Production costs

The final pathway in *Queensland's agricultural strategy* is production costs. For agriculture, production costs include the cost of inputs, regulatory compliance and the logistical costs of supplying markets. They also include the cost of opportunities forgone, such as production lost through pests and diseases or as a result of regulatory intervention. To ensure the ongoing profitability and viability of businesses it is necessary to minimise production costs while ensuring reliable access to inputs. A competitive market for the supply of inputs to production will ensure downward pressure is maintained on input costs, and that they are supplied to the sector as efficiently as possible.

Input costs

It is estimated that in 2012–13 Queensland's agricultural industries used more than $4.4 billion of inputs from a range of industries to produce their products. The purchase of these inputs supports rural and regional economies throughout Queensland.

Table 5.1 provides a breakdown of farm costs in Australia in 2012–13. The most significant costs are depreciation, seed and fodder, wages, interest paid, and repairs and maintenance.

Table 5.1 Breakdown of farm costs in Australia in 2012–13

	$m	%
Materials and services		
Fuel	2 184	5.9
Fertiliser	2 213	6.0
Chemicals	1 422	3.8
Seed and fodder	4 589	12.4
Marketing	3 756	10.1
Repairs and maintenance	4 054	10.9
Other	4 495	12.1
Total	**22 715**	**61.2**
Other costs		
Wages	4 326	11.7
Interest paid	4 341	11.7
Other overheads	537	1.4
Total	**9 204**	**24.8**
Total cash costs	31 919	86.0
Depreciation	5 199	14.0
Total farm costs	**37 118**	**100.0**

Source: ABARES, 2013

Table 5.2 provides a detailed breakdown of inputs to Queensland primary industries. Unfortunately, the data refers to 2005–06, which is the latest year of available input–output data.

The most significant inputs are labour costs (32 per cent), finance, property and business services (12 per cent), transport (11 per cent), machinery and other manufactured inputs (9 per cent), and fuel, fertiliser and chemicals (7 per cent).

Meat & Livestock Australia publishes estimated cash costs for northern beef farms (see Table 5.3). The most significant costs are cattle purchases, repairs and maintenance, and fuel.

Table 5.2 Upstream industry suppliers to Queensland primary industries during 2005–06 ($m)

Industry	Sheep	Grain	Beef cattle	Dairy cattle	Pigs and poultry	Fruit and vegetables	Cotton	Services to agriculture	Sugar cane growing	Forestry and logging	Commercial fishing	Meat and meat products	Sugar manufacturing	Food manufacturing (n.e.c.)	Wood and paper manufacturing	Total[d]
Services to agriculture	13.6	31.4	189.9	12.8	25.3	45.6	4.9	3.9	1.6	0.3			0.2	0.4		358.8
Other agriculture	4.5	32.3	24.0	7.7	6.6	43.5	51.0	248.9	97.6	0.6		2 883.5	885.6	687.2		518.50
Chemicals and fuels	4.9	31.4	130.3	11.1	21.2	89.4	12.6	2.3	9.0	6.9	15.4	15.2	2.8	241.2	314.0	945.6
Other manufacturing[a]	2.2	14.8	42.1	4.3	13.8	29.8	3.5	0.8	8.0	13.2	37.5	314.9	13.5	1 846.6	564.7	1 227.1
Electricity, gas and water	1.0	18.0	46.8	7.6	15.0	7.0	1.8	0.1	4.9	0.2	0.8	45.6	6.6	126.7	116.8	410.3
Construction[a]	2.1	6.2	40.8	2.8	15.4	8.7	1.4	0.4	1.1	1.0	1.0	10.5	0.1	48.9	52.4	197.2
Transport	5.0	40.1	118.4	15.6	36.9	94.6	5.6	3.5	25.9	2.8	6.5	351.6	22.2	590.8	312.4	1 653.6
Finance, property and business services	7.2	34.0	168.2	10.3	34.2	52.5	7.5	7.2	37.9	4.4	11.1	134.9	16.0	431.7	712.9	1 703.7
Total Intermediate[b]	**51.2**	**255.7**	**988.0**	**87.7**	**201.9**	**507.3**	**105.6**	**275.7**	**230.6**	**59.5**	**105.2**	**3 908.7**	**976.5**	**4 943.9**	**2 789.3**	**9 480.90**
Compensation of employees	25.5	57.9	577.6	52.7	43.4	291.2	24.4	124.4	145.8	36.0	42.0	592.3	235.6	914.7	1 134.6	4 531.8
Total[c]	**76.7**	**313.6**	**1 565.6**	**130.4**	**245.3**	**798.5**	**130.0**	**400.1**	**376.4**	**95.5**	**147.2**	**4 501.0**	**1 212.1**	**5 858.6**	**3 923.9**	**14 012.70**

a Refers to intermediate inputs, therefore excluding purchases that would be classed an investment

b Includes other industries

c Does not include interest, taxes or subsidies, or imports

d Adjusted to exclude agricultural inputs to manufacturing sectors

Source: Updated OESR input–output tables

Table 5.3 Cost of production and net margin of beef cattle production in northern Australia by scale of beef meat production (live weight basis) 2007–08

Average per farm		Small	Medium	Large	Very large	Average
Derived total meat production	kg	21 751	88 920	234 976	869 690	148 292
Average price received						
per kg live weight	cents/kg	172	170	173	168	70
Cash cost of production						
administration	cents/kg	15	9	6	4	6
cattle purchased	cents/kg	21	19	20	21	20
crop and pasture chemicals	cents/kg	5	4	2	1	2
fertilisers	cents/kg	2	1	0	0	0
fodder	cents/kg	22	13	12	7	10
freight	cents/kg	8	6	6	10	8
fuel, oil and grease	cents/kg	20	14	11	8	11
handling and marketing	cents/kg	9	6	5	4	5
hired labour	cents/kg	2	2	5	9	7
livestock materials	cents/kg	9	3	4	3	4
repairs and maintenance	cents/kg	38	16	16	11	15
water rates and charges	cents/kg	0	0	0	0	0
other cash costs	cents/kg	63	30	31	24	29
Total beef cattle cash costs	cents/kg	**215**	**123**	**117**	**103**	**118**
Imputed cost of family labour used for beef cattle production	cents/kg	135	49	23	8	27
Total beef cattle cash costs including family labour	cents/kg	**350**	**172**	**140**	**111**	**145**

Source: Meat & Livestock Australia, http://apps.daff.gov.au/MLA/

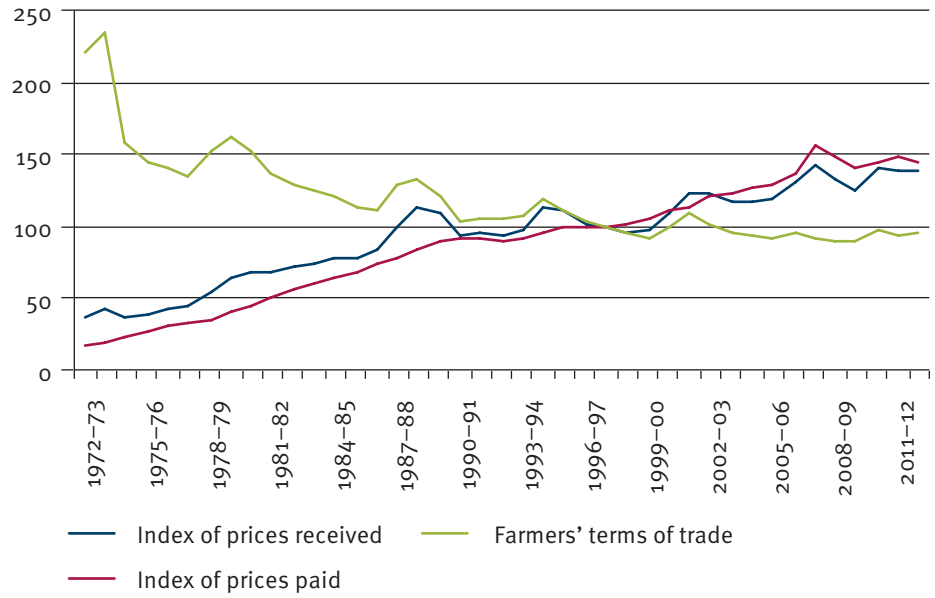
Figure 5.1 illustrates how farmers' terms of trade (which are the ratio of prices received to prices paid) show a trend of long-term decline, as trend growth in supply exceeds trend growth in demand. This is because supply grows at least as rapidly as overall productivity in an economy, whereas demand grows less strongly than incomes. Also, the pace of increase of farm costs broadly matches overall inflation rates. Consequently, economic development is synonymous with a declining share of agriculture in the economy.

