



# AUSTRALIAN Sugarcane

## AUSTRALIAN SUGARCANE ANNUAL 2018

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**COVER:** We as a nation and an industry are a small player on the world's agricultural stage – it's vital that our reputation for BMP in the field, in the research lab and in the marketplace be maintained.

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**Brian O'Connell.**

# Foreword

● By Brian O'Connell, Editor, *Australian Sugarcane*

In March 2017 cane fields were awash following the arrival of Cyclone Debbie – she had pounded ashore near Mackay and we saw associated flooding and damage along the Queensland coast and in Northern NSW. Qantas was unimpressed by Debbie and kept on insisting they could fly me into Mackay for the 2017 Next Gen Conference. The airport was wisely closed and the conference cancelled, to be reconvened as the 2018 Next Gen Conference, again in Mackay, again in March.

And again, I set off for the Mackay encore conference in March 2018, and again there was a cyclone approaching – this time in the Gulf – and again the fields were awash.

Half of the sugarcane between Townsville and Cairns was inundated and in the Herbert River region around 80 per cent of the cane was awash.

And, as millers, marketers and growers are all too well aware, the world itself is currently 'awash' with subsidised sugar.

The Indian government's guaranteed minimum price for cane and export subsidies for sugar drove a boost in production completely

out of step with global demand.

According to the Australian Sugar Milling Council (ASMC), India produced 32.2 million tonnes of subsidised raw sugar in the 2017–18 crop year – an enormous increase on the 20.3 mt produced in 2016–17. And they're not finished yet – millers expect India to produce another 31.5 mt in 2018–19.

That's 4 million tonnes above their domestic requirements and that's more than our entire export tonnage.

With global production in the 2017–18 crop year tipped by some to exceed 200 million tonnes (mt) – well above estimated global consumption of around 180 mt. The world is indeed awash with sugar and non-subsidised sugar producers like Australia are under the pump.

In 2017–18, Australian cane farmers produced 33.3 million tonnes of cane, a reduction from the 2016 crop of 36.5 million tonnes. As indicated above, this was due in part to the impact of Cyclone Debbie in the early months of the year. Cyclones aside, there were the usual challenges posed by farmers exiting

Mill area 2017–18	Harvested area (hectares)	Tonnes of cane per hectare
Mossman	12,762	92.3
Tableland	4,343	93.5
Mulgrave	12,037	84.8
South Johnstone	22,078	79.4
Tully	29,844	83.7
Herbert River Mills	57,120	88.1
Burdekin Mills	68,754	118.1
Proserpine	21,720	66.0
Mackay Sugar Mills	66,949	74.3
Plane Creek	17,515	66.9
Bundaberg Sugar South	19,261	86.0
Isis	14,150	84.2
Maryborough	9,423	63.6
Rocky Point	3,380	115.0
<b>Queensland</b>	<b>359,965</b>	<b>87.4</b>
Condong	4,455	117.4
Broadwater	6,066	112.7
Harwood	5,035	132.1
<b>New South Wales</b>	<b>15,557</b>	<b>120.3</b>
<b>Total/average</b>	<b>375,522</b>	<b>88.8</b>

Source: SRA.



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A large green John Deere tractor with a harvester unit attached is shown working in a sugarcane field. The tractor is facing towards the right of the frame. The harvester unit is mounted on the front of the tractor, with a conveyor belt and a metal cage holding harvested cane. The background shows a vast field of sugarcane under a cloudy sky.

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the industry, land competition from other agricultural commodities and rising input prices.

A second year of world sugar production surplus and significant sugar price deficit adversely affected the Australian industry. A 2018 SRA Grower Survey saw 55 percent of Australian growers report profits below that of the five-year average. It also reaffirmed that industry confidence was falling due to the sustained low sugar prices, overseas competition and the pervasive negative sugar nutrition media debate.

On a more positive note, and in spite of these negative challenges, the industry exported 3.7 million tonnes of raw sugar in 2017, maintaining Australia's place as the third largest exporter in the world. Advancements were made in trade policy and market access, including the securing of duty-free provisions for Australian sugar into Peru through the Peru-Australia Free Trade Agreement (PAFTA).

So, what did our major industry players see as some of the major issues to emerge out of the year that was?

**Australian Cane Farmers Association (ACFA):** Perhaps the major take home message of the past year was that subsidised sugar production continues to suppress prices and threaten the viability of non-subsidised sugar industries – that's us!

The Global Sugar Alliance of exporting countries says the Indian Government's support package for its sugar industry is a snub to world trade rules, adding a new layer of distortion to the world sugar market.

Already down by 36 per cent in the past year, sugar prices sank to a new 10-year low as the market reacted to the fact that the world market no longer reflects the cost of production in the most efficient producing nations.

**CANEGRROWERS:** Their Annual Report for 2017–18 highlighted that this season was the first conducted with contracts in place that guaranteed grower choice and therefore competition in sugar marketing services.

And this was together with a Sugar Code of

Conduct which had been put in place to curb the regional monopoly power of the milling companies when negotiating with growers.

The organisation has joined with other grower representative groups to present a united front to a panel reviewing the Code of Conduct and is confident that with the backing of the Australian Competition and Consumer Commission, the review panel will agree that the Code should be retained.

**Australian Sugar Milling Council (ASMC):**

In the November issue of Sugar Policy Insights the ASMC puts forward a very different view of the Sugar Code of Conduct. The organisation says that "at this time of global market instability, the last thing our sugar industry needs is to be held back further by unnecessary, restrictive domestic regulation."

The ASMC feels that the federal Sugar Code of Conduct and its mirroring Queensland state marketing legislation are both instruments that ignore the fact that price discovery for sugarcane in Australia is completely transparent and that opportunities already exist for grower price exposure to be managed independent of sugar millers.

**Queensland Sugar Limited (QSL):** In their Annual Report the industry's leading provider of sugar marketing and terminal services suggests that a new era for QSL was ushered in this year. The implementation of Marketing Choice, the transition to new terminal operating arrangements and the new competitive operating environment is reshaping the way QSL does business.

QSL's marketing focus has expanded from 'wholesale' arrangements with millers to include new 'retail' relationships with growers, and from a sub-lessee of Queensland's terminals to a terminal operator for Sugar Terminals Limited.

QSL has spent much time in the past year developing an extensive new range of products to support every aspect of the supply chain that underpins the Australian sugar industry.

**Sugar Research Australia (SRA):** In their 2017–18 Performance Report SRA reassures us that Australia continues to lead the world as the highest producer of cane yield per hectare, maintaining a substantial margin above our competitors. Looking forward, SRA will continue the push to deliver appropriate and effective research and development solutions that are translated into timely on-the-ground outcomes, enabling growers and millers to respond to the challenges mentioned above.

Let's continue to wish them all the luck in the world with that – as a very little fish awash in a very big pond, our industry needs all the support it can dredge up to keep our heads above water!

You're right – enough of the drowning allusions – but when all is said and done, don't you just love it? Agriculture is surely the best gig in town! ■



# World Sugar Outlook 2018–19

● By Benjamin K Agbenyegah, ABARES



## Sugar

Sugar prices to fall to a 17-year low, driven by record world supplies.

### World sugar prices to remain low

In 2018–19 record world sugar supply is expected to put downward pressure on world prices. Higher world production is expected to add to large carry-over stocks, raising world supply above demand for the second year in a row. This is expected to result in a significant increase in world stocks by the end of 2018–19. World sugar prices are expected to fall to a 17-year low in 2018–19 and to remain low over the short to medium term.

Returns to Australian canegrowers are expected to be lower in 2018–19 due to falling world prices. Australia's production is expected to grow due to improved yields. Area planted to

sugarcane is not expected to fall despite falling world prices.

### World sugar production to grow

World production is expected to rise in 2018–19, mostly due to increases in India and Thailand. The area of sugar cane planted in both countries is expanding as a result of government subsidies, and improved seasonal conditions have increased yields.

Support policies in India, Pakistan, the European Union and Thailand continue to insulate farmers in these countries from low world prices that might otherwise provide incentives to plant alternative crops. Farmers in these countries continue to expand sugar beet and cane areas despite falling world prices.

Production in Brazil is expected to fall slightly as more cane is allocated to ethanol production. But global exports will be sustained by production increases in Australia, China, India and Thailand.

**TABLE 1: Sugar outlook<sup>a</sup>**

Category	Unit	2016–17	2017–18 <sup>fs</sup>	2018–19 <sup>f</sup>	%change
<b>World<sup>b</sup></b>					
Production	Mt	178.0	193.0	194.0	1.0
–Brazil	Mt	41.1	37.9	36.9	–3.0
Consumption	Mt	181.0	183.0	186.0	2.0
Exports	Mt	68.8	67.0	66.0	–1.0
Closing stocks	Mt	72.5	82.5	90.6	10.0
Stocks-to-use ratio	%	40.2	45.1	48.7	—
Price	USc/lb	17.3	13.0	10.0	–23.0
<b>Australia<sup>c</sup></b>					
Area	'000 ha	372.0	380.0	385.0	1.0
Production	Kt	4804	4700	5000	6.0
Exports	Kt	3970	3843	4005	4.0
–value	A\$m	2424	1798	1639	–9.0
Return to cane growers	A\$/t	44.4	33.4	29.8	–9.0

<sup>a</sup> Volumes are raw equivalent. <sup>b</sup> October–September years. <sup>c</sup> July–June years. <sup>f</sup> ABARES forecast. <sup>s</sup> ABARES estimate.

Sources: ABARES; Australian Bureau of Statistics; Australian Sugar Milling Council, Annual Review, Brisbane; F.O. Licht, International Sugar and Sweetener Report, World Sugar Balances, Ratzeburg, Germany; International Sugar Organization, London; US Department of Agriculture, Washington.

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## Challenges and opportunities

### Health awareness constraining growth in demand

Falling world prices are expected to lead to some growth in world sugar consumption in 2018–19. But world demand growth is being constrained by health concerns, slow population growth in advanced economies and a substitution towards alternative sweeteners.

Future growth in world sugar demand will depend on income growth in developing countries and whether increasing health-consciousness in these countries limits per person consumption. Expected health policy changes in emerging and developing economies are likely to reduce longer-term growth in

demand, and place downward pressure on prices.

### Indian and Pakistani exports

In 2017–18 government support policies and favourable seasonal conditions in India and Pakistan drove local sugar production to record levels. As a result, India resumed exporting after a 3-year break and Pakistan became a net exporter for the first time. Continued exports from these countries could displace Australian and Brazilian exports in Asian markets.

### EU exports

Sugar production is sustained by subsidies and protected by high import tariffs. In 2017–18 a large sugar surplus resulted in the European Union becoming a net exporter for the first time since 2006. Prior to this, local production had gradually been displacing imports. The abolition of production quotas in 2017 means that EU sugar exports are no longer limited by WTO rules. This allowed the European Union to more than double its sugar exports in 2017–18 to around 3.4 million tonnes (raw equivalent). If the current trend of EU exports continues, it will put further downward pressure on world sugar prices in 2018–19 and into the foreseeable future.

### Brazilian biofuel policy

Trends in the management of Brazil's biofuel policy supports ABARES forecast of low world sugar prices. Government support for biofuel production in Brazil is expected to continue, but the ability of Brazilian mills to switch production back to sugar whenever demand rises is likely to keep prices low.

### World trade

Preliminary 2018 EU and Chinese sugar yield estimates are well above average, suggesting sugar production in these countries could be even higher than expected. A global trend of sugar importing countries becoming sugar exporters is likely to lead to new patterns of world trade at lower prices.

**FIGURE 1: Forecast change in sugar production, major producing countries, 2018–19**



**FIGURE 2: World Price Outlook for all Australian Crops 2018–19**



# A snapshot of Australian agriculture

● By Tom Jackson, Kirk Zammit and Steve Hatfield-Dodds – ABARES

**T**HIS article addresses the current state of Australian agriculture, with the aim of providing key information and statistics in one place. It covers six key aspects of Australian agriculture: its role in the broader economy, trends in production, industry structure, exports, productivity and risk management.

