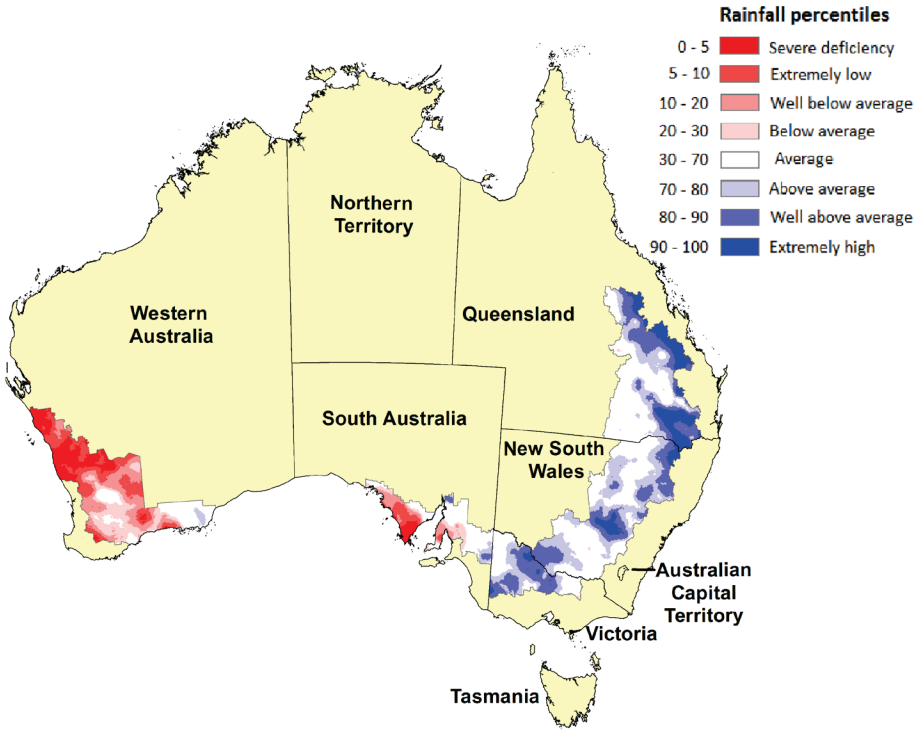
Note: State production includes cottonseed, grain sorghum, corn (maize), mung beans, rice, peanuts, soybeans and sunflowers. Total for Australia also includes navy beans, and small areas and volumes of summer crops in other states.

Climatic and agronomic conditions

Drier and warmer than average conditions across large areas of eastern Australia during the 2016–17 summer depleted soil moisture reserves. However, autumn rainfall in the eastern states and parts of South Australia and Western Australia boosted soil moisture levels and provided a good opening to the winter cropping season in these regions.

During autumn 2017 (March to May), rainfall was average or better across cropping regions in New South Wales, Victoria and Queensland. Rainfall was variable in cropping regions in South Australia and generally extremely low to below average across Western Australian cropping regions (Map 1).

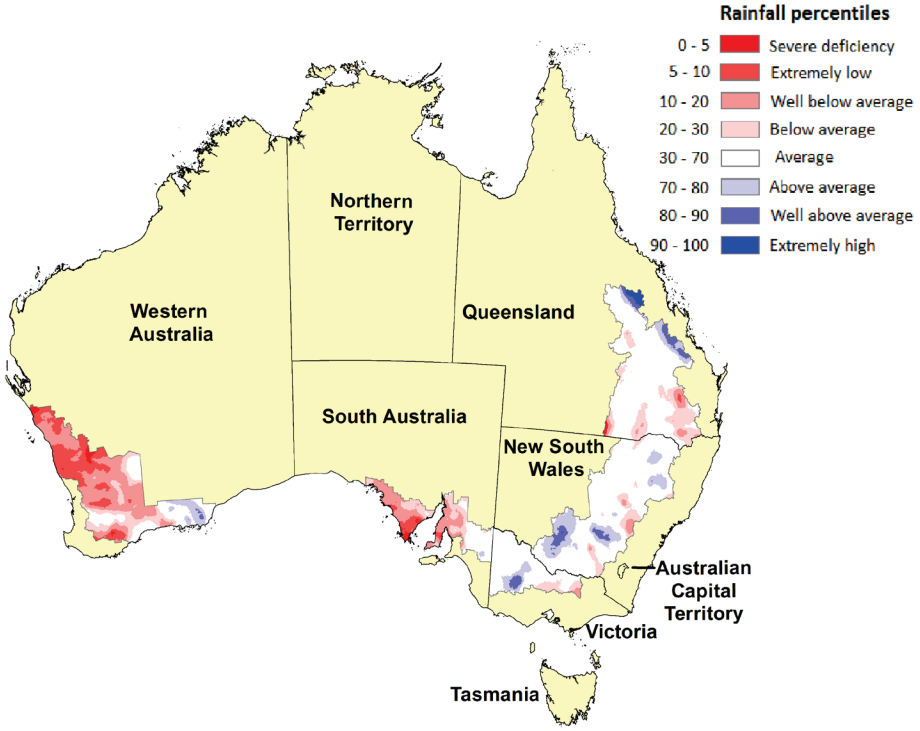
Map 1 Australian rainfall percentiles, 1 March to 31 May 2017



Note: Rainfall percentiles are displayed for wheat–sheep zone only.
Spatial rainfall percentile analyses are based on historical monthly rainfall data provided by the Bureau of Meteorology. The rainfall percentile map shows how rainfall recorded during March to May 2017 compared with the rainfall recorded for that same period during the entire historical record (1900 to present). To calculate percentiles, the ranked rainfall data is divided into one hundred equal parts. Fifth percentile rainfall for March to May 2017 means that total rainfall recorded during this period was at or below the lowest five per cent of all March to May rainfall totals during the entire historical record.
Source: Bureau of Meteorology

During May 2017, rainfall was generally average in cropping regions in New South Wales, Victoria and Queensland (Map 2). Rainfall was also close to average in the Esperance region of Western Australia and the South Australian Mallee. However, rainfall in May 2017 was well below average in most other South Australian and Western Australian cropping regions.

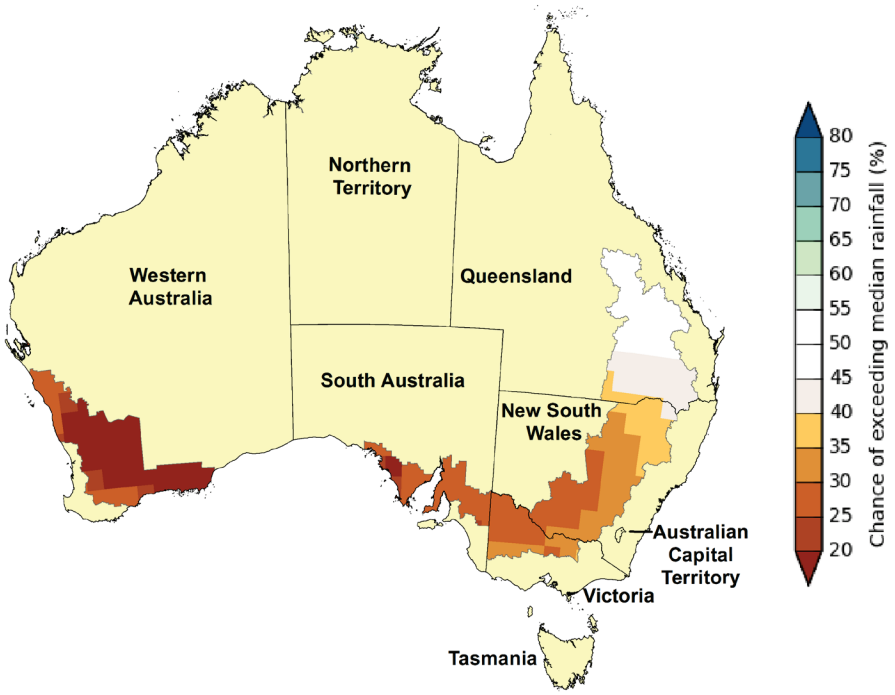
Map 2 Australian cropping region rainfall percentiles, May 2017



