Overview

World wheat and coarse grains prices are forecast to rise in 2010–11, as closing stocks decline reflecting the growth in consumption.

In contrast, world soybean prices are forecast to fall, as carryover stocks from Latin America affect prices. However, world canola prices are forecast to rise, driven by higher crush demand.

Winter cropping regions in Queensland, New South Wales, Victoria and South Australia recorded average to above average rainfall in winter and September. As a result, yield expectations have been boosted. In contrast, Western Australia’s cropping regions have recorded well below average rainfall from the beginning of 2010 to October. Yield expectations have been significantly reduced and the outlook for Western Australia is likely to have deteriorated since these forecasts were made as a consequence of continued dry conditions.

There are two main downside risks to the positive production outlook in the eastern states. First, there is the potential for crop damage to arise from Australian plague locusts in the south-eastern states and spur-throated locusts in Queensland. Second, the wet conditions have increased the potential risk of stripe rust, which could affect crop yields in some regions.

Total winter crop production in 2010–11 is forecast to be 16 per cent higher than in 2009–10 at 40.7 million tonnes.

Of the major winter crops, wheat production is forecast to rise by 16 per cent to 25.1 million tonnes in 2010–11. Barley production in 2010–11 is forecast to be 9 per cent higher at 8.8 million tonnes and canola production is forecast to be 17 per cent higher at 2.2 million tonnes.

Total summer crop area is forecast to rise by 60 per cent to 1.3 million hectares in 2010–11, compared with the below average plantings last season. The area planted to cotton and grain sorghum is forecast to rise by 96 per cent and 55 per cent, respectively, while rice plantings are forecast to more than triple.

The forecasts presented in this publication are those prepared for the September editions of ABARE–BRS’s Australian crop report and Australian commodities.

Total factor productivity growth among the cropping industry as a whole increased on average by 1.9 per cent a year between 1977–78 and 2007–08, while the estimated productivity growth in the mixed crop–livestock industry was 1.4 per cent a year.

Market outlook

Wheat

The world wheat indicator price (US hard red winter, fob Gulf) is forecast to increase by 20 per cent in 2010–11 to average US$250 a tonne. This forecast increase mainly reflects an anticipated decline in world stocks, as consumption is expected to exceed production for the first time since 2007–08. However, higher than expected wheat prices since this forecast was made are likely to result in an upward revision in December.

Following a gradual decline in the first half of 2010, the world wheat indicator price rose from a low of US$176 a tonne in late June to a high of US$314 a tonne in mid-September. This sharp increase in world wheat prices was in response to expectations of lower world wheat supplies as a result of adverse seasonal conditions in major producing countries in the northern hemisphere, including the Russian Federation, Ukraine and Canada. Additionally, the Russian Federation, the world’s fourth largest exporter, placed a ban on exports of all grain and grain products, which came into effect on 15 August 2010.
World wheat production is forecast to decline by around 4 per cent in 2010–11 to 648 million tonnes, the third highest on record. Wheat production in most major producing regions is forecast to fall after producers planted lower areas in response to weaker world wheat prices at planting time, which was followed by adverse seasonal conditions in major producing countries in the northern hemisphere.

World wheat consumption is forecast to increase by 1 per cent in 2010–11 to around 655 million tonnes. This increase is driven by human consumption, which is forecast to increase by 1 per cent to around 457 million tonnes, largely reflecting world population growth. Feed use is forecast to fall by 1 per cent to 107 million tonnes in response to higher wheat prices.

World wheat closing stocks are forecast to fall by 4 per cent in 2010–11 to 190 million tonnes. The stocks-to-use ratio is forecast to fall to around 29 per cent, which is the second highest since 2001–02.

The average forecast return in mid-September for the 2010–11 Australian premium white wheat pool (APW10) was around $319 a tonne, representing a 30 per cent increase on 2009–10. This reflects, in large part, the effect of higher world wheat prices.