## Agriculture's place in Australia

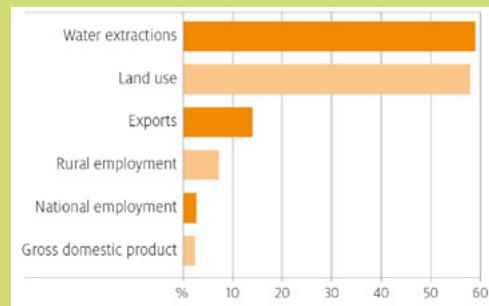
Australian agriculture accounts for:

- 58 per cent of Australian land use (385 million hectares, excluding timber production) and 59 per cent of water extractions (9,434 gigalitres used by agriculture in 2015–16);
- 14 per cent of goods and services exports in 2016–17; and,
- 2.7 per cent of value added (GDP) and 2.5 per cent of employment in 2016–17.

The mix of Australian agricultural activity is determined by climate, water availability,

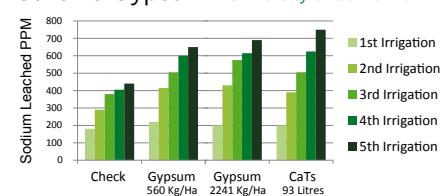
soil type and proximity to markets. Livestock grazing is widespread, occurring in most areas of Australia, while cropping and horticulture are generally concentrated in areas relatively close to the coast (see figure 2).

**FIGURE 1: Selected contributions of agriculture**



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CaTs vs Gypsum - University of California



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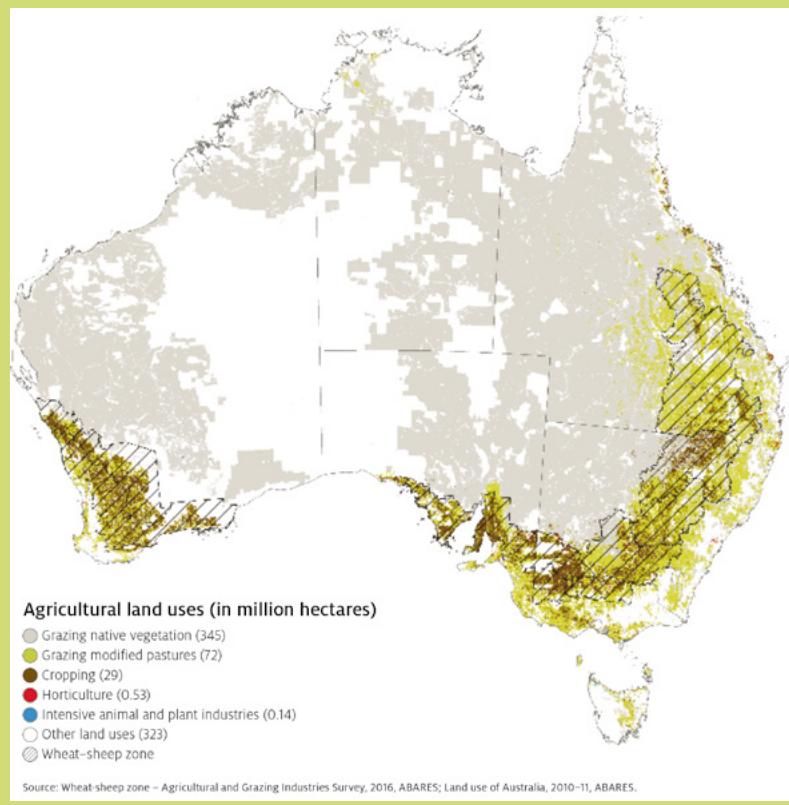


## Agricultural production is growing

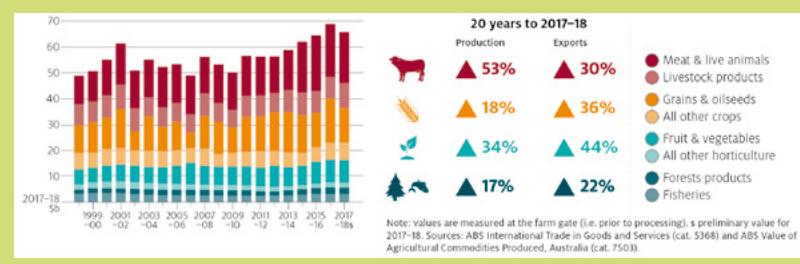
The value of agriculture, fisheries and forestry production has increased by 34 per cent in the past 20 years in real terms (adjusted for inflation), from approximately \$49 billion in 1998–99, to around \$66 billion in 2017–18 (Figure 4).

Drivers of output growth over the past 20 years vary by sector:

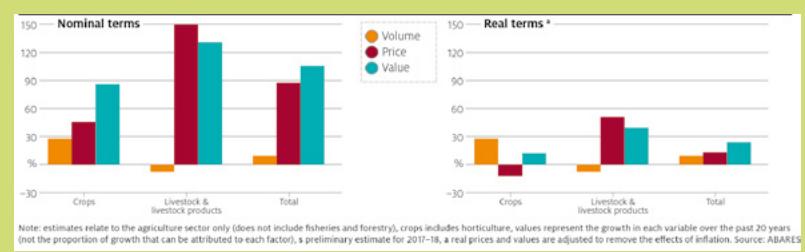
**FIGURE 2: Agricultural production zones**



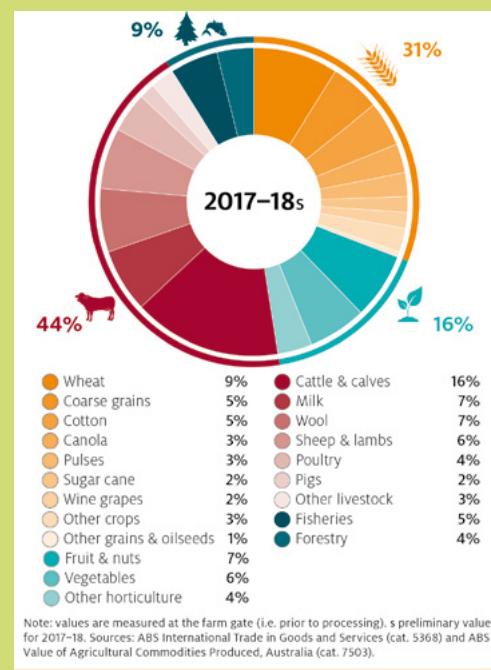
**FIGURE 4: Agriculture, fisheries and forestry production, 1998–99 to 2017–18<sup>s</sup>**



**FIGURE 5: Contributions to increased value of agricultural production, 1998–99 to 2017–18<sup>s</sup>**



**FIGURE 3: Agriculture, fisheries and forestry value of production, by commodity, 2017–18<sup>s</sup>**



- In cropping, falls in real prices have been offset by volume growth as producers have improved productivity by adopting new technologies and as the area sown to crops has expanded.
- In livestock, higher prices have been the main driver of growth, reflecting growing demand for protein in emerging countries, but also some temporary factors such as drought in the US.

Drivers and patterns of growth vary within the crop and livestock industries – for example the dairy and beef sectors have developed in different ways, and grown at different rates, in response to different circumstances, as have the grains and horticulture sectors.

## Economic performance is driven by the most productive farms

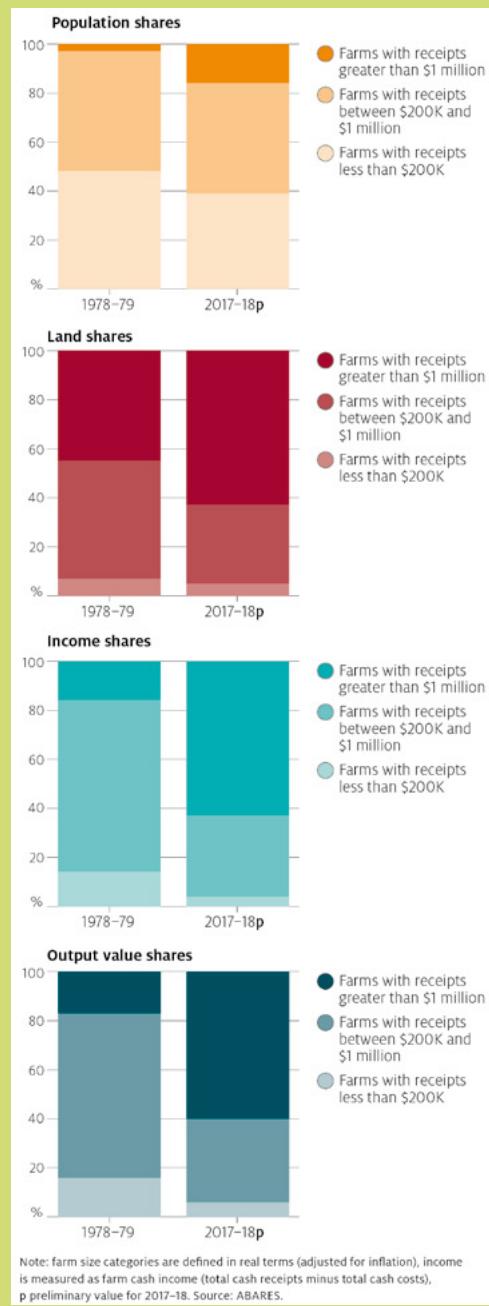
Sector-level trends in performance are driven by the largest and most productive farms. A range of factors has seen large farms (with receipts above \$1 million per year in real terms) grow from around three per cent to around 16 per cent of the farm population over the past four decades, while their share of output has increased from 25 per cent to around 60 per cent of the value of output, as shown in Figure 6.

The structure of Australian farms reflects market conditions, which tend to see the best managers operating the largest farms. Farm sizes have increased over time, in terms of both total receipts and land area, as the number

of farms has decreased. Increased farm size has supported improved productivity through several channels: providing access to better technology; allowing better and more flexible labour management (supporting higher labour productivity); better knowledge management; diffusion of better farm management practices; and access to positive economies of scale. These changes have been supported by deregulation of most agricultural markets and economy-wide microeconomic reforms.

Within individual regions and sectors, larger farms tend to be more productive and profitable.

**FIGURE 6: High-revenue farms now account for one fifth of the broadacre population but two thirds of land, income and output**



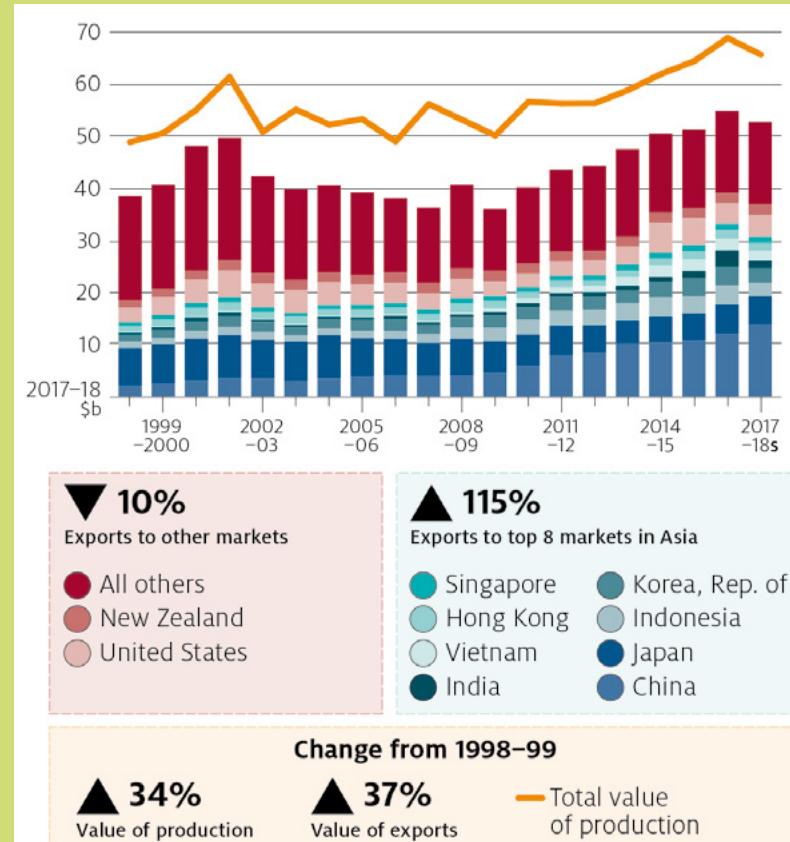
For example, preliminary analysis suggests that if all farms had the same output per hectare as the highest performing 20 per cent of farms, the total value of broadacre agricultural output would be around 18 per cent above current levels, and farm income (receipts minus costs) would be around 24 per cent above current levels. This reflects the higher productivity of larger farms, and highlights the importance of structural change (which enables farms to grow) for industry-level competitiveness.