These long-term trends can be masked by other short- and medium-term developments. Figure 5.1 shows short-term spikes in prices received in 1973–74, 1980–81, 1988–89, 1994–95, 2002–03 and 2007–08. Spikes in prices received were not matched by comparable spikes in prices paid, therefore farmers' terms of trade rose during those years, with the exception of 2007–08. Those years were an exception because the pre-GFC increase in global commodity prices affected farm inputs, such as fuel and fertilisers, as much as farm returns.

The trend of long-term decline in farmers' terms of trade seems to have slowed post 1990. Analysis shows a trend in decline of 3 per cent per annum during the 20 years to 1992–93, slowing to 0.9 per cent per year in the subsequent 20 years. It is likely that this relative improvement reflects:

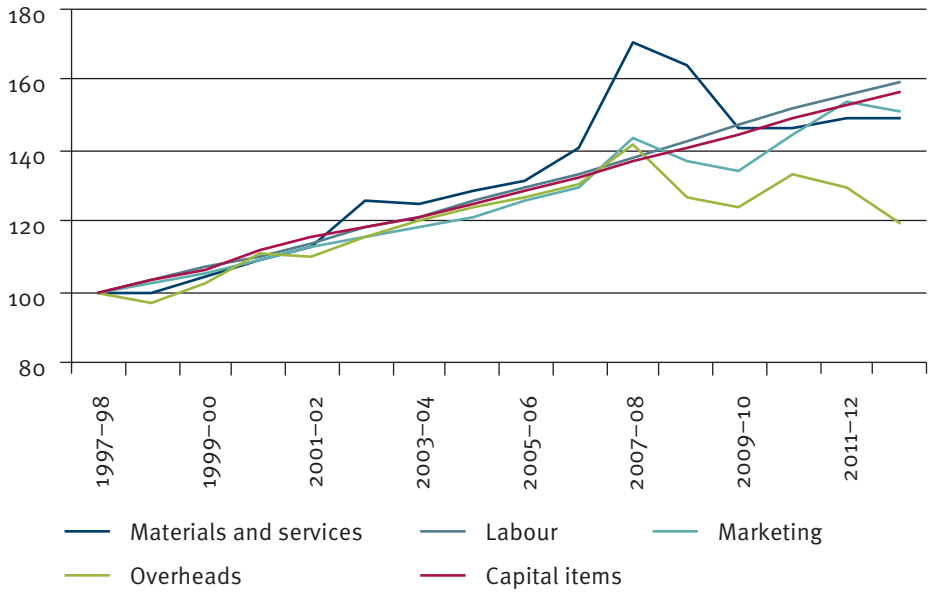
- the effect of the Uruguay round of multilateral trade negotiations in slowing, and partly reversing, growth in price-depressing agricultural subsidy practices by major northern hemisphere producers
- growing demand for food and fibre in China and other emerging economies, which outstrips growth in domestic output
- domestic economic reforms, including more competitive input markets and more successful monetary policy settings, with overall inflation limited to the Reserve Bank of Australia's target of 2–3 per cent per year. This has reduced overall cost pressures, enabling the Australian dollar to move more closely in line with economic fundamentals such as commodity prices.

Figure 5.1 Australian farm prices and costs in 1997–98 = 100



Source: ABARES, 2013

Figure 5.2 Input price indexes for Australian farm cost components, 1997–98 = 100



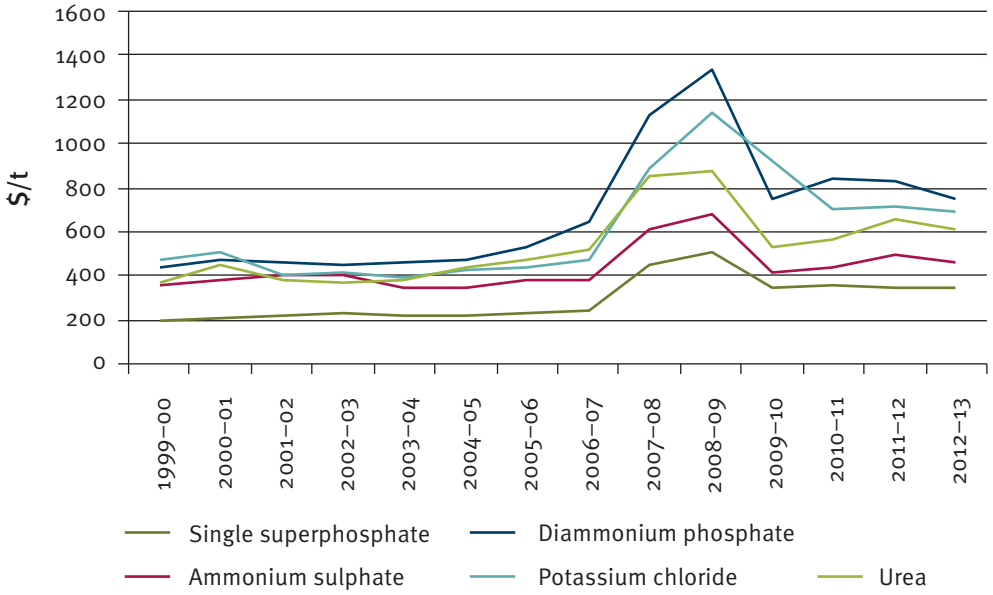
Source: ABARES, 2013

Figure 5.2 illustrates the input price index for Australian farm cost components. It shows that prices paid by farmers for key inputs have risen by an average of 2.5 per cent per year since 1997–98. This figure is marginally less than CPI (3 per cent) over the same period. The largest price increases over the period have been for fuel and lubricants (averaging 5 per cent per annum), insurance (4.4 per cent), electricity (4 per cent) and store and breeding stock (3.7 per cent).

In contrast there has been a visible decline in overhead input costs since 2007–08. This was largely driven by a significant decline in interest rates paid over the period, which was partly offset by increases in the price of insurance.

Currently, input price data is only available at a national level so prices paid by Queensland farmers may differ slightly from the costs detailed above, especially for non-tradeable items such as electricity. However, these figures provide a good indication of the input cost pressures faced by Queensland producers.

Figure 5.3 Australian fertiliser prices



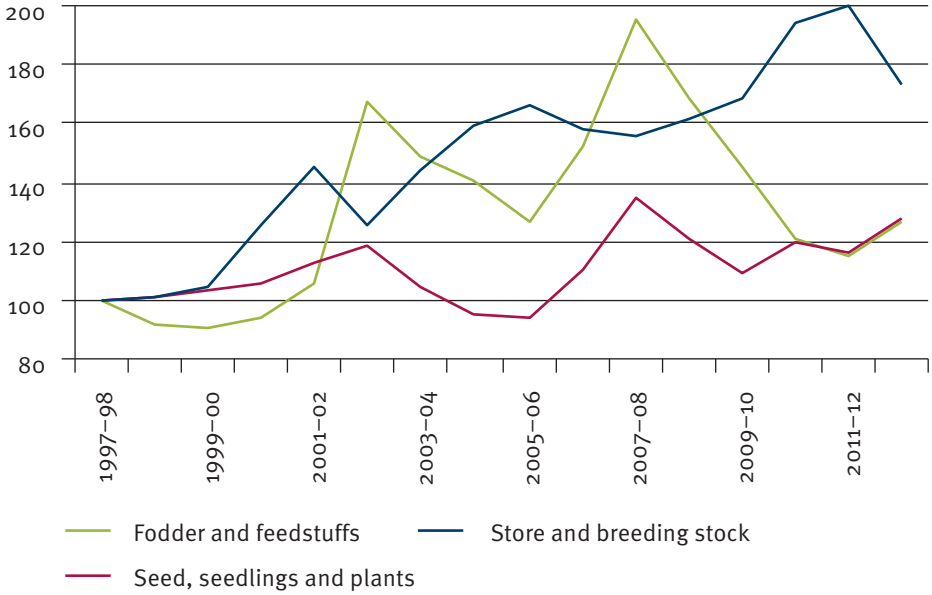
Source: ABARES, 2013

Figure 5.3 shows that fertiliser prices in Australia have fallen from record highs in 2008–09. However, the prices appear to be continuing their long-term trend which has seen them increase by an average of 3.6 per cent per year since 1999–2000.