**Coarse grains**

The world indicator price for coarse grains (US Corn, fob Gulf) is forecast to increase by 12 per cent in 2010–11 to US$180 a tonne, after averaging US$161 a tonne in 2009–10. However, higher than expected corn prices since this forecast was made, as a result of revised forecasts of US corn production by the United States Department of Agriculture (USDA), are likely to result in an upward revision in December. World consumption is expected to reach a new record in 2010–11, while production is expected to grow at a relatively slower rate.

World coarse grains production in 2010–11 is forecast to be the highest on record at around 1.1 billion tonnes. World corn production is forecast to rise to a record 828 million tonnes, 3 per cent higher than last season. However, this forecast is likely to be revised down in December following the USDA revising down its forecast of US corn production. Partially offsetting this is a forecast decline in world barley production, owing to adverse seasonal conditions in major producing regions in the northern hemisphere. World barley production is forecast to decline by 15 per cent to 126 million tonnes in 2010–11, the lowest since 1971–72.

Global coarse grains consumption is forecast to rise to a record of 1.1 billion tonnes in 2010–11, 2 per cent higher than last season. Global industrial use is again expected to drive the growth in consumption. Global feed grain demand is forecast to fall in 2010–11, driven by reduced consumption in the United States and the European Union.

Closing stocks of world coarse grains are forecast to decline by 10 per cent in 2010–11 to 172 million tonnes, driven by lower barley stocks. Despite the forecast fall, closing stocks are still expected to be higher than in 2006–07 and 2007–08.

Following increases in world coarse grains prices, the Australian feed barley price is forecast to increase by 25 per cent in 2010–11 to $238 a tonne. This compares with $190 a tonne for 2009–10. The malting barley price is forecast to increase by 17 per cent to $280 a tonne.

**Oilseeds**

The world indicator price for soybeans (cif Rotterdam) is forecast to average around 8 per cent lower in the 2010–11 marketing year (October to September) at around US$391 a tonne. In contrast to soybeans, the average canola price (cif Hamburg) is forecast to increase by 4 per cent in 2010–11 to around US$420. This forecast rise reflects the combined effects of reduced canola production, relatively low stocks and strong processor demand for canola.
Total world oilseed production is forecast to fall by 1.3 million tonnes in 2010–11 to 440 million tonnes, because lower expected production of soybeans and canola will more than offset a forecast increase in the production of cottonseed, peanuts and sunflower seed.

World oilseed crush is forecast to increase by 5 per cent in 2010–11 to 374 million tonnes. Since 2000–01 the total volume of oilseeds crushed has increased by 47 per cent, as high crusher profit margins encouraged investment in new crushing capacity, particularly in China and Latin America.

World vegetable oil consumption is forecast to increase by 5 per cent in 2010–11 to 145 million tonnes, led by continued growth in human consumption. World oilseed meal consumption is forecast to increase by 7 per cent to 250 million tonnes in 2010–11, in response to higher demand from the intensive livestock sector and lower protein meal prices.

**Australian crop production in 2010–11**

Winter cropping regions in the eastern states are experiencing a good season, reflecting average to above average rainfall between July and September. This widespread rainfall has boosted the already high winter crop yield expectations.

In contrast, most cropping regions in Western Australia have remained dry throughout winter, following on from a dry autumn and summer. September rainfall has been below average, with yield potential significantly reduced. Continued dry conditions in Western Australia are likely to result in the Western Australian and Australian forecasts shown in table 1 being revised down in the December edition of the Australian crop report.

Total winter crop production in 2010–11 is forecast to be around 40.7 million tonnes, which is 16 per cent higher than last season and would be the third largest on record.

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% change 2009–10 to 2010–11: 37 8 3 93 –22 16

There are two main risks to the positive production outlook in the eastern states. First, there is the potential for significant damage from Australian plague locusts in the south-eastern states and spur-throated locusts in Queensland. Second, the wet conditions have increased the incidence of stripe rust, which could affect crop yields in some regions if control measures are inadequate. On the upside, the continuation of good rainfall in the eastern states could lead to higher than currently expected yields.
Of the major winter crops, wheat production is forecast to increase by around 16 per cent to 25.1 million tonnes in 2010–11. Barley production in 2010–11 is forecast to be almost 8.8 million tonnes, a 9 per cent increase from the previous season. Canola production is forecast at around 2.2 million tonnes in 2010–11, 17 per cent higher than last season, largely reflecting a significant increase in area planted and expected higher yields, particularly in southern New South Wales.