Note: Rainfall percentiles are displayed for wheat–sheep zone only.
Spatial rainfall percentile analyses are based on historical monthly rainfall data provided by the Bureau of Meteorology. The rainfall percentile map shows how rainfall recorded during May 2017 compared with the rainfall recorded for that same period during the entire historical record (1900 to present). To calculate percentiles, the ranked rainfall data is divided into one hundred equal parts. Fifth percentile rainfall for May 2017 means that total rainfall recorded during this period was at or below the lowest five per cent of all May rainfall totals during the entire historical record.
Source: Bureau of Meteorology

The Bureau of Meteorology's seasonal rainfall outlook for June to August 2017 indicates a drier than average winter is likely for most Australian cropping regions (Map 3). The highest chance of exceeding average winter rainfall is in Queensland cropping regions. Maximum temperatures are likely to be higher than average in southern and western Australia.

Map 3 Australian cropping region rainfall outlook, June to August 2017



Note: Rainfall outlook is displayed for wheat–sheep zone only.
The maps shows the likelihood of exceeding the 1981–2010 median rainfall. Median rainfall is defined as the 50th percentile calculated from the 1981–2010 reference period.
Source: Bureau of Meteorology

In early June 2017 the Bureau of Meteorology reported that the El Niño–Southern Oscillation (ENSO) remains neutral. Sea surface temperatures across the tropical Pacific remain warmer than average, though cooling has occurred in some areas over recent weeks in response to stronger than average trade winds. The Southern Oscillation Index has also eased to near zero values. All other ENSO indicators also remain neutral.

While four out of eight international climate models still suggest tropical Pacific Ocean sea surface temperatures may exceed El Niño thresholds during the second half of 2017, this is well down from the seven out of eight models in April that were forecasting a possible event. Virtually all models have reduced the extent of predicted ocean warming compared to earlier in the year, indicating that if El Niño forms, it is likely to be weak.

El Niño is often, but not always, associated with a drier than average winter and spring over eastern Australia. If the tropical Pacific remains warmer than average, but El Niño thresholds are not quite met, some El Niño-like effects are still possible.

The Indian Ocean Dipole (IOD) remains neutral. Four out of six climate models suggest a positive IOD may develop by the end of winter. However, model accuracy for the IOD at this time of year is low. A positive IOD is typically associated with a drier than average winter and spring for southern and central Australia.

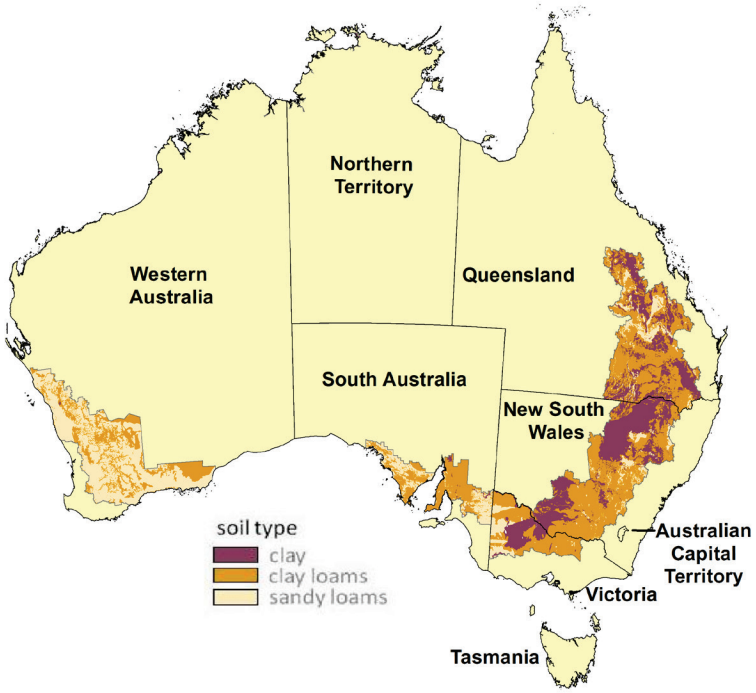
Map 4 shows different soil types for the wheat–sheep zone. Soil type is closely correlated with soil moisture storage and availability to plants. Sandy loams, for example in parts of Western Australia and South Australia, are very porous and have fast water infiltration rates, but the soil holds less water. In contrast, clay and clay loam soils typical of many cropping regions in eastern

Australia are less porous, with much slower water infiltration rates, but the soil holds more water.

Sandy soils with high porosity but low water holding capacity allow plants to respond to low rainfall events as more water reaches the root zone faster. However, areas with these soils require regular rainfall if crops are to avoid moisture stress.

Clays and clay loams require larger rain events to allow sufficient water to penetrate to the root zone and be useful to plants, but they are able to store water for longer. Crops in areas with these soil types can make better use of out-of-season rainfall as the soil can retain more moisture.

Map 4 Australian cropping region soil types

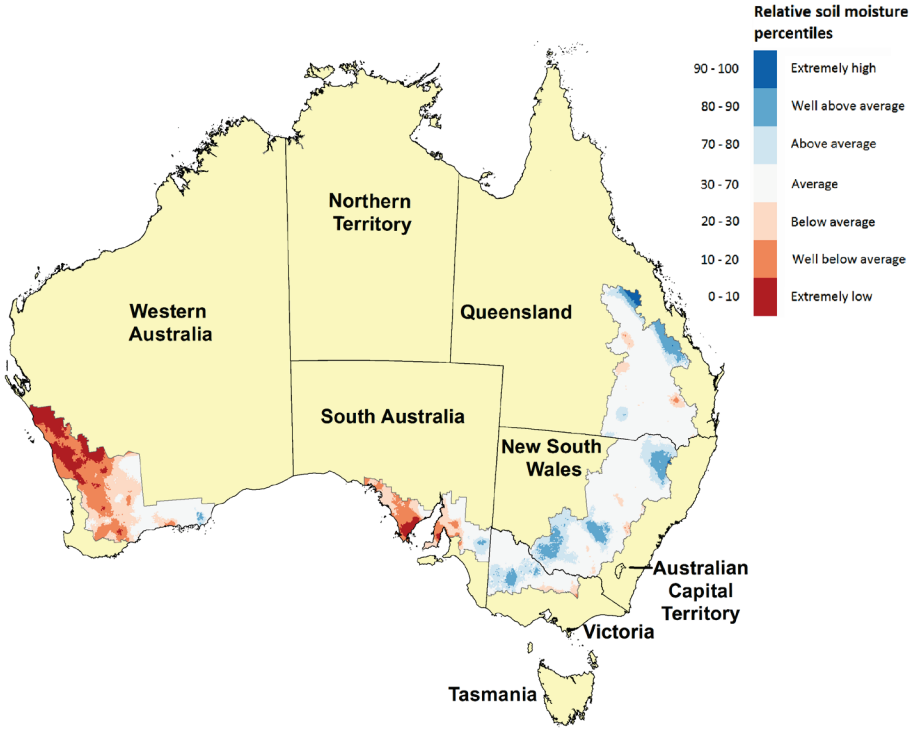


Source: CSIRO (Australian Soil Resource Information System)