In 2011–12, 40.3 per cent of Queensland farms used fertiliser. Fertiliser is only used on a small proportion of agricultural land in Queensland—2.7 million hectares or 1.6 per cent of total agricultural land, compared with 7.4 per cent in the rest of Australia. However, the average fertiliser application rate in Queensland (0.44 tonnes per hectare) is over three times higher than the rest of Australia (0.15 tonnes per hectare).[1] Fertiliser is a particularly important input to Queensland's horticulture, sugar cane and broadacre cropping industries.

1 Land management and farming in Australia, 2011–12, ABS, 4627.0

Figure 5.4 Price indexes: Australian seed, fodder and livestock, 1997–98 = 100



Source: ABARES, 2013

Figure 5.4 shows that the price of store and breeding stock in Australia has increased on average by 3.7 per cent per year since 1997–98.

The prices of fodder and feedstuffs have also significantly changed, although the underlying price has only increased by an average of 1.6 per cent per year. Price shocks appear to correlate mainly with droughts, at times when fodder and feedstuffs are in higher demand.

Seed, seedlings and plant prices have been less volatile, increasing by an average of 1.7 per cent per year.

Figure 5.5 shows farm chemical price movements. Chemical prices have increased by an average of 0.8 per cent per year since 1997–98, but have fallen substantially since the pre-GFC peak, as have fertilisers.

Similarly, Figure 5.6 shows farm fuel price movements. These fuel prices increased more strongly than chemical prices in the pre-GFC period but less strongly than some fertiliser prices. However, unlike chemicals and fertilisers, fuel prices haven't recorded substantial falls post-GFC. Since 1997–98, farm fuel prices have increased by an average of 5.1 per cent per year.

Figure 5.7 compares rural wage movements, average weekly earnings across the economy as a whole, and the consumer price index (CPI). Prior to about 2000, rural wages moved broadly in line with average earnings for the workforce as a whole, but have lagged since that time. Rural wages have however outpaced CPI growth, indicating that there has been some increase in real wages of rural workers.

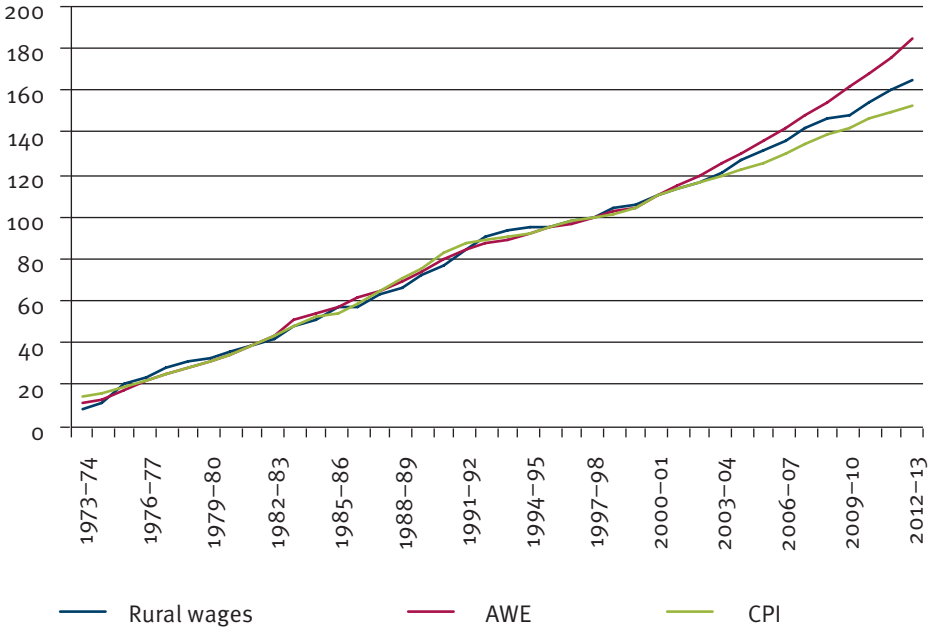
Figure 5.5 Farm chemical prices, 1997–98 = 100

Source: ABARES, 2013

Figure 5.6 Farm fuel prices, 1997–98 = 100

Source: ABARES, 2013

Figure 5.7 Rural wages, average weekly earnings and the consumer price index, 1997–98 = 100



Source: ABARES, 2013

Regulatory costs

There is little information available on the cost of regulating Queensland's agricultural sector. Regulation costs include transactional costs associated with completing forms, costs arising from delays in approvals, and missed opportunities due to regulation. Some examples could include innovative efforts being redirected from productive uses into avoiding regulations, or innovation lost from restricting competition within the industry.

Reducing red tape is critical in ensuring Queensland's economic growth is not constrained by an unnecessary and excessive regulatory burden. The Queensland Government is committed to reducing red tape by 20 per cent by 2018 to reduce costs for businesses, not-for-profit organisations, community groups, families and individuals.

To achieve this aim, the Queensland Government has implemented a comprehensive and rigorous framework for reducing the regulatory burden. Substantial reforms have been implemented across all sectors of the economy, ranging from major legislative reforms to specific administrative changes.

A key focus of the Government's reform agenda has been to reduce red tape for agricultural industries in areas such as environment and vegetation management, land management, water supply and biosecurity.

Many of these reforms will deliver significant time and cost savings to agricultural businesses and broader economic benefits to Queensland over time. Examples of the key reforms providing direct and tangible benefits for agriculture include:

- streamlining the vegetation management framework—so landholders can carry out routine management activities such as thinning, weed control, fodder harvesting and clearing of vegetation encroachment without the need to regularly apply for permits
- streamlining low-risk environmentally relevant activities (ERAs)—to reduce the range of activities regulated as ERAs, providing savings for agricultural businesses
- implementing area management plans for vegetation clearing activities—these plans cover a range of vegetation clearing activities and remove the need for separate and individual development permits
- removing the requirement for land and water management plans—amendments to the *Water Act 2000* will remove the requirement for these plans. This will reduce paperwork and compliance costs, saving over $6 million annually
- simplifying land management for pastoral leases—providing efficiencies in the management and monitoring of land condition for state rural leasehold land
- simplifying the renewal process of water licences—up to 27 000 farmers and landholders will no longer have to apply to renew their water licences, however they still need to continue ensuring they responsibly manage water resources
- simplifying biosecurity legislation—the *Biosecurity Act 2014* and associated regulations will provide a simplified, consolidated legislative framework for managing biosecurity risks in Queensland
- implementing sugar cane industry best management practices—this will help achieve soil health and pest, weed and water management without the need for regulatory impost.

Case study

Kalei apple

The Queensland apple industry contributes $40 million per year to the Southern Downs regional economy. With apple scab—a major fungal disease—costing upwards of $10 million in chemical control and fruit losses annually across Australia, the industry looked to DAFF horticultural researchers for a solution.

DAFF researchers crossed a wide range of apple parents and evaluated over 100 000 cross breeds during a 20-year search for the perfect combination of disease resistance, yield, taste and quality. As very promising lines emerged, Horticulture Australia Limited and Apple and Pear Australia Limited (APAL) provided additional financial support.

The Kalei apple resulted from this research. The Kalei is bred without using chemicals or genetic engineering. It is not only resistant to apple scab, it also tastes great and retains firmness and crispness even after long-term storage. It is widely expected to be the world's first, great-tasting, organically-grown apple. As this variety is also high-yielding when grown on modern trellised systems, there is real potential for orchardists to greatly improve productivity.