While smaller farms are less profitable on average than their larger counterparts, these households compare favourably with the Australian population as a whole, with comparable income, lower debt, and greater net wealth than the average Australian household.

## Around two thirds of agricultural output is exported

Australia exports around twothirds of the total value of agriculture, fisheries and forestry production.

**FIGURE 7: Agriculture, fisheries and forestry exports by destination**



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The value of agriculture, fisheries and forestry exports has grown over the past 20 years (Figure 7). Meat and live animals has been the fastest-growing export segment, growing 79 per cent in value over the 20 years to 2017–18, followed by forest products (up 53 per cent) and fruit and vegetables (up 52 per cent).

Australian farmers generally export a higher proportion of primary products than our traditional competitors such as the US and EU,

although exports are of increasing importance to some key competitors such as Russia and Ukraine for wheat (see Figure 8). Greater reliance on exports means Australian producers typically face stronger competitive pressure, as output prices are largely determined on global markets.

- Export intensity varies across commodities around 98 per cent for wool and cotton, 71 per cent for wheat, 76 per cent for beef, 41 per cent for dairy and 18 per cent for horticultural products, over the three years to 2016–17.

Global agricultural demand is growing very strongly, reflecting rising per capita incomes as well as population growth, but export competition is also increasing. Asia is the fastest growing export region for the Australian agriculture, fisheries and forestry sectors.

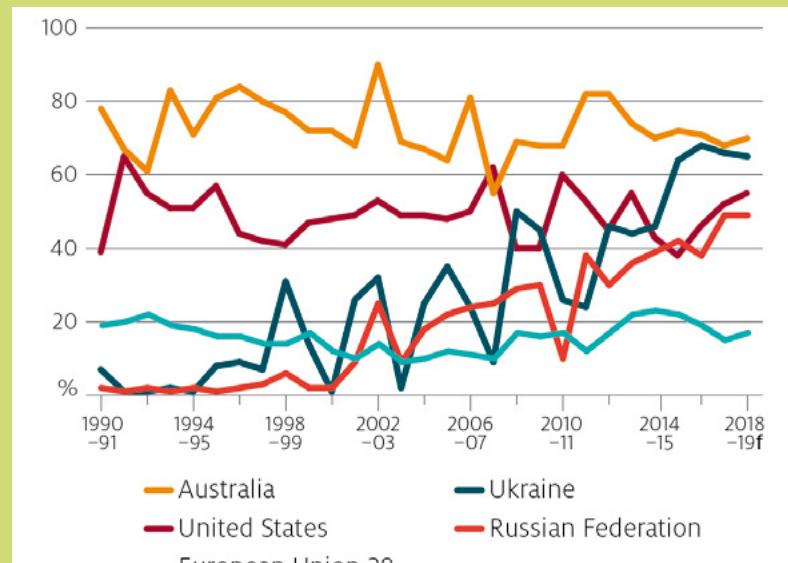
- Exports to Australia's eight largest markets in Asia increased 115 per cent to \$31 billion over the 20 years to 2017–18 and accounted for 58 per cent of the total value of agriculture, fisheries and forestry exports in 2017–18.
- China is Australia's single largest export market for agriculture, fisheries and forestry at close to \$14 billion in 2017–18. Exports to China are about 7 times larger than they were in 1998–99.
- Asian demand is projected to double between 2007 and 2050, providing opportunities for exporters of high value, high-quality agricultural and food products.

## Australia is a competitive producer because of productivity growth

Australian farmers have historically achieved strong productivity growth, increasing the volume of output produced from a given set of inputs. Agricultural productivity growth has been comparable to competing farmers in other high income countries (Figure 9) and faster than

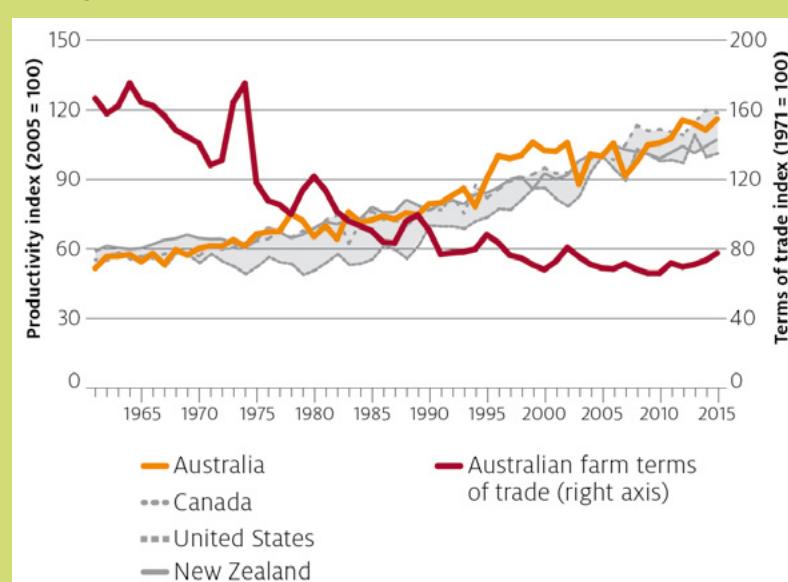


**FIGURE 8: Export intensity of wheat industry**



Note: variable represented is share of production volume exported in each production year. Source: ABARES, USDA Foreign Agricultural Service (PSD).

**FIGURE 9: Agriculture productivity growth and terms of trade, 1961 to 2015**



Note: 100=2005. Shaded area represents agricultural productivity growth for Canada, United States and New Zealand. These data compare productivity growth over time, and do not represent the level of productivity in each country. Source: ABARES, United States Department of Agriculture Economic Research Service.



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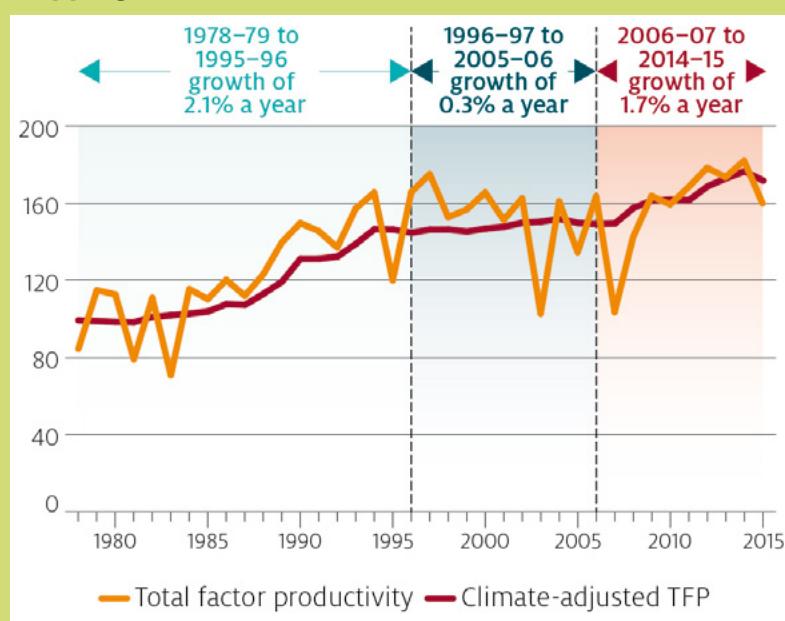
other sectors of the Australian economy. This growth has been driven by improvements in technology and structural change.

Productivity growth plays a crucial role in offsetting the impacts on farm profit of ongoing declines in the terms of trade (declines in output prices relative to input prices – see Figure 9). In addition, while Australia is a relatively small agricultural producer globally, we are a significant exporter and must therefore produce at an internationally competitive cost to be profitable. Maintaining international competitiveness (often against subsidised competitors) requires ongoing productivity growth to keep up with improvements in other countries.

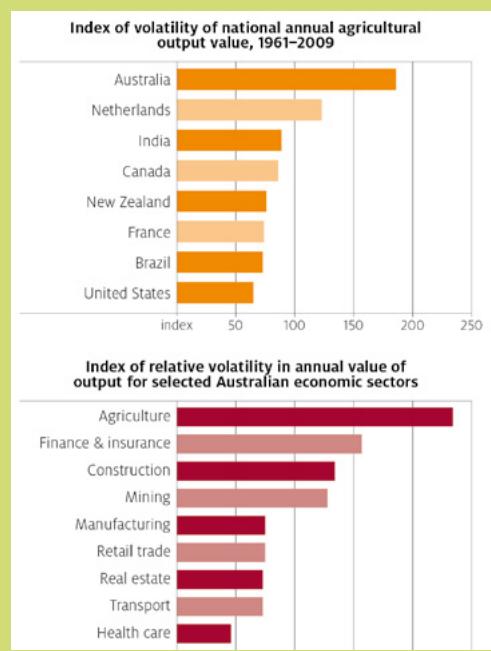
In recent years, agricultural productivity growth has slowed for a number of reasons. These include deteriorating seasonal conditions and less intense research and development efforts, although there is some evidence that crop producers have adapted to changing to climate conditions and in doing so have partly restored productivity growth (Figure 10). Ongoing efforts to reinvigorate productivity growth will be needed into the future.



**FIGURE 10: Climate-adjusted productivity growth, cropping farms, 1978–79 to 2014–15**



**FIGURE 11: Australian agriculture is highly variable internationally and domestically**



## Australian farmers manage significant risk and variability

Australian agricultural producers manage very significant variability, including a highly variable climate and volatile commodity prices. These factors generate substantial variation in farm output, greater than that experienced by farmers in most other countries, and greater than that experienced by business owners in other sectors of the Australian economy (Figure 11).

Australian farmers have a number of effective strategies for managing risk, including maintaining relatively high levels of equity, liquid assets and borrowing capacity, using inputs conservatively, diversifying across enterprises and locations and earning off-farm income. Well managed farms are better prepared for droughts and other risks, such as global price shocks, and not all farmers in regions affected by drought experience economic or financial hardship.

Over the past 20 years, an average of 42 per cent of broadacre farms generated more than \$50,000 (in real terms) in farm cash income in a given year. Farm cash income is the difference between a farm's total cash receipts and its total cash costs. This proportion varies substantially with seasonal conditions and prices, from 28 per cent of farms in the drought year of 2006–07 to 66 per cent in 2016–17.

Drawn from: Jackson, T, Zammit, K & Hatfield-Dodds, S 2018, Snapshot of Australian Agriculture, Australian Bureau of Agricultural and Resource Economics and Sciences, Canberra.

Available at:  
<http://agriculture.gov.au/abares/publications/insights>

# Precision ag offers whole-of-farm overview

**S**ECOND generation cane farmer, Talbot Cox and his family have never shied away from investing in technology to better their production, with many considering them pioneers of ag tech in the cane industry.

Their ongoing adoption of precision ag technology has been facilitated by farm management solutions company, Vantage NEA, formerly BMS LaserSat.

Lew Brandon and Kevin Muspratt co-founded Vantage NEA in 1979 and immediately started working with the Cox family.

In conjunction with multiple family businesses, Talbot runs "Rocks Farming Company" (RFC), approximately 3000 hectares of irrigated sugar cane production based in the Burdekin, North Queensland.

## Precision ag approach essential

For Talbot, the more informed he is about issues on farm, the easier he finds it to make good management decisions to improve production.

To stay informed he has continued to adopt

precision agriculture methods into his farming practice. Precision ag has always been an essential part of the family's business.

Since Vantage NEA's inception, the Coxes

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have used their solutions extensively, starting with Spectra lasers for land levelling and then transitioning to using the Trimble GPS Field Level II to maintain irrigation flow across their fields.

Fifteen years ago, two of the first Trimble Agriculture auto steer systems in Australia went into tractors at RFC, installed by Vantage technicians.

Since then, the Coxes have initiated a strict, controlled traffic regime across their farm.

With their fleet equipped with a mixture of FMX and the updated TMX 2050 displays, all of the Coxes' fields the row spacings are 1.6 metres and one kilometre long.