Map 5 and Map 6 show the relative levels of modelled upper layer (~0.1 metres) and lower layer (~0.1 to ~1 metres) soil moisture for cropping zones across Australia in May 2017. Upper layer soil moisture responds quickly to seasonal conditions and often shows a pattern that reflects rainfall and temperature events in the days leading up to the analysis date. Lower layer soil moisture is a larger, deeper store that is slower to respond to seasonal conditions and tends to reflect the accumulated effects of events that have occurred over longer periods.

Relative upper layer soil moisture in May 2017 was predominantly average for most cropping regions across New South Wales, Victoria and Queensland (Map 5). Relative upper layer soil moisture was variable across cropping regions in South Australia ranging from average in the east to well below average in the west. In cropping regions in Western Australia, relative upper layer soil moisture was generally well below average with the exception of the Esperance region where it was average.

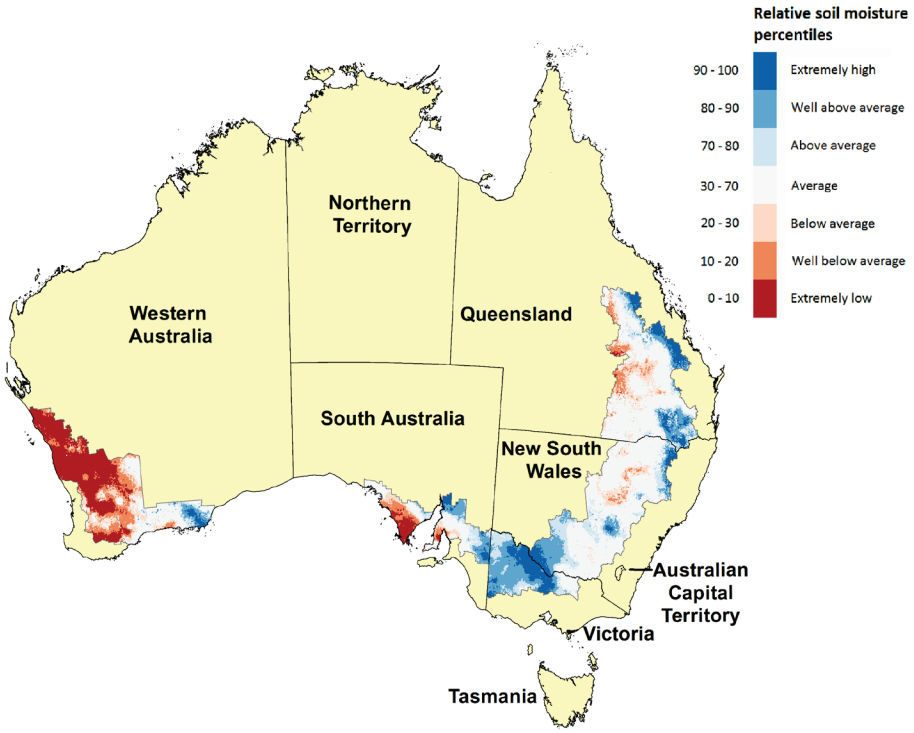
Map 5 Australian cropping region upper layer soil moisture, in May 2017



Note: Relative upper layer soil moisture is displayed for wheat–sheep zone only.
Soil moisture estimates are relative to the long term record and ranked in percentiles. Estimates are used to compare the upper layer soil moisture for May 2017 and are ranked according to percentiles for May in the 1911–2016 historical reference period. The extremely high band indicates where the estimated soil moisture level for May 2017 was in the wettest 10 per cent of estimated soil moisture levels for May during the 1911–2016 reference period. The extremely low band indicates where the estimated soil moisture level for May2017 was in the driest 10 per cent of estimated soil moisture levels for May during the 1911–2016 reference period.
Source: Bureau of Meteorology (Australian Water Resources Assessment Landscape model)

The relative lower layer soil moisture for May 2017 reflects where above average rainfall was recorded during March and April 2017. Lower layer soil moisture was generally average for most cropping regions in New South Wales and Queensland (Map 6). In Victoria lower layer soil moisture was generally well above average. Meanwhile across most cropping regions in Western Australia and in the Eyre Peninsula of South Australia lower layer soil moisture was extremely low to below average. Crop development in areas of above average lower layer soil moisture will be less reliant on in-crop rainfall than in areas with below average lower layer soil moisture.