Total summer crop area is forecast to increase by around 60 per cent to 1.3 million hectares in 2010–11, following below average plantings last season. Average to above average winter rainfall in key growing regions of northern New South Wales and southern Queensland is forecast to result in an increase in the area planted to grain sorghum. An increase in the availability of irrigation water is forecast to result in a significant increase in the area planted to both cotton and rice. The cotton area is also likely to be aided by good soil moisture profiles that are expected to lead to expanded plantings of dryland cotton. Total summer crop production is forecast to increase by 52 per cent to around 3.8 million tonnes in 2010–11, reflecting the forecast increase in the area sown to summer crops.

The major cropping regions in the eastern states all recorded average to above average rainfall between June and September, which boosted yield expectations (map 1).

In contrast to the eastern states, Western Australia’s cropping belt has experienced a prolonged period of dry weather. Between January and August 2010 there were serious to severe rainfall deficiencies over much of the winter cropping belt, and September rainfall was well below average. However, there are some parts of southern Western Australia, around Esperance, where seasonal conditions have been reasonable and crop prospects are still positive.
For the cropping regions of Queensland and northern New South Wales, deeper layer soil moisture at the end of September 2010 (map 2) was near or at the maximum for the time of year. There were large areas of southern New South Wales, western Victoria and South Australia where deeper layer soil moisture (~0.2 to ~1.5 metres) was within the 40 to 50 per cent and 50 to 60 per cent deciles, which is close to the historical average for the time of year. However, for much of Western Australia there appeared to be little reserve (deeper layer) soil moisture, so crops that depend heavily on rainfall are likely to experience moisture stress.

At the end of September 2010, soil moisture in the uppermost levels (~0.2 metres) for many cropping regions in eastern Australia were near or at the historical maximum for the time of year (map 3). However, there are parts of south-western and eastern Victoria where the upper soil moisture levels were within the 40 to 50 per cent decile. In contrast, most of Western Australia’s cropping regions’ soil moisture in the upper layer was near or at the minimum.

The Australian Bureau of Meteorology’s latest seasonal rainfall outlook (23 September 2010) for the October–December period favours wetter than average conditions over large parts of the continent, with the strongest odds across northern Australia. The chance of exceeding median rainfall for October to December is more than 60 per cent over most of Queensland, New South Wales and South Australia, as well as the western inland parts of Western Australia. Odds increase to more than 70 per cent for northern parts of both the Northern Territory and Queensland. For the remainder of Australia (Tasmania, most of Victoria and the remainder of Western Australia), the outlook is neutral with odds of exceeding median rainfall between 40 and 60 per cent (map 4).
map 3  Uppermost soil moisture levels, September 2010

Soil moisture at upper layer displayed for wheat–sheep and high-rainfall zones only.
Source: ABARE–BRS; CSIRO; Bureau of Meteorology (Australian water availability project).

map 4  Chance of exceeding median rainfall, October to December 2010

Source: Bureau of Meteorology.
The national outlook for maximum temperatures over October to December favours warmer than average daytime and night-time temperatures in the tropical north and south-east of Australia, with cooler daytime temperatures favoured over southern Queensland and northern New South Wales (map 5). The average minimum temperature for the same period is also favoured to be above the long-term median minimum temperature, with odds of more than 60 per cent for the tropical north (including the Queensland coast) and south-east Australia. Odds increase to above 75 per cent over northern Queensland. For the remainder of Australia, the odds are mostly between 50 and 60 per cent.