Auto steer has allowed them to minimise compaction in their paddocks and reduce implement crop damage.

### **Yield monitoring**

Every harvester that cuts the Coxes' cane has a yield monitor, developed by Vantage. The yield monitor uses Trimble's GPS position and remote logging capabilities to reference a location against feedback from a sensor which distinguishes between heavy and light cutting conditions.

The information from the yield monitor is then referenced with the mill records, giving an accurate representation of yield variation within each block.

This has allowed Talbot to identify the low performing areas within his blocks and make informed management decisions on how to improve them.

"Low performing areas of the farm reduce profitability," he said. "We're looking at trying to have every hectare of the farm producing to a maximum."

### **Low yield reveals high sodicity**

Using data from the yield monitors, Talbot was able to identify the low yielding areas. Soil testing of these areas revealed high sodicity levels.

He then used the yield monitor data to develop a variable rate prescription for gypsum to be spread across the paddock, applying a higher tonnage to areas with high sodicity.

"It hasn't necessarily meant I've used less gypsum, but it's ensured I'm putting the targeted amount on areas that require more, which makes it economically viable" he said.

To further understand any soil issues prohibiting maximum yield production, Talbot has started to use Vantage's unique soil analysis process, the Soil Information System (SIS).

The system uses multiple technologies and intelligent targeting algorithms, to determine locations within a field that are substantially different to the rest of the field's soil.

These points are then further investigated with a unique Soil Probe, and undisturbed soil cores are collected to a depth of 1200mm and sent to a chemistry lab for analysis.

The post processed soil maps created from the SIS results provide spatial context and relevance to soil information.

Talbot said the soil analysis has been another layer of information that he can compare with his yield monitor data, further informing him of any soil issues in the paddock.

The forms and processes of precision agriculture are continually evolving. All farmers now can access tools at various levels of cost and sophistication that will inform and refine their management decisions. ■

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## AREA ROUNDUP

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### OVERALL COMMENT

*The Area Roundups are drawn from reports supplied by growers over the past year. As per usual the weather has been challenging with the traditional mix of cyclones, floods and drought.*

## SECTION 2 AREA ROUNDUP

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# Mossman/ Tableland

● By Gerard Puglisi,  
Northern Director

## Summer 2017-18

Looking back, 2017 would be classed as a normal year rainfall wise with around 2600ml falling for the year. The Mossman Mill tipped its last bin for the 2017 season at 6.03 pm on the evening of November 12. The Mossman Mill processed a total of 875,952 tonnes of the estimated 1,180,000 tonnes, with a CCS of 13.25 in the 23-week season. The Tableland Toll Crushing of around 300,000 tonnes of Mossman Cane was also completed in early December. With Mossman having a November finish and some favourable weather condition, most farmers were well placed with their fertiliser and spraying programs.

The crops in the Mossman and Tablelands regions were looking good and if weather conditions remained favourable, the signs were there for another reasonable crop for 2018.

## Autumn 2018

We had one of the wettest starts for a long time. In Mossman the wet season was one of the wettest in around 15 years. The northern



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### Client feedback:

*The drift section was very engaging and interesting. Geoff made the course very enjoyable and thorough – N Dodd.*

*Great presentation. Good demonstrations. Clear explanations with good examples gained by experience – R Cooper.*

*Trainer proved to be very well informed in this subject. Great to listen to – G Peters.*

*Clear, easy to understand. Good material. Great examples. Good props. Great presenting – S Rowland.*



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crop generally handled the wet start well but there were early reports of some major erosion damage in the district.

With the cyclone season drawing to an end and a relatively normal if wet summer, the crops in all the northern areas were looking like an average season.

The estimate for the Mossman Mill was 1,152,000 tonnes to be crushed in around 23 weeks. Around 300,000 tonnes were to be Toll crushed by the Tableland Mill and around 850,000 tonnes to be crushed by Mossman Mill.

Local farmers were looking for some dry weather to start their planting programs.

## Winter 2018

The 2018 Mossman sugarcane crushing season started on June 4 as scheduled and MSF's Tableland Mill started on June 5 – also as scheduled.

Early indications of CCS were that the coast was running around the low 12s and the Tablelands around the mid-high 12s so the early signs for sugar content were looking like an average crop. November 2 was the predicted finish date for the Mossman Mill.

There were 7445 hectares of area under cane on the coast and 4915 hectares on the Tablelands.

In July most farmers were well into their planting programs.

## Buying Mossman Mill

In mid-July, Far Northern Milling Pty Ltd announced that it had entered into a conditional contract to buy Mossman Mill from Mackay Sugar Limited. Chairman of Australian Cane Farmers Association and Director of Far Northern Milling, Don Murday, said that he was incredibly pleased with the outcome, "The situation has been fragile for some time. But when the Tableland growers confirmed their support to continue to supply cane to Mossman Mill we knew there was a pathway forward to keep the mill viable."

## October–November 2018

The 2018 crush is drawing to an end with the Mossman Mill aiming to be finished around the second week in November barring any major weather events or major breakdowns.

As most people in the industry are well aware, six years after selling Mossman Mill to Mackay Sugar, farmers from the region are now set to buy the asset back with plans to make more than just sugar crystals into the future.

Far Northern Milling Pty Ltd a company which has representatives from Mossman and Tableland Canegrowers and Australian Cane Farmers Association have entered into a conditional contract to purchase back the Mossman Mill. The transaction is aiming to be completed soon after the completion of the 2018 Crush.



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## SECTION 2 AREA ROUNDUP

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Far Northern Milling has been overwhelmed by the support of the Farmers from both regions to commit tonnages to ensure the Mill can remain viable into the future. Farmers for both regions have also committed significant funds to help with the process undertaken to purchase back the Mill.

Far Northern Milling is also very pleased that Douglas Shire Council has made the announcement that they will be providing up to \$250,000 to Far Northern Milling towards the due diligence process. They have also been fantastic in supporting FNM with letters and meetings with both tiers of Government.

The Foundations are in place to buy the Mill and secure the future for the farmers, mill workers and the township of Mossman.

The toll-crushing agreement of around 300 000t of Mossman cane from the Tableland area through the Arriga Mill, which has been underway since the start of the crush has progressed well and the Arriga Mill is due to complete its season a couple of weeks after the Mossman Mill finishes.

In regards to this year's planting there was a slight reduction in the original forecast of the area planted due to the dry weather and the uncertainty of the future of the Mossman Mill ownership. For the cane that has been planted it has been a relatively good growing period with a dry start and just enough light showers through September to help keep it going till we hopefully receive a decent amount of rain to really help kick it along. With most of the 2018

planting nearing completion in the region, most farmers have now shifted their focus to starting their fertiliser and spraying routines.

If the dry weather continues reducing the need for major weed control and farmers are on top of their fertilising programs the signs are there for another decent crop on the coast for 2019.

In mid-September a handful of Mossman growers attended a shed meeting run by MSF in conjunction with Peanut Company of Australia (PCA) at Paul Rossi's farm at Aloomba. The meeting looked at the potential use of peanuts as not only a fallow crop, but an alternate cash crop to incorporate into farming systems.

The main points out of the day:

- Paul and Andrew have been growing peanuts in their fallow for several years, Paul having grown them for over a decade;
- In that time both have seen a steady increase in the price of peanuts;
- Neither grower has ever lost a crop due to weather or otherwise;
- Peanuts have immense soil health benefits with both growers claiming to have increased cane yields in the following plant crop;
- Peanuts require a significant amount of attention to spraying. It is common to be spraying every seven days from Week 2 to Week 16 (average 20-week full cycle planting to picking);
- Best as summer alternate crop as would require irrigation for winter cropping;
- Don't grow well on clay/heavy clay soils as the pods will stick when digging, but can be grown on nearly every other soil type – hardy plant; and,
- Average yield of four tonnes per hectare and price to sell between \$750–\$1200 per tonne.

It was a successful day with a lot of interesting conversation. Thanks to the growers who made their way to Aloomba to attend.

All in all the 2018 crush has been a good year and the Mossman/Tableland regions are not in a bad situation for next year's crop. We are relying on the weather conditions being favourable and also Mill reliability continuing to improve, for the Mossman Mill to finish in a reasonable timeframe and have a reasonable chance for hopefully Far Northern Milling to have a decent first crop through the rollers in 2019.

### NORTHERN REGION 2017 HARVEST SUMMARY

Mill area	Tonnes	Tonnes per hectare	Average CCS
Tableland	405,935	93.5	14.00
Mossman	1,178,515	92.3	13.38
Mulgrave	1,020,656	84.8	12.16
South Johnstone	1,801,983	79.4	12.02
Tully	2,496,485	83.7	12.93
<b>Northern Region production: 6,903,000 tonnes</b>			





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# South Johnstone/ Mulgrave/Tully

● By Michael Camilleri,  
Northern Director

## Summer 2017–18

2017 finished off with plenty of rainfall and good cane growth. But the hot weather that followed put a stop to growth and the cane began to brown. Not to worry, 2018 turned up with much more rain – nearing 600 mm in 48 hours in a week!

Because growth was delayed, the crop had not advanced as far as it usually would have. During the final stages of 2017 season, South Johnstone mill was delayed for approximately five days due to an extensive breakdown to No. 5 mill that couldn't be remedied, despite a colossal effort to get it working. The only solution was to build a bypass chute to complete the crushing.

## Autumn 2018

Mill employees were busily repairing and upgrading the mills following a difficult end to the 2017 season.

A number of harvesting groups expanded their haulage bins to coincide with the mills upgrading to six tonne bins.

Low sugar prices were weighing on minds everywhere with the high dollar exacerbating the reduced prices.

Tropical Cyclone Nora dumped consistently heavy downpours along the North East before Easter. The Gulf got the wind but we got the rain – a total 1345 mm for March with a highest daily of 193.2 mm. There was widespread flooding over the entire North Johnstone river system from the Tablelands to Ingham.

## Winter 2018

June in North Queensland blessed us with clear skies and vibrant green crops dusted with purple flowers. A reminder that the season was upon us.

Mill operations were scheduled to commence on Tuesday June 12. With three major flooding events during the growing cycle, tonnage numbers were sitting just under the 2017 levels.

We enjoyed some glorious harvesting weather! Some mornings arrived chilly but an abundance of blue skies had the harvesters active and warm.

By early August, South Johnstone Mill had crushed 423,896 tonnes with a season to date CCS of 12.05. Mulgrave Mill had crushed 346,237 tonnes with a season to date CCS of 12.57. This equated to 28 per cent of the seasons estimate for both mills.

The proposed finish date for South Johnstone was November 10.

## October–November 2018

The skies are clear and the grass is crunchy. Which can only mean the rain has been hibernating offshore. With the water asleep it has been easy to get work done without major interruption. The weeds have been battling to survive but thankfully the crop hasn't suffered yet.

South Johnstone Mill is at 63.9 per cent of estimate crushed with a season to date CCS is 13.07 which is exceptional for us.

Mulgrave Mill is at 59.4 per cent of estimate and is knocking it out of the park with a season to date CCS of 13.65.

Tully Mill is at 65 per cent of estimate with a fantastic CCS of 14.2.

And a big congratulations to South Johnstone – achieving a mill daily CCS of 15.15 on September 25. For years, the 15 level has been an unbeatable opponent but the dry

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weather got it over the try line. It is pleasing to see the dry weather give us a high CCS when the sugar price is low.

Expected season finish date for South Johnstone is November 19th with an allowance of 4 more wet days. Mulgrave Mill is looking to wrap up a little later on December 9 and Tully Mill in the first week of December.

We started the year with April floods after 1346 mm of March rain, reduced to a trickle in August and September with 11.8 mm and 23.6 mm respectively.

Unfortunately, the sugar price has made a similar move down, and with it, Australian farmers' morale.

After news of India's industry receiving the equivalent of an \$850-million assistance package, including help to export its subsidised sugar, the global price plunged below 10 US cents/pound overnight. This price is well below our cost of production.

Australian farmers have had to find ways reduce inputs like fertilizer and planting costs to curb spending through this period of overproduction. Despite this, a considerable amount of planting has still taken place with the aid of forward marketing assisting some growers to offset this year's costs.