Map 6 Australian cropping region lower layer soil moisture, in May 2017

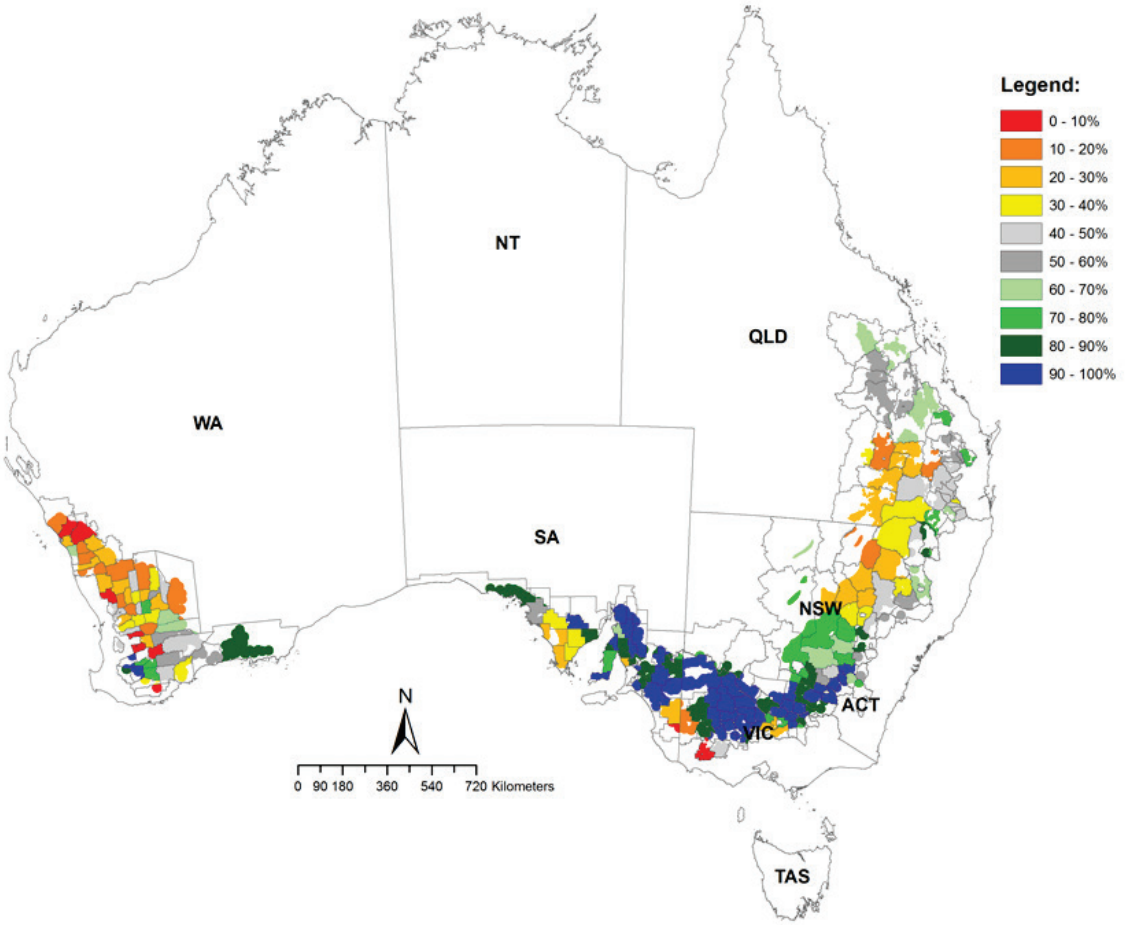


Note: Relative lower layer soil moisture is displayed for wheat–sheep zone only.
Soil moisture estimates are relative to the long term record and ranked in percentiles. Estimates are used to compare the lower layer soil moisture for May 2017 and are ranked according to percentiles for each May in the 1911–2016 historical reference period. The extremely high band indicates where the estimated soil moisture level for May 2017 was in the wettest 10 per cent of estimated soil moisture levels in May during the 1911–2016 reference period. The extremely low band indicates where the estimated soil moisture level for May 2017 was in the driest 10 per cent of estimated soil moisture levels in May during the 1911–2016 reference period.
Source: Bureau of Meteorology (Australian Water Resources Assessment Landscape model)

The University of Queensland's Queensland Alliance for Agriculture and Food Innovation's shire scale wheat forecasting system produces yield predictions for wheat. The system combines starting soil moisture conditions with the seasonal outlook, including the most recent trend in the Southern Oscillation Index.

At the beginning of June 2017, the probability of exceeding median wheat yields was generally average or above average in most cropping regions across Victoria, southern New South Wales and South Australia (Map 7). Much of Western Australia and parts of Queensland, northern New South Wales and South Australia show reduced chances of exceeding median yield (between 0 per cent and 40 per cent). This pattern is consistent with rainfall and soil moisture conditions as at the end of May 2017.

Map 7 Probability of exceeding long term simulated median shire wheat yield



Note: Forecast median shire yield ranked relative to all years (%), given the Southern Oscillation Index phase was "rapidly rising" during April-May.
Source: Queensland Alliance for Agriculture and Food Innovation, University of Queensland

Table 4 Rainfall in major cropping districts, median and actual, March 2017 to May 2017

District	District no.	March median	March 2017	April median	April 2017	May median	May 2017
		mm	mm	mm	mm	mm	mm
New South Wales							
NW Plains (W)	52	35	75	25	19	27	23
NW Plains (E)	53	44	95	27	25	33	36
NW Slopes (N)	54	55	157	30	39	38	38
NW Slopes (S)	55	45	130	33	21	36	45
N Tablelands (N)	56	72	229	38	36	39	34
CW Plains (S)	50	26	97	23	17	29	33
CW Plains (N)	51	27	85	17	10	28	22
CW Slopes (N)	64	40	124	32	13	34	25
CW Slopes (S)	65	37	141	33	24	38	32
C Tablelands (N)	62	46	142	37	21	37	23
C Tablelands (S)	63	54	173	50	36	42	28
Riverina (W)	75	19	30	19	40	26	41
Riverina (E)	74	25	38	27	41	30	29
SW Slopes (N)	73	38	58	37	43	43	54
SW Slopes (S)	72	56	57	64	110	78	69
Victoria							
N Mallee	76	14	16	15	50	24	24
S Mallee	77	14	16	18	56	31	33
N Wimmera	78	16	12	21	53	39	51
S Wimmera	79	21	28	30	62	51	67
Lower North	80	18	25	25	78	35	32
Upper North	81	26	32	31	84	48	29
Lower North East	82	52	54	57	106	86	51
North Central	88	39	44	55	118	66	36
Western Plains	89	31	43	40	98	54	49
West Coast	90	38	61	54	102	73	66
Queensland							
Central Highlands	35	49	138	25	1	21	20
Maranoa	43	47	118	20	6	24	13
W Darling Downs	42	50	145	23	15	29	15
E Darling Downs	41	54	200	23	14	29	14
Moreton S Coast	40	98	319	56	10	49	43

continued ...

Table 4 Rainfall in major cropping districts, median and actual, March 2017 to May 2017 (continued)

District	District no.	March median	March 2017	April median	April 2017	May median	May 2017
		mm	mm	mm	mm	mm	mm
South Australia							
Upper South East	25B	15	17	30	60	45	49
Murray Mallee	25A	10	8	16	43	30	30
Murray River	24	10	5	15	35	26	19
East Central	23	19	13	39	47	62	36
Yorke Peninsula	22A	12	8	25	33	44	22
Lower North	21	12	6	23	48	36	18
Upper North	19	10	2	13	55	25	11
Western Agricultural	18	9	2	18	32	25	12
Western Australia							
North Coast	8	10	12	15	2	45	13
Central Coast	9	12	22	35	1	101	46
Northern Central	10	14	22	17	5	39	11
South Central	10A	15	28	23	9	48	27
South East	12	20	63	16	16	21	10

Note: Median rainfall is calculated over the period 1900 to May 2017. Australian rainfall districts are shown in Map 8 of the *Australian Crop report*.
Source: Bureau of Meteorology monthly district rainfall reports

Map 8 Rainfall districts, Australia

Note: Displayed for major cropping districts only. See Table 4 for district names and observed district rainfall.
Source: Bureau of Meteorology

Crop conditions and production forecasts, by state

New South Wales

Planting conditions for winter crops in New South Wales were largely favourable between March and early June. Above to very much above average March rainfall in most winter cropping regions provided a good start to the season. Rainfall in April and May was variable in the central west and north west of New South Wales, but favourable levels of soil moisture will allow producers to realise the vast majority of their winter planting intentions.

Winter rainfall is likely to be below average across cropping regions in New South Wales, according to the Bureau of Meteorology's three-month rainfall outlook for June to August 2017.

The total area planted to **winter crops** in New South Wales is forecast to fall marginally in 2017–18 to 5.8 million hectares. Forecast falls in the areas planted to barley and wheat are expected to be largely offset by forecast increases in the areas planted to oilseeds and pulses. Total winter crop production is forecast to fall by 32 per cent in 2017–18, driven by expected declines in average yields from the record yields of 2016–17.