A number of organisations provide forecast yields for grains, including wheat and grain sorghum. The Queensland Department of Employment, Economic Development and Innovation’s shire scale wheat forecasting system combines starting soil moisture conditions with the seasonal outlook, including the most recent trend in the Southern Oscillation Index (SOI). The median shire wheat yields at the end of September showed most cropping regions to be ranked in the highest decile for Queensland, New South Wales and Victoria, and relatively high for South Australia. Conversely, in Western Australia wheat yields in the majority of the grains belt were forecast to be ranked in the lowest deciles (map 6).
Conditions in the states

**New South Wales**

The majority of winter crops in New South Wales were sown during the optimal planting window and into either a reasonable or, in many cases, a full moisture profile. Average to above average winter rainfall across the entire winter cropping region further boosted yield prospects. On top of this, widespread early spring rainfall means winter crop prospects are the best they have been for a number of years.

Although conditions have been ideal, there is a risk of plague locust damage to crops, particularly in southern and central New South Wales. The wet winter has also increased the prospect of fungal disease (particularly stripe rust), which may negatively affect yields in some areas. However, growers are prepared and are expected to take necessary steps to mitigate the risks associated with locusts and rust by using both aerial and ground spraying.

Total winter crop production in New South Wales is forecast to be at a record 14.5 million tonnes, nearly double last season’s drought-affected crop. Seasonal conditions across the entire winter cropping zone have been ideal, which has resulted in a significant upward revision in the yield forecast for the state. The total area planted to winter crops in 2010–11 is estimated at around 6.3 million hectares, 3 per cent more than in 2009–10 and the second highest area planted on record.

Wheat production is forecast at just less than 9.9 million tonnes in 2010–11 and, if realised, would represent the biggest wheat crop on record. Barley production in 2010–11 is forecast to almost double to a record
of around 2.5 million tonnes. Canola production is forecast to reach 500 000 tonnes in 2010–11, more than double the previous crop, reflecting both an increase in the area planted and higher yields. The area planted to canola is estimated to have increased by 29 per cent in 2010–11, to 310 000 hectares.

The area planted to grain sorghum is forecast to increase by around 46 per cent in 2010–11, to 175 000 hectares, reflecting above average winter rainfall and resulting ideal spring planting conditions in key growing regions. Assuming average yields, at this early stage of the season, production is forecast to increase by around 26 per cent to 578 000 tonnes.

The area planted to rice in 2010–11 is forecast at around 67 000 hectares, a significant increase from the 19 000 hectares planted in the previous season. The increase in the forecast area planted reflects the increase in availability of irrigation water.

Cotton production in New South Wales is forecast to increase by more than 50 per cent in 2010–11, to 385 000 tonnes of cotton lint and 545 000 tonnes of cottonseed. If realised, this would be the largest New South Wales cotton harvest since 2001–02.

**Victoria**

The average to above average rainfall recorded between July and September across nearly all parts of Victoria built on one of the best starts to the winter cropping season in many years. Between 50 millimetres and 150 millimetres of rain fell across the state in both August and September, with the heaviest rainfall recorded in the Western District and parts of the north-east. Some flooding occurred in the north-east, while in the Western District the rain has raised concerns about waterlogging in the major canola producing region of Victoria. Conditions in the Mallee and Wimmera are very favourable in spring, and yields are expected to be above average in these regions. Although conditions have been favourable, there is a risk that plague locusts could damage crops.

Winter crop production in Victoria is forecast to be 6.7 million tonnes in 2010–11, 8 per cent higher than last season.

Wheat production in 2010–11 is forecast to be 3.4 million tonnes, 7 per cent higher than in 2009–10 and, if realised, would be the largest crop since 1983–84. Despite a 9 per cent reduction in area planted, barley production is forecast to be 2 million tonnes in 2010–11, 4 per cent higher than last season. The decline in the area planted was because of expected unfavourable returns from barley relative to other crops at planting time.

The area planted to canola is estimated to have increased 12 per cent from last season to 262 000 hectares and production is forecast to reach 472 000 tonnes, a new record if realised.