While DAFF focuses on the research and development, commercialisation partners are bringing the product to market. After running a competitive tender process to select the most suitable industry partner to commercialise the Kalei apple, a licence agreement was signed with Coregeo—the commercial arm of APAL—to market the variety worldwide. Kalei trees are currently being grown by accredited nurseries and commercial planting has begun.

While the Kalei apple is still on its way to market it is expected to help agribusinesses reduce the use of chemical treatments, improve yields and grow the profitability and size of the industry.

Costs of invasive plants and animals

Invasive plants and animals continue to put significant pressure on agricultural industries in Queensland. Queensland is home to many species that have been either deliberately or accidentally introduced since European settlement (see Figures 5.8, 5.9 and 5.10). Those pest species considered to pose the most significant threat to Queensland are declared Class 1 and Class 2 pests under Queensland legislation. Some species have become invasive, meaning they have spread and multiplied to the point where they can cause damage to agriculture, the environment, human health and recreation. There is potential for the distribution of these pests and new ones to increase across Queensland, causing greater impact to agricultural productivity (see Figure 5.11, 5.12 and 5.13).

A variety of terrestrial and aquatic weed species are normally found in highly-populated areas. (Refer to the following figures for class 1 and 2 pest animals and weeds.)

Figure 5.8 Number of observed Class 1 and Class 2 terrestrial pest plants

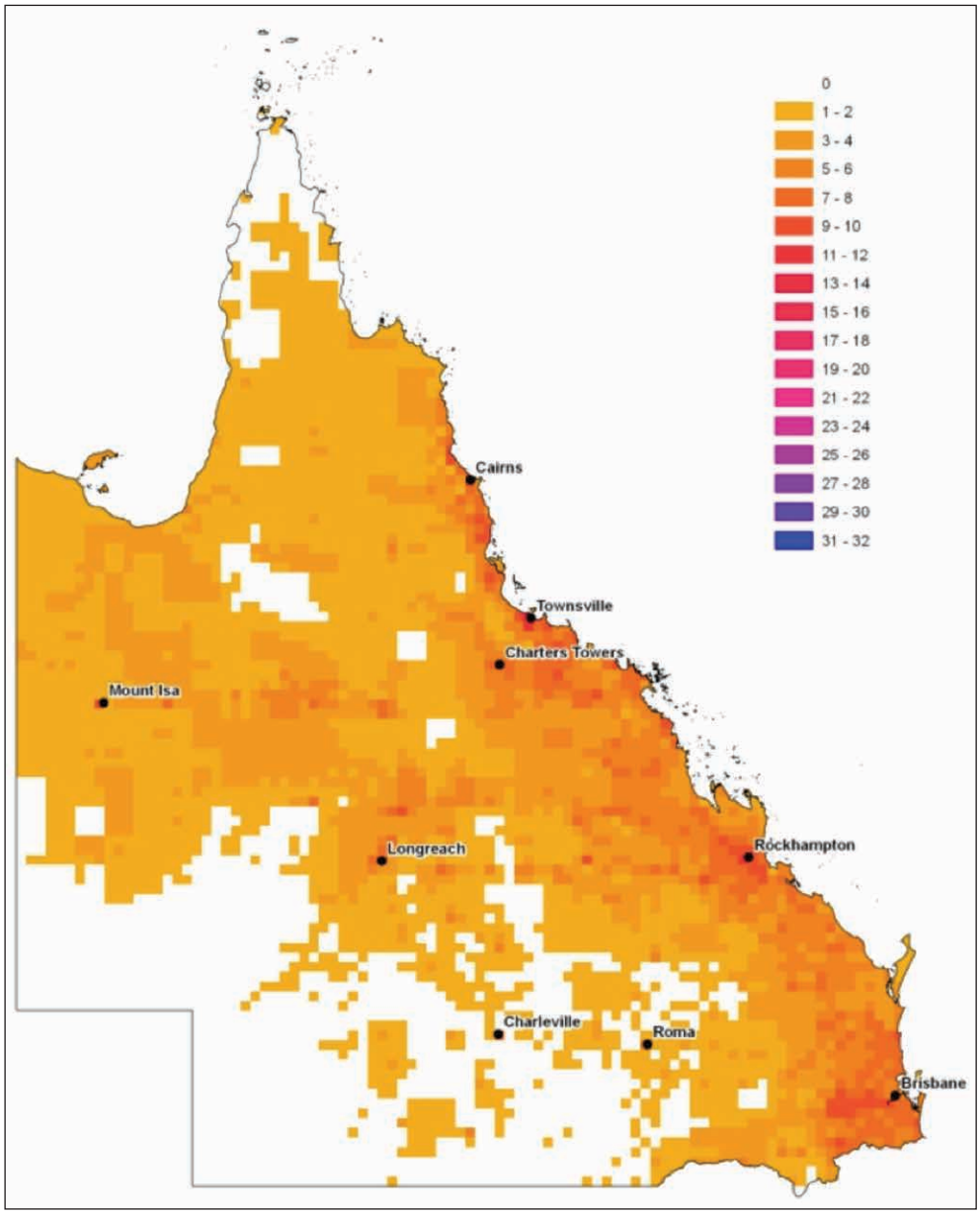
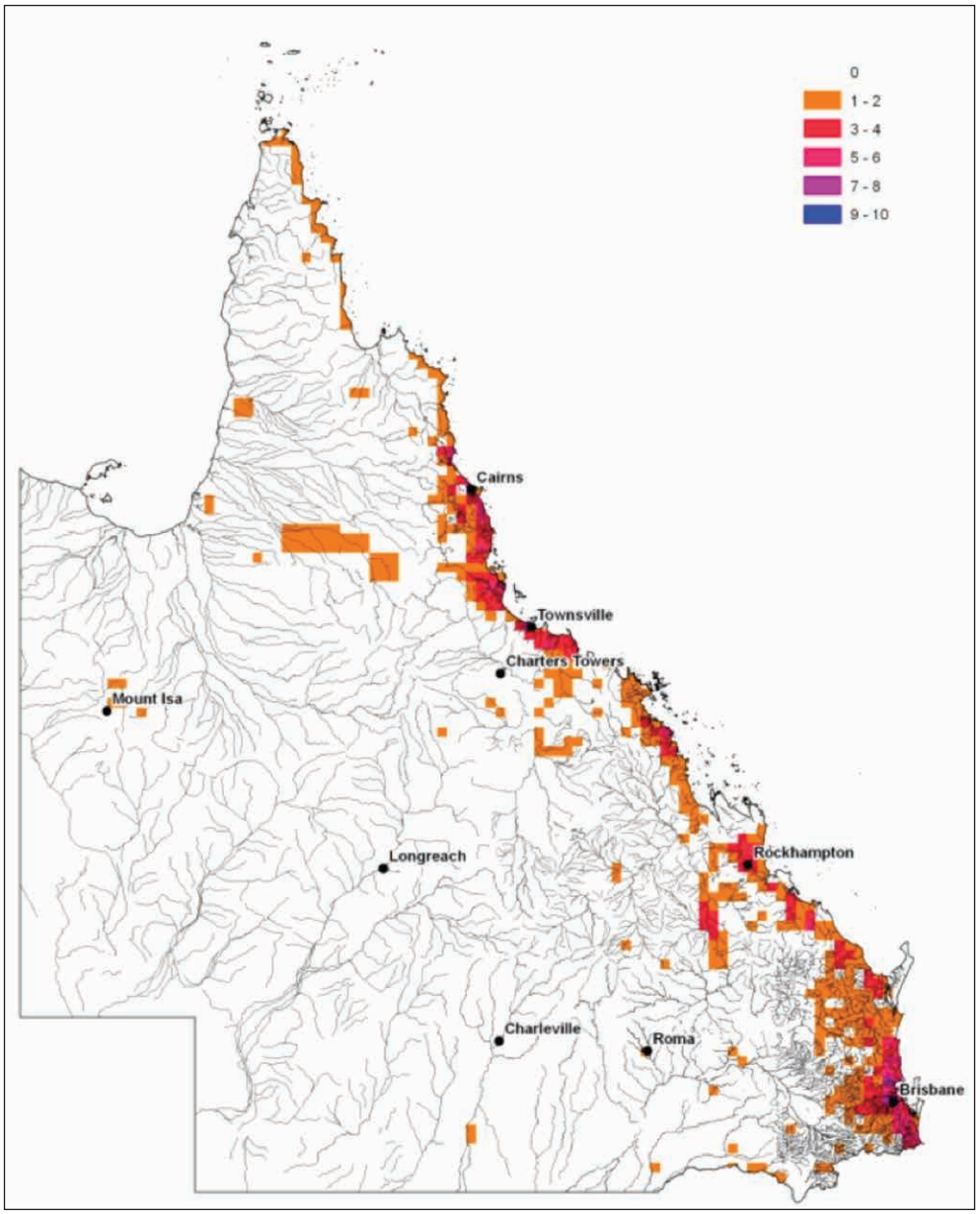