The area planted to **wheat** is forecast to fall by 1 per cent in 2017–18 to 3.5 million hectares. Production is forecast to fall by 33 per cent as a result of the expected fall in the average yield.

The area planted to **barley** is forecast to fall by 11 per cent in 2017–18 to 770,000 hectares, the reduction reflecting expected higher returns from pulse and oilseed crops. Production is forecast to fall by 42 per cent to 1.6 million tonnes because of the expected fall in the average yield in addition to reduced area.

The area planted to **canola** is forecast to increase by 29 per cent in 2017–18 to 660,000 hectares in response to expected favourable returns relative to cereal crops. Widespread rainfall in late March provided a timely break for canola sowing but variable rainfall in April and May in parts of the central west and north west cropping regions constrained canola planting in these regions. The forecast increase in planted area is largely offset by the expected fall in the average yield, resulting in a forecast 4 per cent increase in canola production in 2017–18 to 871,000 tonnes.

The area planted to **chickpeas** is forecast to rise by 1 per cent in 2017–18 to a new record high of 485,000 hectares. The planted area is expected to rise from the large area planted in 2016–17 in response to high expected returns from chickpeas relative to cereal crops. This is despite concerns about the risk of disease posed by not strictly following recommended crop rotations. Production is forecast to fall by 23 per cent in 2017–18 to 611,000 tonnes, reflecting the expected fall in the average yield.

Table 5 Winter crop forecasts, New South Wales, 2017–18

Crop	Area	Yield	Production	Area change	Prod. change
	'000 ha	t/ha	kt	%	%
Wheat	3,450	2.20	7,590	–1	–33
Barley	770	2.04	1,571	–11	–42
Canola	660	1.32	871	29	4

Note: Yields are based on area planted.

Summer crop production in New South Wales is estimated to have increased by 41 per cent in 2016–17. Significant increases in rice and cotton production are estimated to have more than offset a fall in grain sorghum production.

Grain sorghum production is estimated to have fallen by 38 per cent in 2016–17 to 365,000 tonnes, the lowest in 22 years. Unfavourable seasonal conditions resulted in an estimated 25 per cent fall in planted area and a 17 per cent fall in the average yield.

Cotton production in New South Wales is estimated to have risen by 51 per cent in 2016–17 to 595,000 tonnes of lint and 841,000 tonnes of cottonseed. Planted area doubled to 328,000 hectares but the average yield is estimated to have declined by 25 per cent. The average yield fell because of an increase in the share of area planted to dryland cotton. Dryland cotton is lower yielding than irrigated cotton and this season it had very low yields because of unfavourable seasonal conditions.

Rice production is estimated to be 830,000 tonnes in 2016–17, which is more than three times higher than in the previous season. The rise in rice production was driven by producers increasing planted area in response to plentiful supplies of irrigation water. Seasonal conditions were generally favourable and yields are estimated to have fallen to around average from the near-record yields of the previous season.

Table 6 Summer crop estimates, New South Wales, 2016–17

Crop	Area	Yield	Production	Area change	Prod. change
	'000 ha	t/ha	kt	%	%
Grain sorghum	135	2.70	365	–25	–38
Cotton lint	328	1.81	595	101	51
Cottonseed	328	2.57	841	101	51
Rice	81	10.25	830	264	239

Note: Yields are based on area planted, except cotton which is based on area harvested.

Queensland

Rainfall was well above average in late March in Queensland's cropping regions as a result of Tropical Cyclone Debbie. This rainfall boosted depleted stores of soil moisture and provided opportunities for early planting of winter crops in some areas. Rainfall in April and May was below average in most cropping regions, which has hindered planting progress in some areas. However, planting intentions are still expected to be realised.

For cropping areas in Queensland, the chance of the winter being drier or wetter than average is roughly equal, according to the Bureau of Meteorology's latest three-month rainfall outlook for June to August 2017.

The total area planted to **winter crops** in Queensland is forecast to be largely unchanged in 2017–18 at around 1.3 million hectares. An increase in area planted to chickpeas is expected to be largely offset by a fall in area planted to cereal crops. Total winter crop production is forecast to fall by 38 per cent to 2.0 million tonnes with average yields expected to fall from the record yields of 2016–17.

The area planted to **chickpeas** is forecast to rise by 2 per cent in 2017–18 to a record 560,000 hectares in response to higher expected returns compared to cereal crops. This is despite concerns about the risk of disease posed by not strictly following recommended crop rotations.

The area planted to **wheat** is forecast to be largely unchanged at 670,000 hectares. However, wheat production is forecast to fall by 42 per cent to 1.1 million tonnes as a result of the expected fall in the average yield.

The area planted to cereal crops other than wheat is forecast to decline by around 8 per cent in 2017–18 to around 100,000 hectares.

Table 7 Winter crop forecasts, Queensland, 2017–18

Crop	Area	Yield	Production	Area change	Prod. change
	'000 ha	t/ha	kt	%	%
Wheat	670	1.64	1,100	0	–42
Barley	85	1.82	155	–6	–47
Chickpeas	560	1.32	740	2	–26

Note: Yields are based on area planted.

Total **summer crop** production in Queensland is estimated to have fallen by 23 per cent in 2016–17 to 1.6 million tonnes, largely reflecting a fall in grain sorghum production.

Harvesting of **grain sorghum** crops in Queensland is now largely complete, and production is estimated to have fallen by 49 per cent to 740,000 tonnes. An estimated 44 per cent decline in planted area reflects unfavourable planting conditions and lower expected returns compared to dryland cotton. The average yield is estimated to have declined by 9 per cent because of generally unfavourable seasonal conditions.

Cotton production is estimated to have risen by 56 per cent in 2016–17 to 365,000 tonnes of cotton lint and 516,000 tonnes of cottonseed. Area planted to cotton is estimated to have more than doubled to 229,400 hectares, but average yield is estimated to have fallen by 27 per cent. The average yield fell because of an increase in the share of area planted to dryland cotton. Dryland cotton is lower yielding than irrigated cotton and this season it had very low yields because of unfavourable seasonal conditions.

Table 8 Summer crop estimates, Queensland, 2016–17

Crop	Area	Yield	Production	Area change	Prod. change
	'000 ha	t/ha	kt	%	%
Grain sorghum	280	2.64	740	–44	–49
Cotton lint	229	1.59	365	114	56
Cottonseed	229	2.25	516	114	56

Note: Yields are based on area planted, except cotton which is based on area harvested.

Victoria

Above average rainfall in April and average rainfall in May increased soil moisture reserves and boosted winter crop prospects in Victoria.

The Bureau of Meteorology's seasonal rainfall outlook for June to August 2017 indicates a drier than average winter is likely for Victoria's cropping regions. However, plentiful soil moisture reserves are expected to support crop development during winter.

The area planted to **winter crops** in Victoria is forecast to be largely unchanged in 2017–18 at 3.4 million hectares. The area planted to cereal crops, particularly barley and milling oats, is forecast to fall substantially. However, this is expected to be largely offset by increases in areas planted to canola, lentils and chickpeas, which presently have higher expected returns than cereal crops. Winter crop production is forecast to fall by 42 per cent in 2017–18 to 6 million tonnes, which reflects expected declines in average yields from the 2016–17 records.