**Queensland**

Queensland’s cropping regions recorded average to above average rainfall over July and August. This was in contrast to June, which was particularly dry with below average rainfall recorded over most of the state. Around 5 to 10 millimetres of rain fell over the cropping regions in that month. The dry conditions meant that some farmers were not able to complete their winter planting programs and some land was left fallow, particularly in the Darling Downs.

In September, around 50 to 100 millimetres of rainfall was recorded over the cropping regions of Queensland. This follow-up rain will further boost winter crop yield potential and summer crop prospects. As a result, the 2010–11 winter crop season is looking substantially better than last season, when a dry winter and spring reduced yields and production. Although conditions have been favourable, there is a risk that locusts could damage crops.
Total winter crop production is forecast to be around 2 million tonnes next season, which is around 37 per cent higher than in 2009–10.

Despite an 18 per cent decline in area planted, wheat production is forecast to rise by 31 per cent to 1.6 million tonnes in 2010–11, reflecting higher forecast yields. Barley production is forecast to reach 191 000 tonnes, 47 per cent higher than last season and chickpea production is forecast to be 236 000 tonnes in 2010–11, 70 per cent higher than last season.

The additional fallow land made available by incomplete winter crop plantings in the Darling Downs is forecast to be used for grain sorghum plantings. The area planted is forecast to rise by nearly 60 per cent to 425 000 hectares. Dry conditions last season prevented plantings in southern Queensland, while wet conditions prevented plantings in central Queensland. The planting window for grain sorghum is open until the end of February 2011 in central Queensland and, assuming average yields, production is forecast to be around 1.1 million tonnes.

Cotton production in Queensland is forecast to more than double in 2010–11, to 268 000 tonnes of cotton lint and 378 000 tonnes of cottonseed. The production forecast is based on an expectation of an 85 per cent increase in irrigated cotton plantings and a 270 per cent increase in dryland cotton plantings.

**Western Australia**

Winter crop prospects have been significantly reduced for most of Western Australia after well below average rainfall was recorded over winter and September.

Southern parts of the grain belt have fared slightly better and, in some parts near Esperance, rainfall was average over the winter months. In these limited areas, crop prospects are good.

Winter crop production was forecast early in September to be just more than 9.7 million tonnes in 2010–11, around 2.7 million tonnes less than the 2009–10 harvest, because of a reduced area planted and reduced yields. This forecast was based on an expectation of average seasonal conditions during late winter and spring; however, dry conditions have continued. Winter crop production in Western Australia is expected to be revised down in December.

The area sown to wheat is estimated to be around 4.9 million hectares in 2010–11, slightly lower than in 2009–10. This reflects expected lower wheat prices at planting time. Wheat production is forecast to fall by 26 per cent to 6.1 million tonnes in 2010–11, compared with 8.2 million tonnes in 2009–10. Barley production is forecast to decline by 23 per cent to around 1.7 million tonnes in 2010–11, largely because of a 20 per cent reduction in area planted.

Canola production is forecast to decrease by 3 per cent to 945 000 tonnes in 2010–11, largely reflecting dry seasonal conditions.

**South Australia**

Although rainfall in July was below average in most of the cropping areas, August and September rainfall was above average. The rainfall has replenished soil moisture and put crops in a good position in the crucial spring period.

Growers, predominantly on the Eyre Peninsula, were concerned about mice consuming seed after sowing and, consequently, lower crop yields. However, cold and wet weather in August and September, as well as mice baiting, is expected to have reduced mouse populations, but there are still concerns these populations may rebuild before the harvest. Although conditions have been favourable, there is a risk that plague locusts could damage crops.
Reflecting the positive August and September conditions, total winter crop production is forecast at 7.7 million tonnes, a 3 per cent increase from 2009–10.

The area planted to wheat in South Australia in 2010–11 is estimated at 2.2 million hectares, an increase of 2 per cent compared with 2009–10, in response to some producers moving out of barley into wheat production because of expected lower returns for barley at planting time. Wheat production is forecast at 4.2 million tonnes in 2010–11, which is a 5 per cent increase from 2009–10. Barley production is forecast to be 2.4 million tonnes in 2010–11, around 3 per cent lower than last season, reflecting an 8 per cent decline in the area planted.