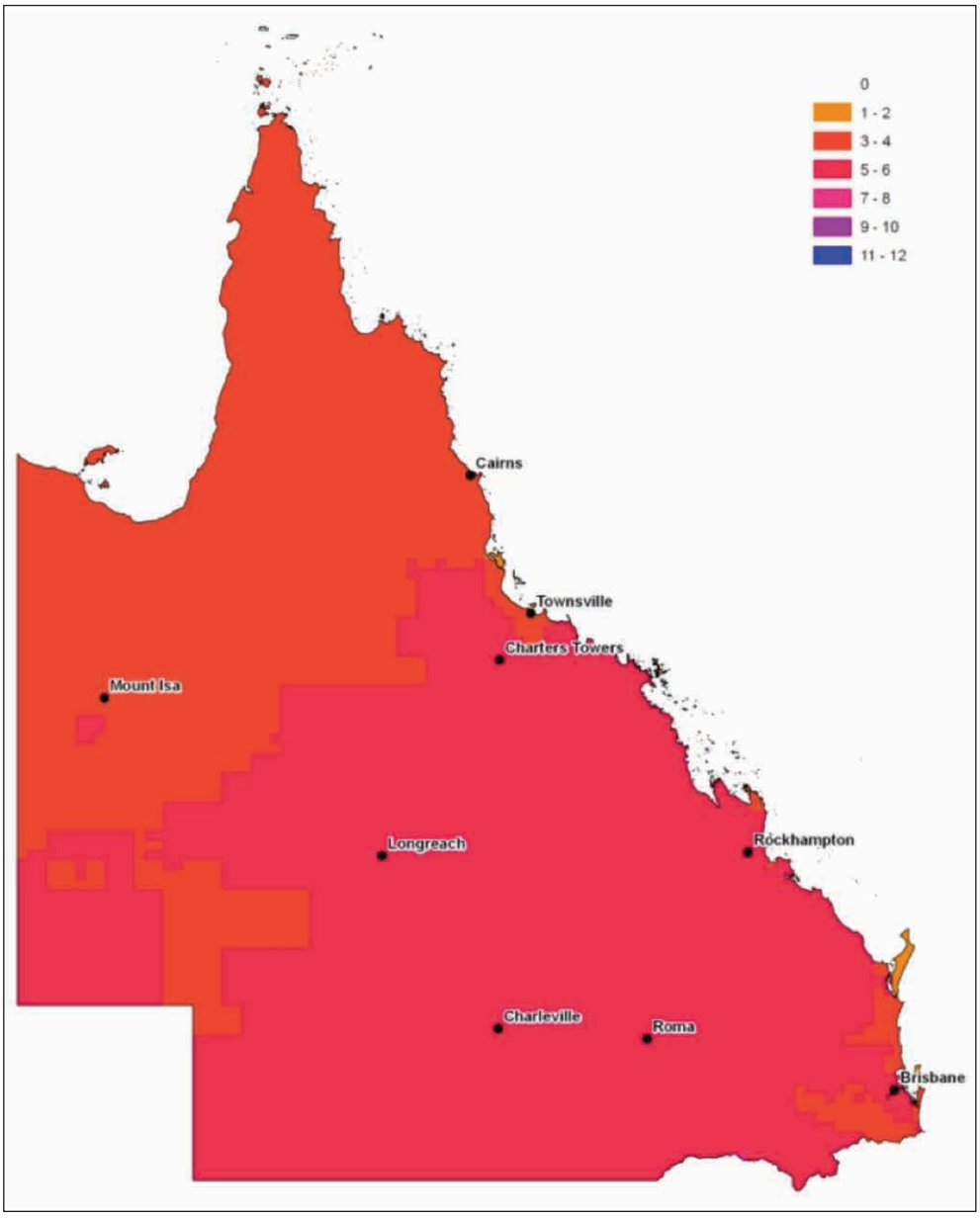
Figure 5.9 Number of observed Class 1 and Class 2 aquatic pest plants



This trend is reversed for terrestrial pest animals where a larger variety of pest animals are observed in less populated, rural areas.[2]

2 Annual pest distribution maps (2011 dataset), DAFF, Queensland Government, 2014, http://www.daff.qld.gov.au/plants/weeds-pest-animals-ants/pest-mapping/annual-pest-distribution-maps

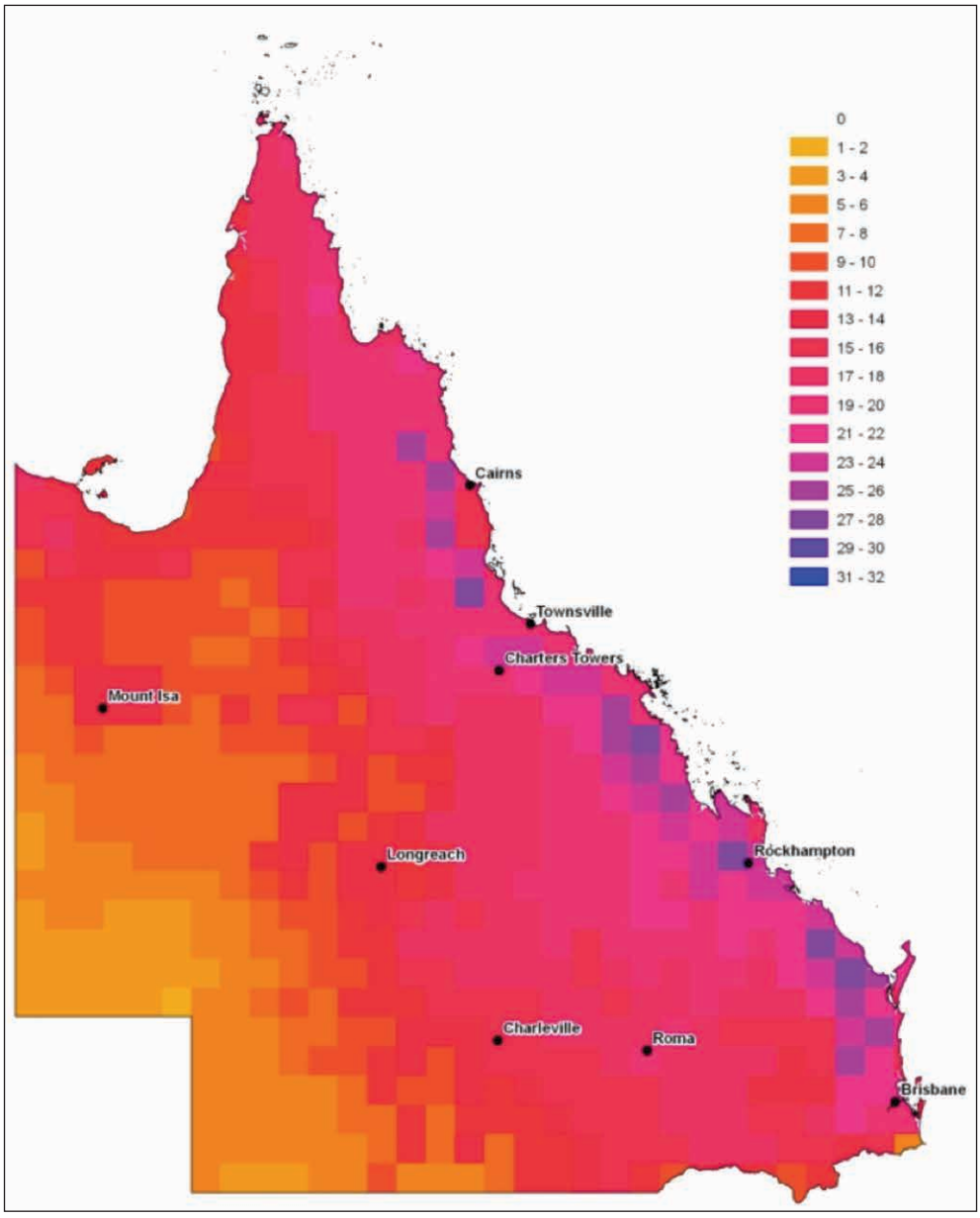
Figure 5.10 Number of observed Class 1 and Class 2 terrestrial pest animals