The area planted to **wheat** is forecast to be largely unchanged in 2017–18 at 1.6 million hectares. Wheat production is forecast to fall 42 per cent to 3 million tonnes, driven by the expected decrease in the average yield.

The area planted to **barley** is forecast to fall by 4 per cent in 2017–18 to 900,000 hectares, reflecting higher expected returns from canola and pulses. Production is forecast to fall 45 per cent as a result of the expected fall in the average yield.

The area planted to **canola** is forecast to increase by 18 per cent in 2017–18 to 420,000 hectares, driven by favourable seasonal conditions and higher expected returns than production alternatives. Canola production is forecast to fall by 21 per cent to 550,000 tonnes, reflecting the expected fall in the average yield.

Table 9 Winter crop forecasts, Victoria, 2017–18

Crop	Area	Yield	Production	Area change	Prod. change
	'000 ha	t/ha	kt	%	%
Wheat	1,550	1.94	3,000	0	–42
Barley	900	1.94	1,750	–4	–45
Canola	420	1.31	550	18	–21

Note: Yields are based on area planted.

South Australia

Seasonal conditions were mixed for the planting and germination of winter crops in South Australia during autumn. The Murray, Mallee and South East regions received adequate autumn rainfall but conditions on Eyre Peninsula and Yorke Peninsula were unfavourable as a result of below average autumn rainfall. Favourable rainfall is required before the end of June for growers to complete their sowing programs in these regions and crops that have been dry sown may suffer yield penalties or fail without it.

Winter rainfall is likely to be below average in South Australia's cropping regions, according to the Bureau of Meteorology's three-month rainfall outlook for June to August 2017.

The area planted to **winter crops** in South Australia is forecast to decrease slightly in 2017–18, assuming producers on Eyre Peninsula and Yorke Peninsula complete their sowing programs.

Winter crop production is forecast to decrease by 41 per cent in 2017–18 to 6.7 million tonnes, driven by expected falls in average yields from the record yields of 2016–17.

The area planted to **wheat** is forecast to fall slightly in 2017–18 to 2 million hectares. Wheat production is forecast to fall by 40 per cent to 3.9 million tonnes with the expected fall in the average yield.

The area planted to **barley** is forecast to fall by 1 per cent to 790,000 hectares. Barley production is forecast to fall by 44 per cent to 1.7 million tonnes as a result of an expected fall in the average yield.

The area planted to **canola** is forecast to increase by 11 per cent in 2017–18 to 245,000 hectares. Production is forecast to decrease by 23 per cent to 310,000 tonnes with a forecast fall in average yields more than offsetting the expected increase in planted area.

The area planted to **lentils** is forecast to increase by 31 per cent in 2017–18 to a record high of 210,000 hectares. Sufficient rainfall in June will be needed to achieve this increase in area as producers are less likely to dry sow pulses. Lentil production is forecast to fall by 29 per cent to 335,000 tonnes, driven by the expected decrease in average yield.

Table 10 Winter crop forecasts, South Australia, 2017–18

Crop	Area	Yield	Production	Area change	Prod. change
	'000 ha	t/ha	kt	%	%
Wheat	1,990	1.97	3,930	–1	–40
Barley	790	2.14	1,690	–1	–44
Canola	245	1.27	310	11	–23

Note: Yields are based on area planted.

Western Australia

Well above average rainfall between January and March boosted soil moisture levels in most Western Australian cropping regions. However, rainfall in April and May was well below average, particularly in the northern and central regions. The below average autumn rainfall depleted soil moisture levels and slowed planting. Dry sowing of crops has occurred in many regions. Timely and sufficient winter rainfall will be required in most cropping regions to ensure crops germinate and develop.

The Bureau of Meteorology's three-month rainfall outlook indicates there is a low to very low chance of exceeding median rainfall in the Western Australian cropping regions during winter.

Total **winter crop** area is forecast to decrease marginally in 2017–18 to 8.3 million hectares. Winter crop production is forecast to fall by 22 per cent in 14.1 million tonnes with yields expected to fall from the exceptional yields of 2016–17.

The area planted to **wheat** is expected to fall by 2 per cent to 5 million hectares in response to higher expected returns from canola. Wheat production is forecast to fall by 15 per cent to 8.5 million tonnes, driven by the expected fall in the average yield.

The area planted to **barley** is expected to remain largely unchanged in 2017–18 at 1.3 million hectares. However, production is forecast to fall by 31 per cent to 2.9 million tonnes with the expected fall in the average yield.

Area planted to **canola** is forecast to increase by 6 per cent in 2017–18 to 1.3 million hectares in response to high expected returns relative to wheat. Most of the increase in area planted to canola is expected in the southern cropping regions, which received more favourable autumn rainfall. Production is forecast to fall by 28 per cent to 1.6 million tonnes as a result of the expected fall in the average yield.

Table 11 Winter crop forecasts, Western Australia, 2017–18

Crop	Area	Yield	Production	Area change	Prod. change
	'000 ha	t/ha	kt	%	%
Wheat	5,023	1.70	8,538	–2	–15
Barley	1,325	2.20	2,915	0	–31
Canola	1,320	1.20	1,584	6	–28
Lupins	350	1.30	455	–3	–43

Note: Yields are based on area planted.

Statistical tables

Table 12 Winter crop production and area, Australia, 2015–16 to 2017–18

Crop	Area			Production		
	2015–16 s	**2016–17 s**	**2017–18 f**	**2015–16 s**	**2016–17 s**	**2017–18 f**
	'000 ha	'000 ha	'000 ha	kt	kt	kt
Wheat	12,793	12,852	12,689	24,168	35,109	24,193
Barley	4,105	4,030	3,875	8,593	13,404	8,112
Canola	2,357	2,327	2,647	2,944	4,144	3,317
Chickpeas	663	1,069	1,101	1,006	1,854	1,416
Faba beans	282	246	224	319	511	368
Field peas	238	230	219	205	415	257
Lentils	232	305	385	258	830	530
Lupins	490	515	500	607	1,031	617
Oats	832	904	734	1,308	1,867	1,161
Triticale	117	96	66	195	248	119

f ABARES forecasts. **s** ABARES estimate.
Note: Crop year refers to crops planted during the 12 months to 31 March. Slight discrepancies may appear between tables as a result of including the Northern Territory and Australian Capital Territory in Australian totals.
Sources: ABARES; Australian Bureau of Statistics; Pulse Australia

Table 13 Summer crop production and area, Australia, 2014–15 to 2016–17

Crop	Area			Production		
	2014–15	**2015–16 s**	**2016–17 s**	**2014–15**	**2015–16 s**	**2016–17 s**
	'000 ha	'000 ha	'000 ha	kt	kt	kt
Grain sorghum	732	681	416	2,209	2,037	1,107
Cottonseed **a**	197	270	557	746	890	1,358
Cotton lint **a**	197	270	557	528	629	960
Rice	70	23	82	690	250	835
Corn (maize)	60	67	72	495	439	465
Soybeans	20	21	28	37	40	48
Sunflower	25	23	29	30	25	32

a Cotton area is estimated harvested area. **s** ABARES estimate.
Note: Crop year refers to crops planted during the 12 months to 31 March. Slight discrepancies may appear between tables as a result of including the Northern Territory and the Australian Capital Territory in Australian totals.
Sources: ABARES; Australian Bureau of Statistics