## Herbert River Region

● By Carol Mackee,  
Herbert Director

### Summer 2017-18

Crushing finished on December 22, 2017 with a total of 5.033 million tonnes of cane crushed making 2017 the fourth time in history where the region has topped the five million tonne mark. This was 110,000 tonnes above the original forecast. The season average CCS was 12.95.

Very wet conditions at the end of the season saw around 40,000 tonnes of cane left as standover. The wet conditions were trying with equipment bogging and harvester operators and haul outs struggling to harvest the remaining tonnes.

Once the cane was cut and the season ended for the year the cane started to suffer with dry conditions for the next month. There were some storms around but these were hit and miss with some areas receiving good rains – more coastal than inland. These weather patterns now seem to be the normal rainfall event. Hit or miss!

Yellow Canopy Syndrome started to show in

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85m BOOM



50m BOOM



T50

T100

T150-2

T200-2

T250-2

T300-2

T300 TURBO

T400-2

T450-2

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T200-2

T250-2

T300-2

T400 TURBO

T450-2

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the ratoons as soon as the conditions became dry. Some paddocks were showing quite a lot of symptoms.

### Autumn 2018

March saw extreme weather conditions with excessive rainfall from Cyclone Nora and then Iris. Ingham was inundated with floodwater and the outlying areas cut off from town for more than a week.

In between the second weather event with more rain falling we managed to attend the Next Gen Conference held in Mackay. There were around 200 people who were going to attend but owing to the flooding rains a few people couldn't make it. Those who attended thought it was the best Conference they had been to.

Ingham flooded for the second time and some of those travelling North had to stop in Townsville until the road cleared. Farmers were bearing the brunt of what Cyclones Nora and Iris dumped on Ingham. Road damage, paddock and cane damage, river bank damage and so on.

A very trying time especially with low world prices to contend with as well. This year looked like being one we wish to forget.

### Winter 2018

Our June target was to cut 4.8 million tonnes of cane in 2018. The flood damage was a worry – especially for the sugar content – and low prices were making it a struggle.

The crush got under way on June 12 but was short lived with Macknade Mill having trouble with the new shredders that had been installed. Victoria Mill also had early trouble with a boiler, but staff resolved the boiler problem and ran both milling trains through the night – the mill was fully commissioned and the first sugar produced.

Cockatoos were causing serious problem with big flocks giving the cane a hiding. Feral pigs also needed to be controlled along with rats. Yellow Canopy Syndrome was also still a problem.

August saw cold weather which we haven't experienced for years along with dry and dusty conditions. There were a couple of showers nearer to the coast but you couldn't see where they had gone.

We had the lowest prices in 10 years and wondered what more was in store.

### October–November 2018

There is no doubt that Australia is a land of extremes.

At the end of last year approximately 40,000 tonnes of cane were stood over for the 2018 crush because of excessive rainfall at the end of the season.

In February/March we had two floods resulting in flooded paddocks. The water covered the cane a little too long and the cane rotted causing it to side shoot and lowering the CCS – and weight.

Not a great start for the 2018 season with low world prices because of India dumping sugar on the world market and at the same time protecting their farmers with subsidies. We supposedly market our sugar on a level playing field but we know there is no such thing.

From floods to dry conditions with cane on sandy ground starting to die. Rainfall has been mostly a non- event since the end of July. Some parts of the district closer to the coast have had rain while the western areas have missed out. The early storms have been a hit and miss affair. Again, the western area only receiving a ml or two – just enough to settle the dust.

At the driest time of the year the EPA has lit up the mountains in the Hebert with 25–30 knot winds behind these fires. The land has been left bare. Birds who depend on foliage and grasses have lost their nesting habitat. The fire has burnt all the vegetation along the river so that bush turkeys, scrub hens and crocodiles relying on vegetation for nesting will not be able to have access to grasses and leaves. People who walked down from Blencoe said they couldn't even stay in the scrub as the trees were burnt and were crashing down everywhere.

The heaviest rainfall occurs between the river and mountains and now there is little or no vegetation to stop any run off. When the storms arrive, water quality becomes an issue with landslides and washouts. None of this is the farmers' doing but they get the blame for soil being in the waterways and ending up on the Great Barrier Reef.

There have also been large herds of cattle in the State Forests and with no source of food following the fires, they have been crossing the river and eating plant cane and ratoons. There is anywhere from 30–50 head of cattle eating a crop which we cannot afford to lose because of the costs involved along with low world prices. All the farmers along the river belt in Abergowrie have been eaten out more than once. What sort of a crop will farmers have with the extremely dry conditions we have been experiencing?

There is also the health issue with the smoke in the air. We have all had sore eyes



and asthma. In fact, we have been passively smoking for weeks. The smoke has been like a blanket of fog morning and night.

The State Government allows the EPA to do this sort of damage. These people do not have an environmental bone in their bodies!

During the year we have held more soil improvement meetings which have been very well attended.

The shredder on B Side at Victoria mill has been causing a lot of grief and over the past couple of weeks had to be removed and sent to the Burdekin for repairs. On its return to Ingham the mill workers and engineers worked tirelessly for 24 hours over the weekend to put it back in working order so that both sides of the mill were back in production. As farmers, we appreciated their efforts but it has put the season behind.

The Code of Conduct is under review and meetings with farmers in all relevant districts were conducted by Government officials and treasury. The meeting in Ingham was very well attended. Farmers were able to have their say. It was an excellent meeting and the officials were left in no doubt that the Code was of extreme value to growers.

Ongoing issues are the new reef regulations, tree clearing and glyphosate.

As we come to the end of the year, we hope everyone is able to harvest all of their cane as the rains are not far away.

We also hope India is held accountable for dumping of sugar because not only have they been subsidising their farmers for their crop, they have been subsidising their fertiliser costs as well.

And finally, we hope 2019 proves to be a better year for all.

#### HERBERT 2017 HARVEST SUMMARY

Mill area	Tonnes	Tonnes per hectare	Average CCS
Herbert River Mills	5,033,000	88.1	12.95
<b>Herbert production: 5,033,000 tonnes</b>			

## SECTION 2 AREA ROUNDUP

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## Burdekin Region

● Compiled by the editor

### Summer 2017-18

The Home Hill Harvest Festival is an annual event that celebrates the end of the sugar harvesting season and has been running since 1963.

The week-long program of events had just drawn to a close when Wilmar Sugar's Invicta Mill was the first Burdekin mill to finish the season in late November. In early December, Invicta was followed by Kalamia, Inkerman and, on December 5, Pioneer Mill.

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## SECTION 2 AREA ROUNDUP

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Wilmar Sugar announced that it would spend more than \$51 million on capital works and maintenance at the Burdekin mills going into the 2018 crush. There was to be a strong focus on reducing factory downtime and improving reliability in 2018.

Wilmar Sugar announced a season start date of June 12 for its Burdekin, Herbert and Sarina mills. The Proserpine Mill was to start crushing a week later on June 19.

General Manager Cane Supply and Grower Relations Paul Giordani, said the start dates were based on a pre-season crop estimate of 16.22 million tonnes across Wilmar's four milling regions – a slight increase on 2017's total of 15.76 million tonnes, due to good recovery in cyclone-affected crops in the Proserpine and Sarina regions. It was also helped by exceptional plant crops and good early cut crops in the Burdekin region.

### Autumn 2018

Wilmar reached the end of a big maintenance season, which had seen more than \$50 million invested in capital and maintenance projects across the four Burdekin mills. Wilmar also installed Australia's largest raw sugar bin at Pioneer Mill and invested millions of dollars upgrading their sugar rail lines to heavier axle loadings.

These projects were key elements in Wilmar's new rail freight arrangements, which will see Pacific National haul raw sugar from the Burdekin to the Port of Townsville in 88 new-generation sugar wagons.

The new sugar bin will provide an additional storage buffer for the Burdekin region and the rail upgrades will ensure the new, larger sugar wagons can operate safely on the track.

### Winter 2018

In early August the continuing dry saw the Burdekin crop estimate revised down from 8,460,000 to 8,040,000 million tonnes.

A new sugarcane variety approved for growers in the Burdekin region was named after its joint developers – Wilmar Sugar and Sugar Research Australia (SRA). The new variety is called WSRA17 and it is the first to carry the 'WSRA' prefix since the naming convention for new sugarcane varieties changed in 2015.

SRA Variety Officer for the Burdekin, Ms Catherine Kettle, said WSRA17 produced good tonnes per hectare when compared to standard commercial varieties in trials, its CCS was slightly lower than comparison varieties in trials, it was resistant to leaf scald, and was intermediate/susceptible to sugarcane smut. WSRA17's parents are Q208 and Tellus. Q208 was the most popular Australian variety in 2017 and represented 30 per cent of the entire Australian sugarcane crop.

### October–November 2018

The Burdekin cane crush was around the 75

per cent mark at the end of September and it was estimated that there was just six to seven weeks to go – if weather and breakdowns were not going to interfere. Invicta, Pioneer and Kalamia were expected to finish on 8 November, with Inkerman finishing on November 11.

Throughput for the Burdekin mills remained ahead of forecast and CCS continued to trend above budget with weekly averages around 16 units. Invicta Mill had the highest weekly CCS of all the Burdekin Mills in Week 16 with 16.02.

Inkerman Mill crushed out in the early hours of November 16, bringing the Burdekin season to a close. The four Burdekin mills processed a total of 8.02 million tonnes of cane this year, but the headline achievement is the region's high sugar content.

At 15 units, the Burdekin's season average CCS is the highest in the Australian sugar industry for 2018.

Burdekin Regional Operations Manager Paul Turnbull said this year's average CCS was also the highest recorded for the Burdekin in about 15 years. "The high CCS levels are a bright spot for the local industry this year, especially as the dry weather has contributed to a downsized crop," Paul said. "I'd like to acknowledge the efforts of growers, contractors and our local employees in getting this year's crop off the ground and through the mills."

### BURDEKIN 2017 HARVEST SUMMARY

Mill area	Tonnes	Tonnes per hectare	Average CCS
Burdekin Mills	8,121,000	118.1	14.02
<b>Burdekin production: 8,121,000 tonnes</b>			

## Central Region

● By Steve Fordyce,  
Central Region Director

### Summer 2017–18

Mackay Sugar called a halt to the 2017 crushing on December 4 leaving about 160,000 tonnes of cane in the field. It was the second consecutive year a substantial amount had been stood over. The year before 350,000 tonnes went uncut. Marian Mill, the last of Mackay Sugar's three mills crushing, was no longer able to access the 12,000 tonnes a day required to remain viable because many fields were too wet to harvest after widespread rain.

Rain started mid-October and falls kept on coming until December. When the crushing stopped – so did the rain. There were no useful rain events until the first weekend of February. The crop for the coming season didn't look too good after such a promising start.

The wet season eventually improved from February to the beginning of April. The rain

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events in general have been effective rainfall events. The crop at this stage has been estimated at 4.8–5 million tonnes of cane. The crop has been affected by seven months of moisture deficit during the current growing season.

Cyclone Iris passed by but no significant damage was recorded – very unlike the 2017 visit from Cyclone Debbie.

High winds over waterlogged fields resulted in lodged cane but if the rain allowed on farm water storages to be filled.

### Autumn 2018

QSL came to see Mackay Sugar growers in April and presented their offer to market GEI sugar on the growers' behalf. Growers cannot exercise their option until the 2020 season because of the current RSSA in place for the 2019 season.

The weather was much kinder this year for Next Gen Conference, much to the relief of the organisers! The Conference was well supported by exhibitors and sponsors and well attended by growers. The presentations were excellent.

### Winter 2018

Mackay Sugar commenced harvesting and crushing on May 29. The estimate was for 5.01 million tonnes.

Stand-over cane remained an issue although there wasn't as much as in the previous season. Stand-over effects cane quality and PRS. We were encouraged again this year to harvest it early. The mill agreed to pay for cane under 7 PRS once again until it reached 50 per cent of the crop harvested.

Sugar Research Australia released two new varieties of sugar cane specifically for the Mackay region that are more resilient to Pachymetra root rot, and leaf scald.