Potential maximum extent of pests

Based on predictive mapping, current Class 1 and most Class 2 terrestrial weeds do not occupy their maximum distribution and therefore have significant potential to spread.[3] (Refer to figures for potential Class 1 and 2 species distribution.)

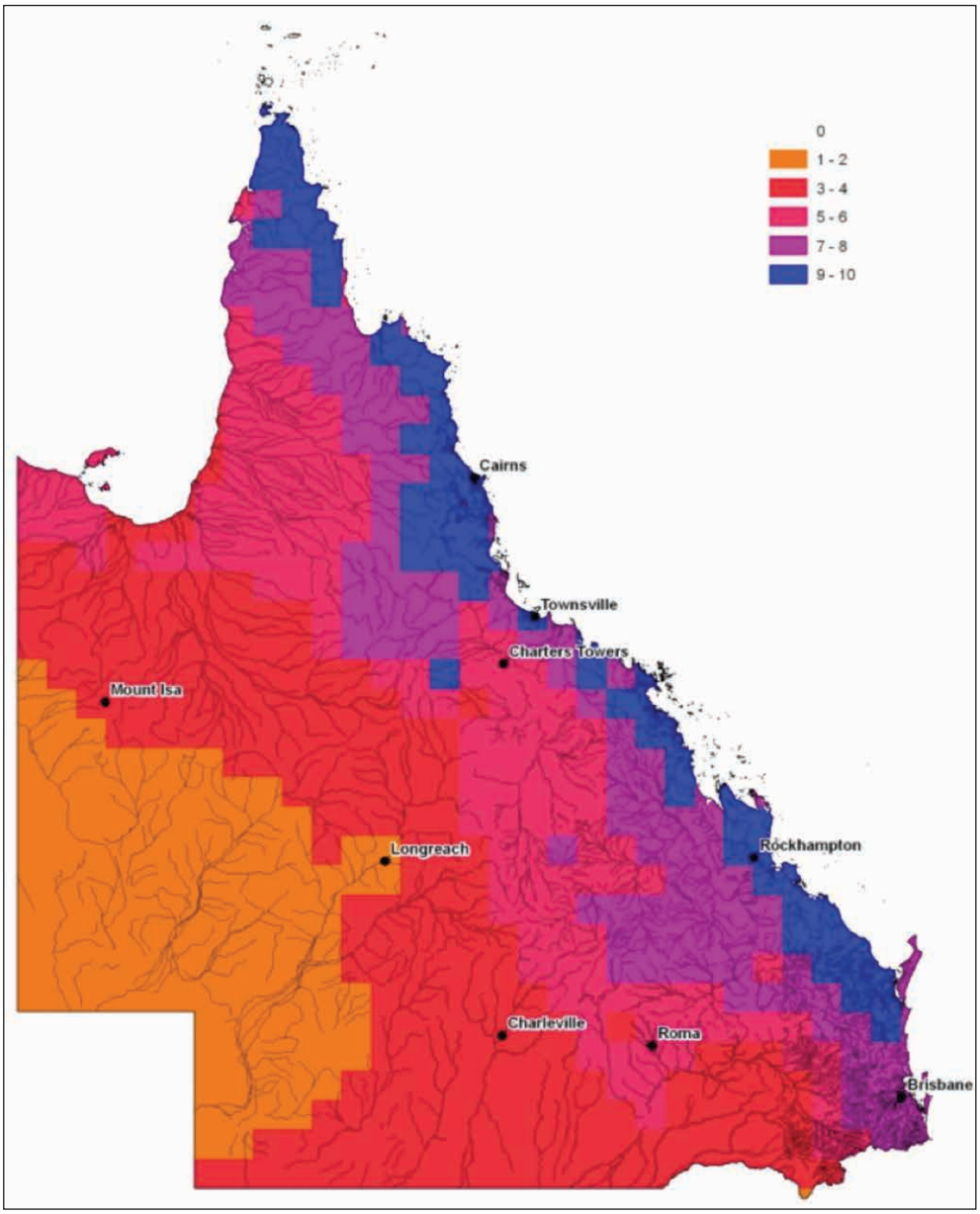
Figure 5.11 Potential number of predicted Class 1 and Class 2 terrestrial pest plants



Aquatic weeds, such as alligator weed, have the potential to increase their current distribution from scattered populations in South-East Queensland to continuous populations along the entire Queensland coast and into future agricultural growth cropping lands.

3 Predictive pest maps, DAFF, Queensland Government, 2014, http://www.daff.qld.gov.au/plants/weeds-pest-animals-ants/pest-mapping/predictive-pest-maps

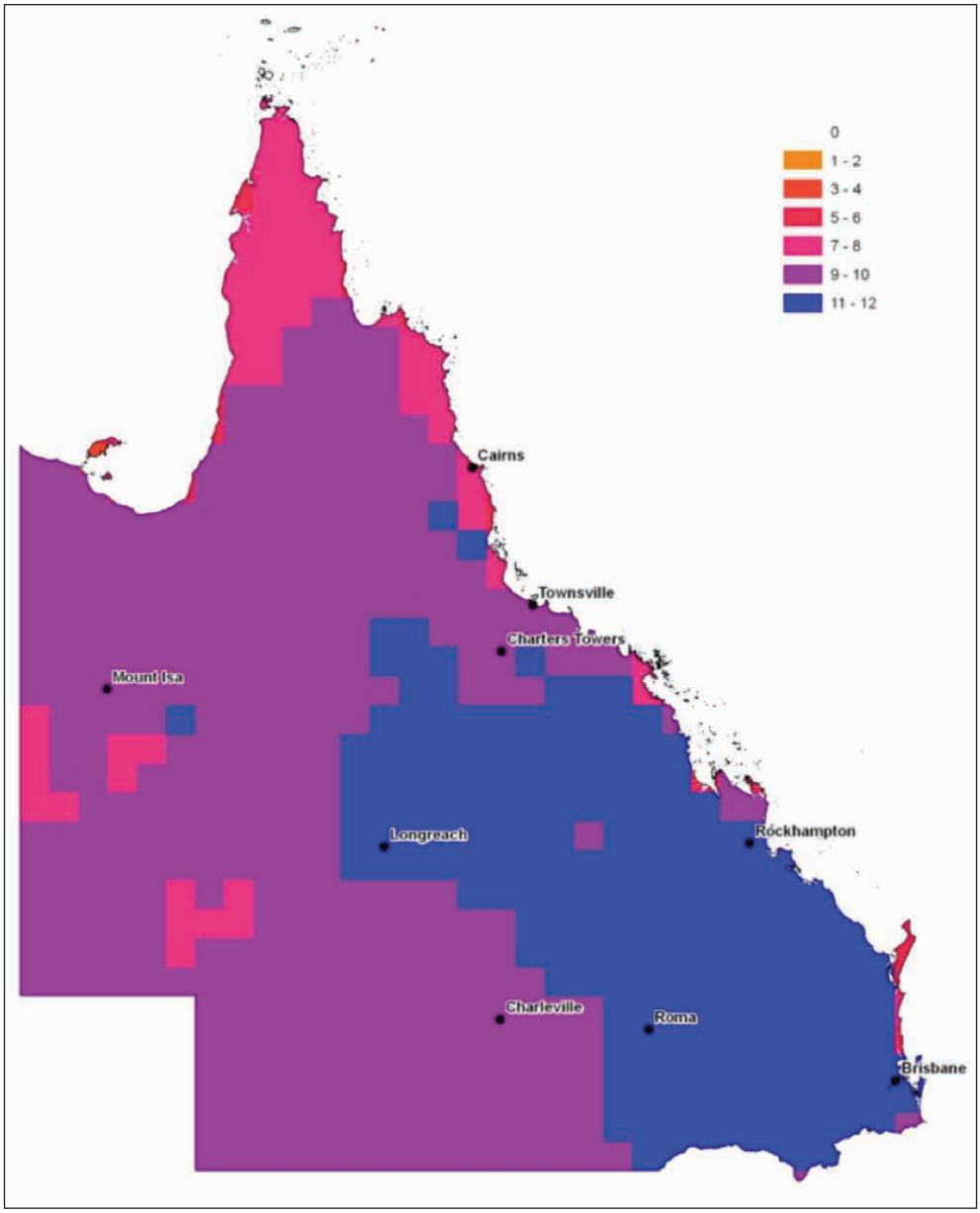
Figure 5.12 Potential number of predicted Class 1 and Class 2 aquatic pest plants