Table 14 Production, major crops, Australian states, 2014–15 to 2017–18

Winter crops	New South Wales		Victoria		Queensland		South Australia		Western Australia		Tasmania	
	Area '000 ha	Prod. kt	Area '000 ha	Prod. kt	Area '000 ha	Prod. kt	Area '000 ha	Prod. kt	Area '000 ha	Prod. kt	Area '000 ha	Prod. kt
Wheat												
2017–18 **f**	3,450	7,590	1,550	3,000	670	1,100	1,990	3,930	5,023	8,538	7	35
2016–17 **s**	3,500	11,375	1,550	5,200	670	1,900	2,000	6,600	5,125	10,000	7	34
2015–16 **s**	3,410	7,500	1,450	2,085	775	1,375	2,000	4,376	5,150	8,800	8	32
Five-year average to 2016–17	3,367	7,898	1,524	3,347	740	1,382	2,018	4,702	5,067	8,869	8	37
Barley												
2017–18 **f**	770	1,571	900	1,750	85	155	790	1,690	1,325	2,915	5	31
2016–17 **s**	870	2,697	940	3,200	90	290	800	3,000	1,325	4,200	5	17
2015–16 **s**	900	1,890	940	1,350	100	207	810	1,881	1,350	3,250	5	15
Five-year average to 2016–17	797	1,846	914	1,982	102	220	824	2,102	1,291	3,290	5	18
Canola												
2017–18 **f**	660	871	420	550	1	1	245	310	1,320	1,584	1	2
2016–17 **s**	510	842	355	700	1	1	220	400	1,240	2,200	1	1
2015–16 **s**	560	833	370	350	1	1	225	296	1,200	1,463	1	1
Five-year average to 2016–17	693	1,021	447	637	1	1	279	371	1,293	1,689	1	1
Oats												
2017–18 **f**	280	300	120	210	16	9	45	70	270	567	3	6
2016–17 **s**	322	477	154	440	20	19	63	175	341	750	4	7
2015–16 **s**	300	360	140	175	18	15	60	101	310	651	4	6
Five-year average to 2016–17	297	349	130	248	35	13	60	107	280	624	4	8

continued ...

Table 14 Production, major crops, Australian states, 2014–15 to 2017–18 (continued)

Summer crops	New South Wales		Victoria		Queensland		South Australia		Western Australia		Tasmania	
	Area '000 ha	Prod. kt	Area '000 ha	Prod. kt	Area '000 ha	Prod. kt	Area '000 ha	Prod. kt	Area '000 ha	Prod. kt	Area '000 ha	Prod. kt
Grain sorghum												
2016–17 **s**	135	365	0	0	280	740	0	0	1	2	0	0
2015–16 **s**	180	585	0	0	500	1,450	0	0	1	2	0	0
2014–15	184	586	0	1	547	1,618	0	1	1	4	0	0
Five-year average to 2015–16	195	630	1	2	454	1,364	0	0	1	2	0	0
Cottonseed a												
2016–17 **s**	328	841	0	0	229	516	0	0	0	0	0	0
2015–16 **s**	163	559	0	0	107	331	0	0	0	0	0	0
2014–15	124	472	0	0	73	274	0	0	0	0	0	0
Five-year average to 2015–16	237	775	0	0	143	436	0	0	0	0	0	0
Rice												
2016–17 **s**	81	830	0	2	1	4	0	0	0	0	0	0
2015–16 **s**	22	245	0	2	1	4	0	0	0	0	0	0
2014–15	69	688	0	2	0	0	0	0	0	0	0	0
Five-year average to 2015–16	76	763	0	4	0	1	0	0	0	0	0	0

a Cotton area is estimated harvested area. **f** ABARES forecast. **s** ABARES estimate.

Note: Zero area or production estimates may appear as a result of rounding to the nearest whole number, if production or area estimates are less than 500 tonnes or 500 hectares.

Sources: ABARES; Australian Bureau of Statistics

Table 15 Production, other crops, Australian states, 2014–15 to 2017–18

Winter crops	New South Wales		Victoria		Queensland		South Australia		Western Australia		Tasmania	
	Area '000 ha	Prod. kt	Area '000 ha	Prod. kt	Area '000 ha	Prod. kt	Area '000 ha	Prod. kt	Area '000 ha	Prod. kt	Area '000 ha	Prod. kt
Chickpeas												
2017–18 **f**	485	611	25	30	560	740	25	27	6	8	0	0
2016–17 **s**	480	792	16	28	550	1,000	19	27	4	7	0	0
2015–16 **s**	291	439	13	5	339	548	17	11	3	3	0	0
Five-year average to 2016–17	296	428	30	37	298	480	19	21	4	5	0	0
Field peas												
2017–18 **f**	53	59	45	50	0	0	90	110	31	37	0	0
2016–17 **s**	50	85	49	100	0	0	100	175	31	55	0	0
2015–16 **s**	48	73	54	21	0	0	114	82	22	29	0	0
Five-year average to 2016–17	50	68	51	64	0	0	110	140	34	43	0	0
Lentils												
2017–18 **f**	5	5	170	190	0	0	210	335	0	0	0	0
2016–17 **s**	5	10	140	350	0	0	160	470	0	0	0	0
2015–16 **s**	3	2	100	50	0	0	130	206	0	0	0	0
Five-year average to 2016–17	2	3	96	134	0	0	113	216	0	0	0	0
Lupins												
2017–18 **f**	65	72	35	30	0	0	50	60	350	455	0	0
2016–17 **s**	51	66	33	60	0	0	70	100	361	805	0	0
2015–16 **s**	62	76	33	24	0	0	70	61	326	445	0	0
Five-year average to 2016–17	57	66	31	33	0	0	65	78	304	478	0	0

continued ...

Table 15 Production, other crops, Australian states, 2014–15 to 2017–18 (continued)

Summer crops	New South Wales		Victoria		Queensland		South Australia		Western Australia		Tasmania	
	Area '000 ha	Prod. kt	Area '000 ha	Prod. kt	Area '000 ha	Prod. kt	Area '000 ha	Prod. kt	Area '000 ha	Prod. kt	Area '000 ha	Prod. kt
Corn (maize)												
2016–17 **s**	21	189	5	55	45	215	0	0	1	6	0	0
2015–16 **s**	22	188	5	52	39	193	0	0	1	6	0	0
2014–15	23	246	5	59	31	183	0	0	1	7	0	0
Five-year average to 2015–16	25	222	4	40	36	189	0	1	1	5	0	0
Soybeans												
2016–17 **s**	16	29	1	1	11	18	0	0	0	0	0	0
2015–16 **s**	13	26	1	1	7	12	0	0	0	0	0	0
2014–15	13	26	0	0	7	11	0	0	0	0	0	0
Five-year average to 2015–16	21	31	0	1	8	14	0	0	0	0	0	0
Sunflower												
2016–17 **s**	15	20	0	0	11	10	0	0	3	3	0	0
2015–16 **s**	11	13	0	0	9	9	0	0	3	3	0	0
2014–15	11	17	1	0	9	9	0	0	4	4	0	0
Five-year average to 2015–16	13	17	1	0	9	8	0	0	2	2	0	0

f ABARES forecast. **s** ABARES estimate.
Note: Zero is used to denote nil or less than 500 tonnes or 500 hectares.
Sources: ABARES; Australian Bureau of Statistics; Pulse Australia