The Supreme Court of Queensland handed down its decision in Parkinson v Mackay Sugar. The decision handed down in favour of the Parkinson and Pauls concluded that despite there being no issue about whether Mackay Sugar had consulted with the parties, the changes made by Mackay Sugar to Annexure D of the Cane Supply and Processing Agreement (CSPA) to seek to recover the \$2 per tonne grower contribution for those growers could not be done without the agreement of their bargaining representatives.

Mackay Sugar, Canegrowers and ACFA reached agreement on the \$2 per tonne grower contribution on May 23, 2017, and this agreement binds Mackay Sugar and the growers represented by these bargaining representatives.

The \$2 per tonne grower contribution was vital to the maintenance program of the mills and provided some improved performance this season.

The primary aim was to crush all the cane this season and not leave standover cane.

The continuing dry weather saw the harvest estimate dropped to 4,800,000 tonnes.

Most plant cane areas had to be pre-watered before planting and late season cane was also being irrigated.

These added costs in the face of increasing energy and water prices combined with a falling sugar price were making it hard to make decisions for next season.

### October–November 2018

The crop for the 2018 season has again been adversely affected by the weather. The rain which brought the season to an early in December 2017 stopped in December. The growing months of December and January received no rain and placed the crop under enormous stress.

In the growing season from July 2017 to June 2018 we received about 800 mm of rain which is half of average rainfall. This reduced the crop available for the 2018 season.

The crop size appears to be around 4.8 million tonnes of cane. The sugar content is more than a unit higher than last year. Mill performance has greatly improved. We should see a sugar make much improved on last year. Crushing should be completed in early November.

Mark Day was appointed Chairman of Directors following the AGM and was also appointed CEO of Mackay Sugars operations. The initial plan to sell the Cogeneration business to reduce debt and use some of the funds to recapitalise the sugar milling process did not result in a buyer. This has meant the business is seeking a partner or buyer to improve the position of the business.

Currently no announcement has been made. It is hoped some announcement on progress would be known by the AGM. The current crop size and the falling sugar prices are making it more difficult to attract a suitor.

The drought has created increased demand for molasses and Bio Dunder products. The reduced crop size in the area impacted on the making of molasses. This has reduced the amount of Bio Dunder available to farmers. Contractors have been made aware of the shortfall and farmers will need to be prepared to make other arrangements.

The livestock industry which likes to use molasses as a drought feed supplement has also been impacted.

BMP is being steadily rolled out. Many farmers are currently involved with the program and hope to receive accreditation in the following months. Understanding the nutrient management guidelines has been a challenge after many years of managing farms under past recommendations.

In the next twelve months the way ahead for Mackay Sugar will become clearer. The subsidised Indian export sugar has put sugar

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in the price range where production costs are greater than proceeds being received for growing the crop.

The sugar industry needs some good fortune very soon to get it out of this current glitch. A break in the weather and a recovery in the sugar price are essential and would be a welcome start for a return to greater confidence across the industry.

### CENTRAL REGION 2017 HARVEST SUMMARY

Mill area	Tonnes	Tonnes per hectare	Average CCS
Proserpine	1,434,000	66.0	13.67
Mackay Sugar Mills	4,974,000	74.3	13.16
Plane Creek	1,172,000	66.9	14.02
<b>Central Region production: 7,579,000 tonnes</b>			

## Southern Region

● By Michael Hetherington,  
Southern Director

### Summer 2017–18

Getting through the wettest ever September on record was a challenge and then of course we had to start cranking up all the irrigators in a rush to cope with the instant dry spell and persistent strong winds with 40 degree days out in the field. It had been a rollercoaster weather ride!

The weather seems to be about the same in total, but it comes in more intense bursts! Rain and heat was what we all wanted, just a little softer please.

Low pressure irrigation was everywhere, I repeat, everywhere. And then there were the 'irrissaurus galvinator' species being seen in increasing numbers. Laterals moves were going up full speed ahead and damn the expense.

And the farmers – they were upsizing and upsizing!

### Autumn 2018

All in all, with the rains spread over the growing season, the southern region cane crops were looking as good as we could remember

The long, involved cyclone activity resulted in the usual – "if it's pouring up North, it's drying out in the Wide Bay". Most people were keen to irrigate, but closer to the coast, the stronger and more persistent were the South Easterlies. More flood and trickle systems were set up and booms were booming.

### Winter 2018

After worrying about a lack of cool weather to bring up the CCS, maybe frost damage was to be the worry instead. Three degrees Celsius mornings meant frost out in the paddock. Thinking back though, seeing 40 acres of frost on the trash blanket was once frightening and

nowadays it's of no real concern. The ratoons seem to just go on hold, waiting for those frontal storms of spring

Irrigating with high pressure in daylight hours showed a determination to get ratoons away as soon as the crop is off. The district estimate of a shade under 100 tonnes per hectare was right up there, and a good spring might see it come off.

The sugar price was stuck in a ground-hog day situation – where was it going and where would it leave us? Change, change, change – adapt or disappear! It's been done before and it will be again.

### October– November 2018

Perhaps the name Area 'Roundup' for this section of the Annual is not a great choice of words at this time?

It highlights one of the many downsides of all agriculture. I remember making the decision to wait for the cane to be a bit taller and then using glyphosate to spray ends. Much better than that hideous paraquat. Well, now it may be back to the collar and tie with a chip hoe. Not going to happen, George!!!!

The past year has not seen the Southern region having to cope with severe herbicide restrictions, but the talk of human health effects may be more a factor than the environment.

Harvest last year finished in the mud, but this year ISIS crushing will most likely end in the dust at the end of October. Good conditions have made for high throughput and sugar levels.

The other Mills in the Region are similar. The planting material supplies have been affected by dry conditions and some areas have had planting restricted due to quality of available seed cane.

Irrigation has entered a new phase with Paradise Dam Water being sold in a sort of Dutch auction. I am not sure of the process, but we were warned years ago if more water was not consumed the structure would be reviewed. That of course means price per unit rise or maybe no unit at all. Irrigation is not what it used to be.

The corporate mills in the region have an in-house financial system of which I have only a vague knowledge. But the ISIS Mill is going public with the idea that an investment partner may be a good idea and so it might.

That must be one of the big changes for the suppliers/owners for the year, perhaps for the past 100 years! CSR sold the mill eons ago to the group of people most needy of a ISIS Central and that was the suppliers of the time.

I wonder where CSR is now? ISIS is also furthering its rail network towards the northwest as this seems to be the area for new sugar cane production. Maybe next year will see rolling stock along that way.

Alternative cropping is part of the sugar industry for sure now. Proximity to markets

and secure water supply have seen many long-term set ups with small croppers come into existence. Rotation has been one of my hobby horses for years and the more secure financially these arrangements are the better. Fly-by-night cropping is hopefully last year's bad news.

The baling of trash from GCTB has matured into a stronger setup and has better management and therefore better outcomes for those on both sides of the deal.

Concluding for the year, I would say we've made some good progress. Handling a drought and having the local Mill crush a reasonable tonnage must be seen as deserving of a high mark for the District.

I would like to see a government recognised regional assessment each year – and in print. I am sure the region has not stood still!

SOUTHERN REGION 2017 HARVEST SUMMARY			
Mill area	Tonnes	Tonnes per hectare	Average CCS
Bundaberg Sugar South	1,657,000	86.0	13.81
Isis	1,191,000	84.2	13.82
Maryborough	599,000	63.6	13.68
Rocky Point	388,000	115.0	12.97
<b>Southern Region production: 3,835,000 tonnes</b>			

## NSW

● By Robert Quirk,  
NSW director and senior Vice Chair

### Summer 2017-18

The 2017 harvest in NSW was about average at the three mills the sugar content was also about average or a little above. Condong had one of its better years for sugar – close to half a unit above the five-year average.

October and November saw a lot of stops in the harvest due to wet weather. The drier conditions in December allowed those ratoons cut in the wet to recover.

Weed control was a problem through November but most took advantage of the drier conditions in late December and January to get control.

Most of NSW has had some rain in late January and early February, with most parts of the Tweed receiving close to three inches. The rain was well received as the cane crop was starting to show effects of the drought and the soy bean crops ranged from quite advanced to just emerging. ,

In the Tweed much of the soil was too dry to attempt to plant with some growers planting the last week in January on very low moisture in anticipation of the rain that arrived a few days later.

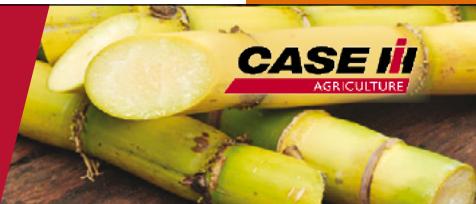
## SECTION 2

### AREA ROUNDUP

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With the price dropping – in 2017 the price was 20 cents at this time in the season, in 2018 the price was 13 cents.

### Autumn 2018

The NSW crop was not looking like it would set any records but it was at least looking respectable at each mill. The wet end of harvest had not helped the late cut ratoons – the rain continued through the early growth and much of this cane had been setback badly.

Some soybean crops harvested well but there had been enough adverse weather to ensure that they would not be putting many dollars in grower's pockets.

Those who measure growth of their cane on a weekly basis were surprised by some rapid growth during March but it was anticipated this would slow dramatically with lower night time temperature. But then we were hoping this would help with the building of sugar in the crop.

### Winter 2018

The crush got away to a slow start with rain at the Richmond and Clarence mills. Condong started one week later and had much less rain – so, no hold ups there.

The crops were cutting about the estimate and sugar a little above budget.

Coolangatta airport recorded a record low temperature of 0.6°C on June 18. The cane that was cut in the wet conditions last October/November would be susceptible to frosting if these conditions were to continue.

Those who had soybeans this year achieved both a good price and a good crop.

By August the whole of NSW had been drought declared but we lucky ones on the North Coast of NSW were only just starting to feel the effects as the drought crossed the ranges to the coast

All growers in NSW were preparing for dryer times with every effort being made to conserve moisture until planting. Some who could not plant in 2017 because of the wet were now preparing for the dry. That's the life of the farmer.

Sugar prices were now well below the cost of production for 90 per cent of the world's production – it will continue to be difficult times into next year for any farmers without subsidies.

### October–November 2018

This harvest has been full of challenges, dry, wet, frost etc we have had everything. For those who are still challenging the climate science. Last year one of the frosty areas in the upper Tweed Valley had no frost the first time in the past 70 years, and this year made up for that with over 40 frosts.

The Tweed has had little damage to cane from frosts the Richmond and Clarence growers have not been so lucky.

The movement of the Macadamia nuts

into cane growing areas is a serious problem and could – if it continues – threaten the very viability of our industry in NSW. Unfortunately, the land preparation for nuts in some areas has cut well into subsoil and even if the nuts are not successful it may be very difficult if not impossible to return this land to cane.

Some landholders have used the NSW Sugar Cane industries exemption for work in Acid Sulphate Soils (ASS) to disturb ASS – I believe this will not be able to be done going forward.

The NSW industry is now marketing its low GI sugar with a lot of interest from the community – this product could be a game changer for us in NSW.

As the NSW director for ACFA it has been my pleasure to host visits to the industry in NSW of millers, growers, buyers, academics and government officials from India, Japan, Indonesia and Korea. In the past two months all the visitors have been keen to find out as much as possible about the processes and products of our sustainable farming practices and how we have mechanised our industry.

Q183 continues to be one of the stand-out varieties along with Q240 high sugar tons per hectare and as we only get paid for sugar, growers are moving quickly to plant these two cultivars.

Condong's seed plot sold out very early with all Q183 being taken up and now with most of it already in the ground we are looking forward to some good plant sources for next year.

The harvesting is progressing at all mills and should see us have a reasonable finish.

The first growers in the harvest rounds at Condong should have all their cane cut by the end of October making for some potentially good crops for next year.

Global sugar cane prices are currently unsustainable for all but those farmers who are subsidised. Thank goodness there is action being taken by the countries who are not subsidised to try to rectify this. I think most Australian growers will have trouble making ends meet in the next year or two. Fortunately, we have seen this coming and growers can plan for the tough times ahead.

I do hope the weather continues to be kind to all Australian growers.