Reflecting higher relative returns at the time of planting, the area planted to canola in South Australia is estimated to have increased by 11 per cent to 195 000 hectares in 2010–11. Canola production is forecast to increase by 8 per cent from last season, to be 312 000 tonnes in 2010–11.

**Grains industry productivity update**

**Measuring productivity**

Although expected grain prices and seasonal conditions will affect grain growers’ immediate cropping decisions, their capacity to continue making productivity improvements will, in the long run, determine their ongoing viability. Agricultural productivity growth reflects increases in the efficiency with which farmers combine inputs to produce outputs. Such improvements serve to offset the downward trend in farmers’ terms of trade (prices received relative to prices paid) and to maintain their international competitiveness.

ABARE–BRS measures broadacre (non-irrigated) productivity growth by constructing an index of total factor productivity (TFP)—that is, the ratio of all market outputs produced to market inputs used. Although single input measures (such as crop yields per hectare) can provide useful insights, in a strategic sense, TFP better reflects farmers’ business decisions (for example, substituting chemical for mechanical cultivation). At an industry or regional level, improvements in TFP also capture increased adoption of ‘best practice’ and the exit of less efficient farms.

Productivity is best examined over the long term because a variety of factors (in particular, seasonal conditions) contribute to its volatility from year to year. Over time, TFP can be used to trace efficiency improvements and to identify the main determinants of such growth. Change in TFP can also be because of unmeasured inputs or imperfectly measured inputs (Gray et al. 2010, forthcoming).

**Productivity in the cropping industries**

Over past decades, productivity growth in cropping has consistently exceeded that in other broadacre industries. Grains industry representatives believe that the wider adoption of more efficient farming systems (such as conservation tillage practices) has played a key role (Jackson 2010). For example, between 1977–78 and 2007–08, TFP grew by 1.8 per cent a year in the cropping industry as a whole (that is, specialist croppers and mixed crop–livestock farmers), compared with 1.5 per cent a year for specialist beef producers and 0.3 per cent a year for sheep specialists (table 2).

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a Cropping specialists and mixed crop–livestock farms.
Nationally, grain growers have reported that past productivity growth has largely been driven by: better understanding of cropping systems (including crop rotations and soil fertility); improved agricultural chemicals, fertilisers and machinery; superior crop varieties; the expansion of cropping into grazing areas; and increased farm sizes (Jackson 2010).

**Regional variation**

Although productivity growth realised by cropping specialists was fairly similar across GRDC cropping regions, there were considerable differences in how such improvements were achieved. Growers in the western region have, on average, achieved the highest TFP growth rates of 2.2 per cent a year, mainly reflecting generally better seasonal conditions compared with the eastern states and larger cropping operations, which are able to benefit more from scale economies through large-scale mechanisation (table 3).

Within the eastern states, the northern region achieved productivity growth predominately by reducing inputs (−2.0 per cent a year), whereas the southern region (along with the western region) realised similar TFP growth through increasing inputs (1.0 per cent a year). In addition, as illustrated in figure b, the southern region also experienced the most significant annual fluctuations in productivity, largely because of drought.

**Further analysis of productivity growth determinants in the grains industry**

In recent years, increasing climate variability may explain a substantial proportion of the variability in grain growers’ productivity, as well as an observed slowdown in productivity growth. Among a range of factors, growers have reported that the recent prolonged drought contributed to a decline in investment in new technologies and/or reduced confidence, with some growers making otherwise sub-optimal decisions over input use.

Nevertheless, even after accounting for the effect of adverse seasonal conditions, there is evidence emerging that productivity growth has been slowing for cropping specialists (and broadacre agriculture more generally) since the mid-1990s (figure c). ABARE–BRS research has indicated that declining public investment in agricultural research and development (R&D) could be another factor (in addition to adverse seasonal conditions) that has contributed to this slowdown (Sheng et al. 2010).
References


Australian Grains Series reports are produced by ABARE–BRS for GRDC

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