Table 16 Supply and disposal of wheat, canola and pulses, Australia, 2010–11 to 2015–16

Crop	2010–11	2011–12	2012–13	2013–14	2014–15	2015–16**s**
	kt	kt	kt	kt	kt	kt
Wheat						
Production	27,410	29,905	22,855	25,303	23,743	24,168
Apparent domestic use	5,663	6,334	6,451	6,785	7,154	7,192
– seed	695	649	631	619	640	643
– other **a**	4,968	5,685	5,820	6,165	6,514	6,549
Exports **b**	18,584	24,656	18,644	18,612	16,587	16,116
Imports **b**	12	14	17	20	22	25
Canola						
Production	2,359	3,427	4,142	3,832	3,540	2,944
Apparent domestic use **a**	811	871	631	969	915	1,088
Exports	1,549	2,557	3,512	2,863	2,626	1,857
Pulses						
Production						
– lupins	808	982	459	626	549	607
– field peas	395	342	320	342	290	205
– chickpeas	513	673	813	629	555	1,006
Apparent domestic use **a**						
– lupins	621	416	290	286	306	302
– field peas	95	130	145	175	124	72
– chickpeas	39	93	1	0	1	1
Exports						
– lupins	186	565	169	340	243	305
– field peas	302	215	177	169	168	134
– chickpeas	474	581	853	629	663	1,145

a Calculated as a residual: production plus imports less exports less any observed or assumed change in stocks and, for wheat only, less seed use. **b** Includes grain and grain equivalent of wheat flour. **s** ABARES estimate.
Note: Production, use, trade and stock data are on a marketing-year basis: October–September for wheat; November–October for canola and pulses. Export data on a marketing-year basis are not comparable with financial year export figures published elsewhere. Zero is used to denote nil or less than 500 tonnes.
Sources: ABARES; Australian Bureau of Statistics; Pulse Australia

Table 17 Supply and disposal of coarse grains, Australia, 2010–11 to 2015–16

Crop	2010–11	2011–12	2012–13	2013–14	2014–15	2015–16 **s**
	kt	kt	kt	kt	kt	kt
Barley						
Production	7,995	8,221	7,472	9,174	8,646	8,593
Apparent domestic use	2,631	2,075	2,182	2,218	2,714	2,251
– seed	167	164	172	184	185	180
– other **a**	2,464	1,911	2,011	2,035	2,529	2,071
Export	5,364	6,146	5,289	6,957	5,932	6,342
– feed barley	3,601	3,758	2,972	3,944	3,070	4,351
– malting barley	1,062	1,619	1,512	2,273	2,149	1,394
– malt (grain equivalent)	700	770	805	740	713	596
Oats						
Production	1,128	1,262	1,121	1,255	1,198	1,308
Apparent domestic use	1,009	1,049	884	1,001	960	1,035
– seed	35	35	34	41	40	44
– other **a**	974	1,014	850	960	920	991
Export	118	213	237	253	238	274
Triticale						
Production	355	285	171	126	143	195
Apparent domestic use	355	285	171	126	143	195
– seed	7	5	4	4	6	5
– other **a**	348	280	167	122	137	190
Export	0	0	0	0	0	1
Grain sorghum						
Production	1,935	2,239	2,229	1,282	2,209	2,037
Apparent domestic use **b**	1,167	984	1,060	1,083	885	571
– seed	3	3	3	3	4	3
– other **a**	1,164	981	1,056	1,080	881	568
Export **b**	341	950	1,179	1,146	397	1,638
Corn (maize)						
Production	357	451	506	390	495	439
Apparent domestic use **b**	320	312	347	401	331	432
– seed	1	1	1	1	1	1
– other **a**	319	311	346	400	330	431
Export **b**	9	46	106	106	60	64

a Calculated as a residual: production plus imports less exports less any observed or assumed change in stocks less seed use. **b** For summer crops, export and apparent domestic use volumes are shown in year of actual export and consumption, which is typically in the year following production. Export data are on a marketing-year basis and are not comparable with financial year export figures published elsewhere. **s** ABARES estimate.

Note: Production, use and export data are on a marketing year basis: November–October for barley, oats and triticale; March–February for grain sorghum and corn (maize). Zero is used to denote nil or less than 500 tonnes.

Sources: ABARES; Australian Bureau of Statistics; UN Commodity Trade Statistics Database (UN Comtrade)

Table 18 Grain, oilseed and pulse prices, third quarter 2015 to first quarter 2017

Crop	2015 Q3 A$/t	2015 Q4 A$/t	2016 Q1 A$/t	2016 Q2 A$/t	2016 Q3 A$/t	2016 Q4 A$/t	2017 Q1 A$/t
Wheat							
Domestic: feed, del. Sydney	295	289	271	264	240	239	209
International: US no. 2 hard red winter, fob Gulf **a**	309	298	288	265	249	253	268
Barley							
Domestic: 2 row feed, del. Sydney	275	252	237	227	191	183	183
Export: feed **b**	374	273	278	248	248	234	223
Export: malting **b**	387	329	318	292	275	267	243
International: feed, fob Rouen **a**	255	251	228	218	204	204	214
Grain sorghum							
Domestic: feed, del. Sydney	318	286	259	244	219	232	245
Export **b**	367	500	290	261	272	284	295
Oats							
Domestic: feed, del. Sydney	295	214	218	231	239	194	152
International: CME oats nearby contract	221	223	184	181	168	200	224
Corn (maize)							
Domestic: feed, del. Sydney	391	377	351	366	367	346	360
International: US no. 2 yellow corn, fob Gulf **a**	234	233	222	231	204	204	213
Oilseeds							
Domestic: canola, del. Melbourne	541	552	536	537	508	548	539
International: Europe rapeseed, cif Hamburg	571	576	548	557	544	578	586
International: US no. 2 soybeans, fob Gulf **a**	524	492	482	547	544	521	518
Pulses							
Domestic: lupins, del. Kwinana	322	320	298	270	278	272	234
Domestic: chickpeas, del. Melbourne	841	794	993	1,139	1,108	776	827
Domestic: field peas, del. Melbourne	534	519	555	602	413	355	343
Export: chickpeas **b**	874	865	904	1,055	1,272	969	937
Export: field peas **b**	544	568	590	646	634	506	444

a Average of daily offer prices made in US dollars and converted to Australian dollars using quarterly average of daily exchange rates. **b** Export unit values reflect average price received for grain exported over the quarter, not current market prices. These prices are the average unit value (free on board) of Australian exports recorded by the Australian Bureau of Statistics. A long lag time can exist between when exporters negotiate prices and when product is exported.
Note: Q1 refers to January–March; Q2 refers to April–June; Q3 refers to July–September; Q4 refers to October–December. Prices used in these calculations exclude GST.
Sources: ABARES; Australian Bureau of Statistics; CME Group; Farm Weekly; International Grains Council; The Land; US Department of Agriculture; The Weekly Times