### NSW 2017 HARVEST SUMMARY

Mill area	Tonnes	Tonnes per hectare	Average CCS
Condong	523,000	117.4	11.93
Broadwater	684,000	112.7	11.89
Harwood	665,000	132.1	11.88
<b>NSW production: 1,872,000 tonnes</b>			



**Domonic Hogg (left) and Brett Alvos from Northern AgriServices Casino consider Entec an essential piece of the agronomy package in sugar cane and summer crops such as corn.**



# THE FUTURE

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**SECTION 3  
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# Fraley's feel for the future of farming

**R**OBB Fraley's career in agriculture has been well documented, from pioneering biotech innovations to serving as chief technology officer at Monsanto where he worked for 37 years. He would seem to be well qualified to comment on both the impact of the Bayer-Monsanto merger and the future of farming.

In a recent interview with Dave Kurns from *Successful Farming* magazine he did just that:

**Successful Farmer (SF):** You have a unique lens into the Bayer-Monsanto deal. What does it mean from your perspective?

**Robb Fraley (RF):** One of the exciting premises of the combination between Monsanto and Bayer was to be able to bring our digital, our breeding, and biotech together with the Bayer chemistry and the Bayer global footprint across agriculture. The integration is going really well. I have talked off and on for the past several years that what agriculture needs is companies and entities to step up and make bigger investments. You combine the capabilities of a Monsanto and Bayer in the ag space and create the ability. The success of

this merger gets measured as the kinds of new products and innovations that we can bring farmers around the world.

**SF:** How big will the R&D pipeline be for the new Bayer?

**RF:** I think you have the opportunity to avoid duplication. You have the opportunity to focus new dollars on new areas. What we're seeing around the world is all of these tools are now being developed and they're coming together.

**SF:** The pace of innovation seems to be accelerating in agriculture.

**RF:** We're seeing so much innovation across the biology space, across the digital space. This is unlike any other time in agriculture. The number of new tools that will benefit farmers is unprecedented. Part of the thing we need to do now is really take advantage of those innovations on a global basis both to address food security and nutrition. These new tools allow farmers to make better decisions, to farm better and smarter and more precisely. And by doing that they can really enhance the environment.

I think we need to make it clear to consumers around the world that these investments in R&D and agriculture not only address food security, but that they're also going to enhance our farming footprint around the world.

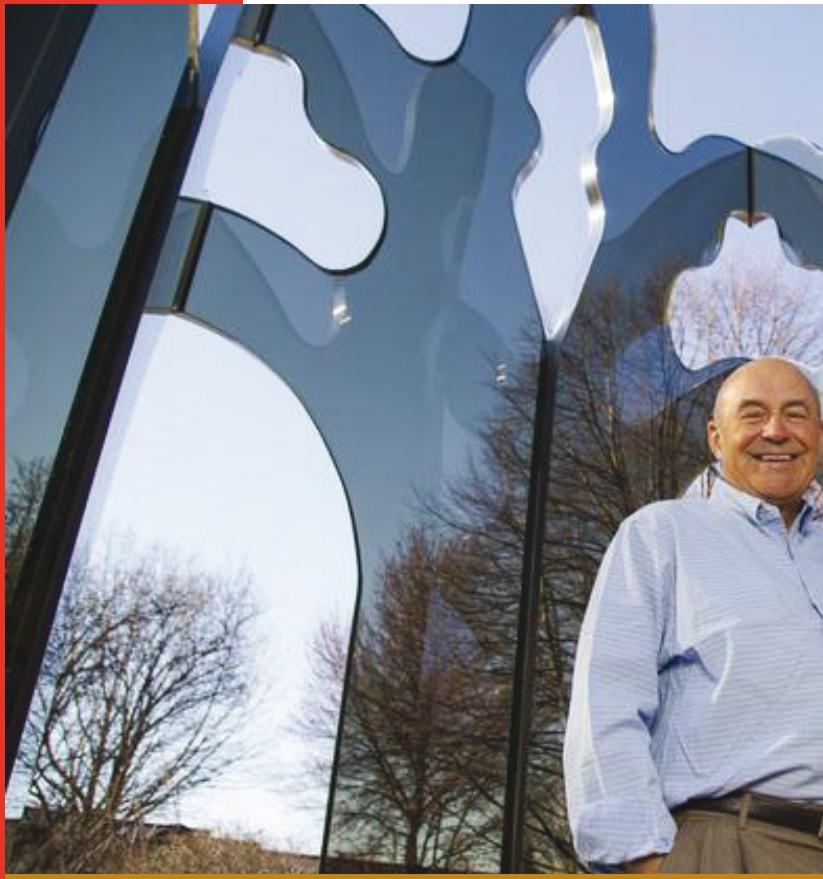
**SF:** When will farmers see the benefits of the combined research capabilities?

**RF:** In some areas we're going to see that really quickly. A really obvious example is that the Monsanto pipeline has been built around better seeds and better traits. A lot of the Bayer pipeline has been built around better chemicals and pesticides. Now they can bring seeds into the marketplace that have not only the best breeding and biotech traits, but also the best seed treatments say for protecting that seed against fungal attack.

The other area that I think is going to be very beneficial critical is the geographic distribution of the businesses. Monsanto was largely North and South America. Bayer was much stronger in Europe and Asia. Going global quickly with new technologies is going to be much easier.

**SF:** How will the digital side of the business change?

**RF:** As we look into the future, the ability to invest more in the digital space is key. It's this space that will enable farmers to integrate the new tools. There's so many things happening on the biology side – whether it's traits, the advances in molecular breeding, or sequencing tools that allow breeders to create new seeds



A window into the future of farming? Robb Fraley, Chief Technology Officer at Monsanto.



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### SECTION 3

## THE FUTURE

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basically knowing every gene in that seed, that's terribly powerful.

I look at what's happening on the digital side and the adoption of these tools by farmers – the use of satellite imagery, the real-time analysis. What's exciting is we don't have to choose. We can bring it all together and integrate it. That's really the promise.

**SF:** How do farmers make sense of all the innovation and change?

**RF:** Well, I think two things. I had the experience of growing up on a small farm in Illinois. From my oldest memories, farmers are smart businessmen and entrepreneurs. They don't use technologies that don't create a benefit.

They're also great at integrating new tools. I think one of the real keys to making this technology successful is to make it work at scale and to work in a transparent way for farmers. Just like your cell phone has so many tools and capabilities, the more intuitive these tools are, the more rapid the adoption will be.

**SF:** Is Monsanto's Climate Corporation subsidiary still an important piece of the puzzle at Bayer?

**RF:** I think Climate is deeply embedded in the opportunity for the future because of the new products and technology in the digital tools. I see Climate as the integrating vehicle between seeds and chemistries. Growers can use all that information to make the best recommendations. Having grown up on a farm, I can remember my dad making decisions based on what he wished he would've done the year before, what the neighbour was doing, or what the agronomic advisor said. But now farmers are going to have the ability to make the decision based on a knowledge of weather patterns that's really very precise; a knowledge of that field and the variability of that field; the knowledge of the genetics in that seed. I think they will make better decisions from both the productivity and profitability perspective.

**SF:** What is your take on the Roundup lawsuit in California?

**RF:** Roundup is probably the most thoroughly studied crop chemical in the world. There's been hundreds and hundreds of studies done by every major regulatory organization around the world and it's been shown to be safe and non-carcinogenic. It's unfortunate that IARC (International Agency for Research on Cancer) came around with an opinion that differed from all of those.

And IARC is the same organization that's labelled meat as a carcinogen, and coffee. Of the thousands of molecules they've looked at, I think every one of them has been labelled a carcinogen. So that's unfortunate. I believe that science will win the day. We know from all the legitimate regulatory studies that have been done that this product is safe.

In the end, I have to believe that science will prevail.

**SF:** So, what's next for you after you leave Monsanto?

**RF:** I want a role advocating for technology. What's so different at this point in time is the number of breakthroughs in science that are occurring. The coming together of all these over the next few years is going to be like nothing we have ever seen before.

We see it in our own breeding programs. The increase in yields, the rates of gain, the rapid adoption by farmers everywhere of the digital tools. I think we have an exciting opportunity to take advantage of the available tools and also the fact that the cost curve for these tools has diminished.

The other part is reaching out to the consumer. We know from our own experience. You know, early on we did not do a great job of communicating to the consumers around the world.

We did do a good job of talking to farmers around the world. And that's why a lot of these technologies have been so dramatically adopted.

But in order to reach the consumer, we really need to, I think change our messages and the ways in which we communicate. And, I think taking the message to the consumer about how these tools not only can help address food security and nutrition, but that these tools are going to have a tremendous effect on enhancing the environment.

**SF:** The future is all about change, isn't it?

**RF:** I believe in the end, everybody wants to live in a food secure world for their families, for their friends. But they also are interested in a world that, for their kids and grandkids, is better. We've seen how technology has changed healthcare. We've seen how it's changed communications. It can change farming and agriculture and do incredibly positive things.

I think it's our responsibility to make sure that consumers understand that and that they sense the excitement and the opportunity. And that they are also aware of the care, the passion that we bring to ensuring that we have both a safe food supply – and an abundant, affordable food supply. One in which the farming practices are getting better and better and reducing the impact that the farming can have on the environment.

**SF:** Norman Borlaug famously said, "Take it to the farmer." It sounds like ag companies now want to "Take it to the consumer."

**RF:** I think it's both. As I said, back in the early days of biotech we communicated well to the farmers but really missed the consumers. That's clearly something we need to do a better job of. I'd also make the point that nobody can do it alone.

Drawn from the article by Dave Kurns – *Successful Farming*. {Published October 18, 2018}

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# First commercial GM cane crops planted in Brazil

In August 2017 a genetically modified (GM) sugarcane developed by Centro de Tecnologia Canavieira (CTC) in Brazil was approved for commercial use by Comissão Técnica Nacional de Biossegurança (CTNBio) – the National Biosafety Technical Commission.

The new variety, CTC 20 BT, is resistant to crop damage caused by the main sugarcane pest in Brazil, the sugarcane borer (*Diatraea saccharalis*). The damage caused by the sugarcane borer results in industry losses of approximately US\$1.5 billion per year.

The Bt gene (*Bacillus thuringiensis*), found in CTC 20 BT, has been used widely in both Brazilian and global agriculture for over 20 years in biotechnology-derived crops like soybean, maize, cotton, among others.

"In the next few years, we plan to expand the portfolio of varieties resistant to the borer, adapted to each of the producing regions of Brazil," said Gustavo Leite, CTC CEO and a former Monsanto executive. "Further, CTC plans to develop other varieties that are resistant to other insect pests and also tolerant to herbicides".

The GM sugarcane was originally submitted to CTNBio at the end of 2015 for health and environmental safety assessment using internationally-accepted standards. Processing studies proved that the sugar and ethanol obtained from the new variety were identical to those products derived from conventional sugarcane.

Studies additionally showed that both the Bt



Larva of the sugarcane borer, *Diatraea saccharalis* (Fabricius).  
(PHOTO: John Capinera, University of Florida)



Adult sugarcane borer (*Diatraea saccharalis*) – Pest and Diseases. (PHOTO: Library, Bugwood.org)

gene and protein found in CTC 20 BT sugarcane were completely eliminated from sugarcane derivatives during the manufacturing process. Further, environmental studies did not find any negative effects on soil composition, sugarcane biodegradability, or insect populations, with the exception of the target pests.

## First GM plantations

In March 2018 we learned that Brazilian sugar mills looking to grow the world's first variety of GM sugarcane had planted an initial area of 400 hectares.

Gustavo Leite said CTC's objective was to rapidly increase planting of the new variety in the next three years, targeting around 1.5 million hectares.

He also said that CTC has new GM products in the pipeline.

"We are going to create a portfolio of varieties with this characteristic of resistance to the borer. Our idea is to seek approval of one or two new varieties this year," he said.

## FDA approval

In August this year the United States Federal Food and Drug Administration (FDA) concluded that raw and refined sugar produced from CTC20BT is safe. The US FDA focused its safety assessment on sugar because it is the main sugarcane-derived product imported to the US from Brazil. In addition to sugar refining, the Brazilian sugarcane sector uses sugarcane by products domestically to produce ethanol fuel for vehicles and to burn to generate electricity.

The FDA is the US government agency responsible for protecting the public health by ensuring the safety of the nation's food supply, as well as the efficacy, and security of human and veterinary drugs, biological products, and medical devices. ■



Brazilian sugar mills this year planted 400 hectares to the world's first variety of GM sugarcane.