While Queensland is currently free of any formally recognised marine pests the warm climate provides a suitable habitat for pests, such as Asian green mussels and Asian bag mussels, to establish.

With the exception of feral deer most pest mammals are widely distributed throughout Queensland. Continued introductions of other species may also result in further pressure in rural areas.

Figure 5.13 Potential number of predicted Class 1 and Class 2 terrestrial pest animals



In 2013, the Queensland Government's weed spotter project provided 92 notifications on 49 declared and special watch species that have been found for the first time or have expanded their range. While it is important that new incursions are found quickly, pest plants can sometimes be present for many years before they are detected or even recognised as having potentially adverse impacts. For example, red witch weed, which looks similar to other native species, was formally detected in 2013 although investigations indicate it may have been present for some time.

Since 2011, Queensland has seen the arrival of over 20 pest animal species including ferrets, boa constrictors, American corn snakes, a saw-scaled viper, red-eared slider turtles and a Chinese striped-neck turtle. These species have been removed and are not known to be present now.

In 2008 and 2011 areas such as Clifton and Maranoa experienced plagues of mice. Significant increases in rainfall since 2008 produced favourable conditions and population increases for a number of terrestrial pest animals, such as wild dogs, feral pigs and feral deer.

Most pest animals in Queensland were introduced at the time of European settlement as a source of food, and for sport and aesthetic value. Today, potential pest animals are most likely to be introduced legally and illegally as pets, or unintentionally through the transport of goods and people. The small size of invertebrates, the increasing speed of international transport and our proximity to South-East Asia increases the chance of these potential pests being introduced and evading detection.

Pest plants can be introduced through the transport of goods and people. Seeds can hitchhike to new locations via vehicles, machinery and equipment, clothing and on the soles of shoes. Stock movement can also cause weeds to spread if animals consume weed seeds at their point of origin and then defecate them at a location not previously infested. Products such as hay, silage and seed for planting can also be contaminated with weed seed and transported to new sites.

A number of production industries have been identified as potential sources of weed introduction. Approximately 70 per cent of the nearly 2000 agricultural and environmental weeds in Australia began as garden specimens[4], while the others have been introduced through production industries. Increased online trading of plants and seeds make it particularly difficult to control the introduction of potentially invasive species. Plants cultivated for pasture or fodder can also invade adjacent habitats.

Costs related to invasive plants and animals include:

- direct management costs on farms (e.g. for the use of chemicals)
- prevention, detection and eradication program costs incurred at federal, state and local government levels. The 2013–14 budget for Biosecurity Queensland is $93.6 million[5]; while the Federal Department of Agriculture's budget for animal and plant health is $558.9 million[6]
- productivity losses due to the presence of invasive plants and animals, both directly and indirectly (e.g. from increased fire risk)
- costs arising from impacts to the environment, recreation activities and human health etc.

In 2006–07, 86 per cent of agricultural businesses in Queensland reported conducting weed control activities and 81 per cent reported conducting pest animal control activities. Expenditure was $269 million and $182 million respectively, and 52 per cent of these costs were for herbicides and pesticides.

4 Groves, RH, Boden, R & Lonsdale, WM 2005, *Jumping the garden fence: invasive garden plants in Australia and their environmental and agricultural impacts*, CSIRO report prepared for World Wildlife Foundation, Sydney

5 DAFF Service Delivery Statement, 2013–14

6 DAFF Portfolio Budget Statement, 2013–14

According to a report[7] by the Invasive Animals Cooperative Research Centre, the direct economic impact from pest animals is $743 million. The report conservatively estimates that pest animals cost Queensland $215 million per year by preying on livestock, causing crop losses, competing for pasture and spreading diseases. Other uncosted environmental and social impacts include overgrazing, predation, competition, poisoning, spreading diseases to humans and pets, and traffic hazards.

Invasive terrestrial weeds cost Queensland an estimated $600 million each year in primary production losses and control costs. Weeds also degrade the natural environment and can pose health and safety risks for humans and animals, for example parthenium can trigger significant hay fever and respiratory reactions in humans.

Increasing distribution of pest animals and weeds has potentially negative implications for agricultural industries, including:

- rising costs of production
- reduced viability of industries
- damage to water infrastructure
- increased management costs to reduce water weed impacts
- increased costs to prevent spread from machinery and equipment into new areas
- increased social trauma to landholders from stock loss and crop damage.

An internal DAFF report by Price Waterhouse Coopers conservatively estimated that the risk to Queensland from weeds and pest animals would, if left unchecked, escalate to $1.1 billion each year. Specific costs were: $380 million for established pest animals such as wild dogs and feral pigs, $227 million for established weeds such as prickly acacia and parthenium, and $194 million for water weeds including water hyacinth and salvinia.

7 Gong W, Sinden J, Braysher M and Jones R 2009, *The economic impacts of vertebrate pests in Australia*, Invasive Animals Cooperative Research Centre, Canberra

Case study

Sorghum

Local and international interest in more drought tolerant crops, such as sorghum, has intensified as climate variability has impacted agricultural productivity . Sorghum is important to Queensland's economy as it is the world's fifth most important cereal and is a staple food crop.

As a result, Queensland's sorghum research program has grown in importance and Queensland is taking a leading role in sorghum research throughout Australia. Given sorghum's role in food security in Africa, the research program also has international recognition.

The sorghum program is at the leading edge of sorghum-breeding technologies', and is funded by the Queensland Government, Australian farmers through the Grains Research and Development Corporation, seed companies (such as Pacific Seeds and DuPont Pioneer), the Australian Research Council, and the Bill & Melinda Gates Foundation. The research is regionally led from the Hermitage Research Station near Warwick, and other research stations throughout Queensland support testing.

Research focuses on:

- building resistance to the sorghum midge, drought, sorghum ergot and Johnson Grass Mosaic Virus
- increasing genetic diversity and improving hybrids
- increasing feed grain quality
- improving grain yield.

This joint research effort has seen increased yields of 28 per cent since 1985, particularly through high-yielding hybrids such as MR Buster, MR43 and Bonus MR.

A reduction in spraying to control sorghum midge, has significantly reduced (›100 000 litres) the amount of Chlorpyriphos entering the environment. The estimated total average benefit from midge resistance alone is $20 million annually.

As well as 'growers … seeing tangible benefits in their sorghum paddocks' this critical research collaboration has achieved advances in breeding, physiology and bioinformatics—which all help to position Queensland as a knowledgeable economy.

Supply chains

Agricultural producers are major users of Queensland's freight network. This freight network supports producers in getting agricultural commodities to market. Queensland's primary freight network includes:[8]

- 13 600 kilometres of road (supported by state-controlled, local-controlled and franchised road networks — totalling a length of 227 000 kilometres[9])
- 9550 kilometres of rail line (including a combination of publicly and privately managed, narrow, standard and dual gauge lines), plus a further 3980 kilometres of specialised cane rail
- 15 trading ports
- 3 international airports and multiple domestic airports
- 3 key intermodal rail freight terminals and multiple smaller freight terminals and rail sidings.

Figure 5.14 highlights the critical road and rail links that support agricultural producers in getting their products to processors and to market.

Agriculture commodities and their derivatives, including livestock, are the second most valuable export for Queensland. In 2012–13, Queensland exported over 9 million tonnes of agricultural products including food, beverages and live animals (3.2 million tonnes), grains, cereals and cereal preparations (2.7 million tonnes), animal and vegetable oils, fats and waxes (0.3 million tonnes)[10], and sugar (approximately 3 million tonnes). This represents 4.2 per cent of the total volume of exports from Queensland.

8 *Moving Freight*, Department of Transport and Main Roads

9 *Australian Infrastructure Statistics Yearbook 2013*, Bureau of Infrastructure, Transport and Regional Economics

10 *Moving Freight*, Department of Transport and Main Roads

Table 5.4 Transport inputs, 2005–06 ($m)

Industry	Road	Rail	Other	Total
Sheep	4.0	0.3	0.7	5.0
Grains	27.4	2.8	9.9	40.1
Beef cattle	105.3	2.8	10.3	118.4
Dairy cattle	14.6	0.3	0.7	15.6
Pigs	11.3	0.4	0.6	12.3
Poultry	19.6	0.5	4.4	24.6
Vegetables	44.7	1.7	3.4	49.8
Fruit	40.1	1.3	3.4	44.8
Cotton	4.8	0.5	0.4	5.7
Other agriculture	19.4	0.5	1.8	21.7
Services to agriculture	3.5			3.5
Sugar cane growing	22.0	1.7	2.1	25.9
Forestry and logging	2.6	0.1	0.2	2.9
Commercial fishing	5.5		1.0	6.5
Meat and meat products	330.8	6.5	14.3	351.6
Sugar manufacturing	11.4	0.7	10.0	22.2
Other food manufacturing	419.0	42.0	129.9	590.8
Wood and paper manufacturing	139.8	16.0	156.6	312.4
Total	**1 225.7**	**78.3**	**349.7**	**1 653.6**
Percentage	**74.1**	**4.7**	**21.1**	**100.0**

Source: Updated OESR Input–output tables

The road transport sector was responsible for three-quarters of the transport inputs into the agriculture, fisheries and forestry sector in 2005–06 by value, with rail's share under 5 per cent. The industries listed in Table 5.4 were responsible for 15 per cent of the intermediate demand for transport services in Queensland in 2005–06.

In 2011–12, trucks carried 77.9 million tonnes of agricultural products in Queensland. This represented 21 per cent of the national total and 15 per cent of the total tonnage carried by trucks in Queensland. Nationally, road transport of agricultural products increased at an annual average rate of 2 per cent over the decade to 2011–2012.[11]

11 *Survey of motor vehicle use*, Australia, 12 months to 30 June 2012, ABS, 9208.0

The Australian Farm Institute[12] estimated that transport costs were equivalent to 13.1 per cent of the farm gate price in delivering beef from Queensland to Japan, and 13.4 per cent of the farm gate price in delivering bananas from northern Queensland to Melbourne.

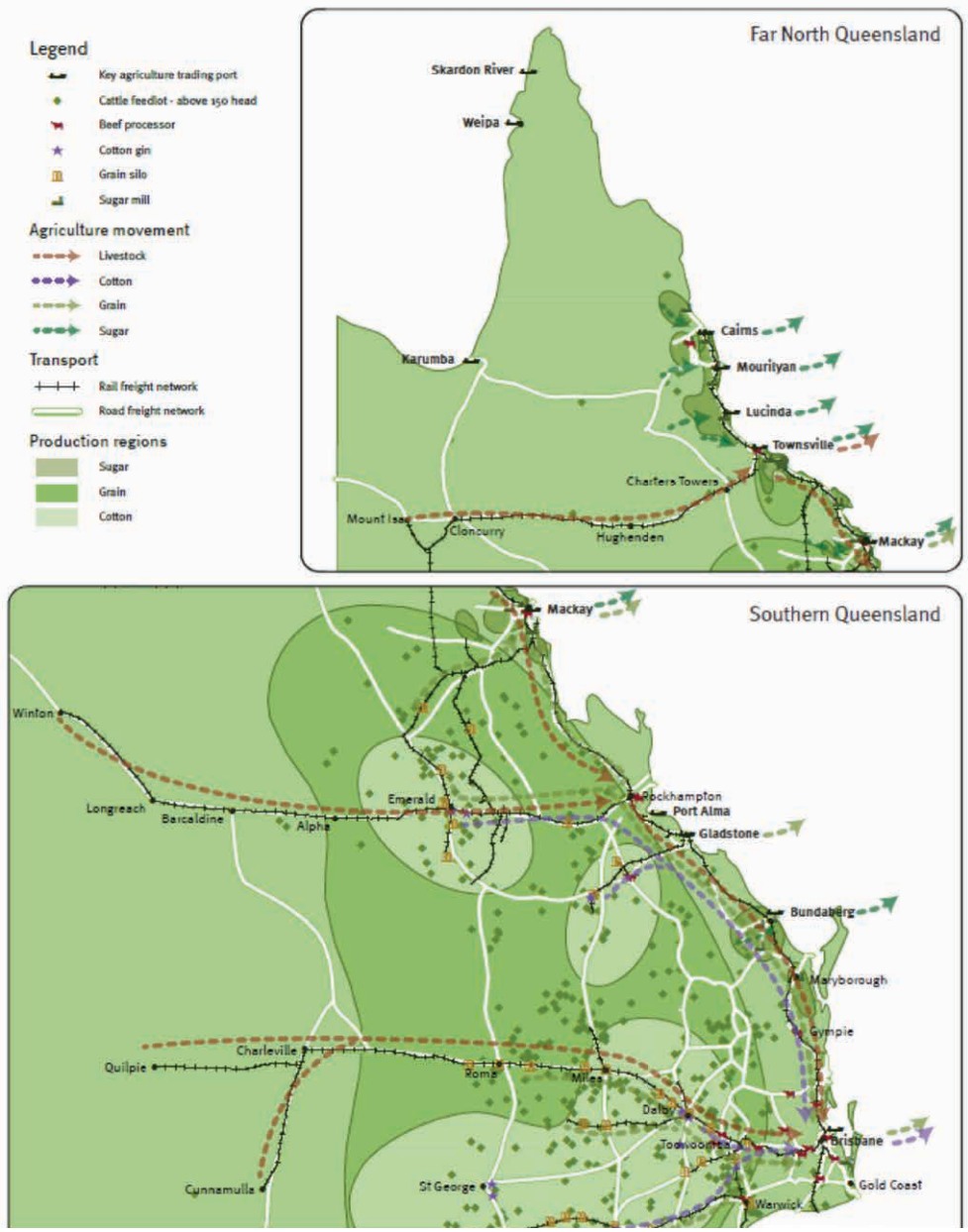
- For the beef case study, road transport from the farm to the processor accounted for 18.5 per cent of the transport cost, road transport from the processor to the port accounted for 20.2 per cent, and sea transport to Japan accounted for 61.3 per cent.

- For the banana case study, the estimate is likely to be affected by the circumstances of recovery from cyclone damage at the time of the case study. The author estimates a more 'normal' figure of 24.6 per cent of farm gate price.

Other case studies in the same study show a wide range of transport costs, ranging from 4.1 per cent of the farm gate price in delivering New South Wales apples to Sydney to 48.5 per cent in delivering New South Wales grain to Japan.

12 *Transport Costs for Australian Agriculture*, December 2011, Australian Farm Institute

Figure 5.14 Key agricultural production areas and critical road and rail links supporting agriculture



Source: *Moving freight – A strategy for more efficient freight movement*, Department of Transport and Main Roads