## SECTION 3

### THE FUTURE

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### SECTION 3

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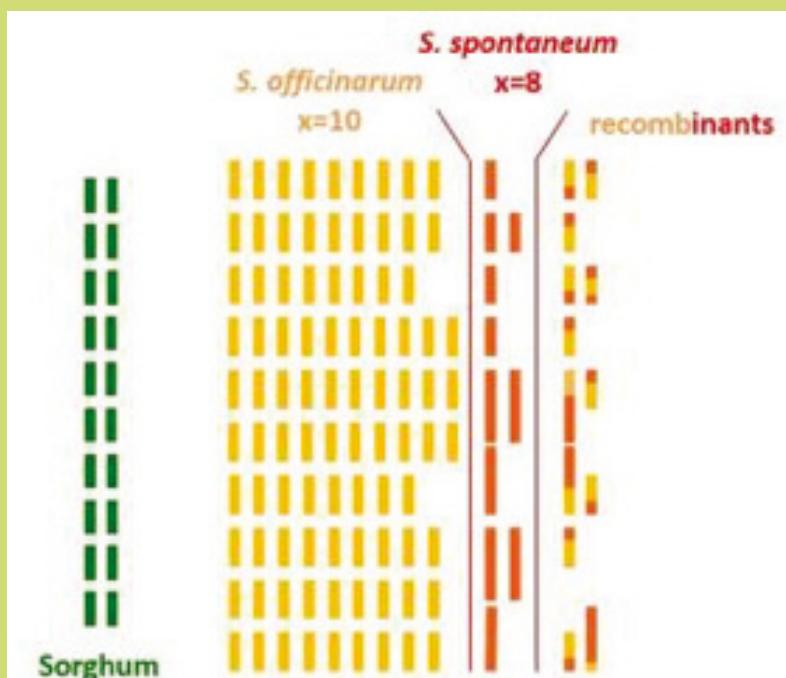
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# Complex sugarcane genome has finally been sequenced

SUGARCANE was the last major cultivated plant to have its genome sequenced. This was because of its huge complexity: the genome comprises between 10 and 12 copies

**FIGURE 1: Sugarcane – a complex genome – in comparison, the sorghum genome (in green) is much simpler**



Each bar represents a sugarcane chromosome. In orange, those from a domesticated variety, *Saccharum officinarum*, and in red, those from the wild variety *S. spontaneum*.

The sugarcane genome is complex for several reasons:

- High polyploidy (large number of copies of each chromosome category);
- Aneuploidy (variable number of copies depending on the chromosome category);
- Bispecific origin of the chromosomes; and,
- Structural differences and interspecific chromosome recombinants.

of each chromosome, when the human genome has just two. It was an international team coordinated by the French Agricultural Research Centre for International Development (CIRAD) that achieved this milestone, as reported in *Nature Communication* on 6 July. It will now be possible to «modernize» the methods used to breed sugarcane varieties. This will be a real boon to the sugar and biomass industry.

CIRAD and its partners (including Queensland



**CIRAD geneticist Dr. Angelique D'Hont visits the School of Crop Science in Fujian Province, China.**

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Alliance for Agriculture and Food Innovation at UQ and CSIRO) had to use cunning to establish the first sugarcane reference sequence. The plant's genome is so complex that conventional sequencing techniques had proved useless. This meant that sugarcane was the last major cultivated plant to have its genome sequenced.

#### Novel sequencing method

The team took up the gauntlet using a nifty approach based on a discovery made at CIRAD some 20 years previously: the genome structures of sugarcane and sorghum are very similar. The term used for this is 'colinearity', which means that there is a degree of parallelism, with numerous genes occurring in the same order. Olivier Garsmeur, a CIRAD researcher and lead author of the study, was thus able to use the sorghum genome as a template to assemble and select the sugarcane chromosome fragments to sequence.

"Thanks to this novel method, the reference sequence obtained for a cultivar from Réunion, R570, is very good quality", says Angélique D'Hont, a CIRAD geneticist who coordinated the study.

#### A key stage in investigating the genome

That reference sequence is a vital step towards fully sequencing the sugarcane genome and analysing the variations between the various sugarcane varieties more effectively. Angélique D'Hont had the same experience with the banana genome in 2012. As she says, "having a reference sequence for a species radically changes all the genomic and more broadly genetic approaches for that species".

#### New era for sugarcane breeding

As with all other cultivated plants before it, sugarcane breeding will now be able to enter the age of molecular biology. Until now, for want of a reference sequence, sugarcane cultivar breeding programmes were restricted to hybridization, followed by conventional, very cumbersome field assessments. Molecular screening techniques can now be developed to supplement field trials. This is a major breakthrough, since almost 80 per cent of the world's sugar comes from sugarcane. Moreover, the plant has also recently become a frontrunner in the race to produce biomass. This new genetic knowledge will serve to create new varieties for a wider range of uses.

CIRAD Partners: Joint Genome Institute, Keygene, Queensland Alliance for Agriculture and Food Innovation, Commonwealth Scientific and Industrial Research Organisation, South African Sugarcane Research Institute, Universidade de São Paulo, funded by the International Consortium for Sugarcane Biotechnology and the Joint BioEnergy Institute.

For more information: [www.cirad.fr](http://www.cirad.fr)

# Does the prospect of Blockchain do your block in or tug your chain?

● By Shelly Palmer – technology consultant and business advise

**B**LOCKCHAIN is well-known for being Bitcoin's underlying technology, but many believe blockchain has the power to radically transform whole industries. Here are six non-cryptocurrency blockchain (distributed ledger) use cases to help you form your own opinion.

#### Smart contracts

**Overview:** Smart contracts are self-executing programs that automatically check the rules of the transaction, verify and process the transaction, and, in some cases, enforce the obligations of the parties. This type of automation can dramatically increase productivity and lower costs.

Vending machines are a good metaphor for smart contracts:

- You identify the item you wish to obtain.



Shelly Palmer, CEO of The Palmer Group.

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- You put your money in the slot.
  - The vending machine determines if it is the correct amount of money.
  - If it is not the correct amount, the vending machine asks you for more or offers to return the money you have already inserted.
  - If it is the correct amount, the vending machine releases the item you selected.
- Smart contracts work exactly the same way. You state your conditions, someone meets the conditions, and the transaction is completed.

**Use cases:** Companies like *Slock.it* use smart contracts to automate payments for renting electric vehicle charging stations, while *Fizzy* tracks flight delays and automatically refunds passengers when flights take off more than 2 hours late.

#### Tokenisation of content

**Overview:** Tokenisation allows you to take an asset and fractionalise its ownership by creating digital tokens. Each token represents a percentage of ownership in the asset, and the use of blockchain makes the chain of custody and proof of ownership immutable. In practice, you can do this with both digital and physical assets, but in the absence of laws or regulations, claiming title to physical property without proper government records tends to yield unexpected results. That said, there are quite a few tokenisation projects in the works.

**Use cases:** Tokenising content allowed messaging app Kik to have a “reverse ICO (initial coin offering)” (in which the company decentralised itself by selling tokens, like stocks, to interested investors) to raise \$100 million and continue to grow its platform. Simple Token empowers companies to easily create branded tokens without having to worry about regulatory issues or creating an ICO.

#### Eliminating counterfeit products

**Overview:** Because blockchains are permanent, immutable ledgers, it's easy to identify and trace the chain of ownership of assets. Storing serial numbers or other product identity information on a blockchain allows all parties (manufacturers, distributors, retailers, and consumers) to verify that the item in question is authentic.

**Use cases:** Blockverify uses blockchain technology to boost anti-counterfeit measures by helping to identify counterfeits and prevent counterfeit duplication of products and by enabling companies to verify their products and monitor their supply chains. The world's largest diamond producer, De Beers, is working with blockchain technology to create an immutable and permanent digital record for every registered diamond – and cut down on conflict (“blood”) diamonds.

#### Supply chain improvement

**Overview:** By identifying production components and processes and storing that

information on a blockchain, you can monitor (and optimise) your supply chain from raw materials to finished goods.

**Use cases:** Walmart uses blockchain to allow its employees to scan goods (like fruit – Editor's note: including strawberries?) in the store's app and track it along every step of the journey from harvest to the store floor. The world's largest shipping company, Maersk, uses blockchain to monitor its cargo ships, while British Airways uses blockchain to ensure the information it shares on its site, in its apps, and on airport displays is up-to-date and correct.

#### Digital twins

**Overview:** A digital twin is a virtual representation of a physical asset. Through sensor data, artificial intelligence, and human input, digital twins mirror their ‘real world’ counterparts and create value by allowing for training, maintenance, troubleshooting, simulation, and more.

**Use cases:** Deloitte uses digital twins to “detect physical issues sooner, predict outcomes more accurately, and build better products,” while GE uses digital twins to optimise its wind farms, leading to an increase of up to 20 per cent in annual energy production.

#### Encrypted messaging

**Overview:** Encrypted messaging has become ‘table stakes’ for business communication. There are many traditional solutions for end-to-end encryption, but blockchain has inspired a new approach that leverages decentralisation. Using blockchain, messages can be anonymous (even IP addresses can be masked). Work is generally done locally, so no private user data is transferred. And some blockchain-based encrypted messaging solutions include anonymous cryptocurrency-style payment options as well.

**Use cases:** There are quite a few organisations working on blockchain-powered encrypted messaging platforms, including *Matrix*, *Crypviser*, and *ADAMANT*.

#### In conclusion

I'm a big fan of blockchain, and (full disclosure) we are actively involved with some of the services, protocols, and organisations listed here. That said, before you start any blockchain project, you must ask the following question: “For this project, is a blockchain a better choice than a well-crafted, secure database?” Once you're satisfied with your answer, go forth unafraid.

**Author's note:** This is not a sponsored post. I am the author of this article and it expresses my own opinions. I am not, nor is my company, receiving compensation for it.

**About the author:** Shelly Palmer is CEO of The Palmer Group, a strategic advisory, technology solutions and business development practice with a special emphasis on machine learning and data-driven decision-making

Published July 22, 2018 – [www.shellypalmer.com](http://www.shellypalmer.com)

# Holistic nitrogen management in ratoon cane

**Practical guidance on improving nitrogen uptake in cane and reducing losses has been the focus of Incitec Pivot Fertilisers' agronomy meetings for cane growers this season.**



Rob Dwyer, Tropical Systems Agronomist with Incitec Pivot Fertilisers, met with growers in Northern New South Wales, the Mackay/Whitsunday region, the Wet Tropics, Herbert and the Burdekin this season to discuss holistic nitrogen management.

"Usually at these seasonal meetings we focus on the value of protecting nitrogen with ENTEC®, how it works and how it can be used to good effect in cane," he said.

"This year, we took it a step further and focused on ways to help growers achieve the best possible outcomes from their nitrogen use more holistically."

At the meetings, Mr Dwyer likened nitrogen losses to air escaping from an inflated rubber glove, with a finger each representing volatilisation, denitrification, leaching or runoff.

"The ultimate goal for growers is to keep applied nitrogen available for crop uptake and that's represented by the palm of the hand," he said.



"If you've got a rubber glove full of air and you notice air escaping from one finger, you can block it off, but that air just gets pushed into the other fingers."

"You've got to make sure you block off all the fingers to keep the air in the palm of your hand. It's the same with nitrogen in the soil."

Mr Dwyer said ENTEC stabilises fertiliser nitrogen in the ammonium form for around six to eight weeks, so that large pools of nitrate nitrogen are not sitting in the topsoil at risk of losses through leaching and denitrification.

Retaining nitrogen in the ammonium form also helps reduce the potential for runoff losses.

In heavy rainfall events, Mr Dwyer explained how nitrate nitrogen, a very mobile nutrient, could leak out of the sides of beds with water movement into the inter-row and off the block.

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Ammonium is more tightly held in the soil and less prone to this kind of "lateral leaching".

"That's three out of four losses covered, but is that really good enough?" he asked.

"It's not good enough for our ultimate goal of keeping nitrogen in the palm of our hand and available for crop uptake – we've got to consider and address all four loss pathways."

In considering runoff further,

Mr Dwyer said one of the best ways to reduce runoff losses was to ensure adequate incorporation of the fertiliser.

"If the slot made by the double disc opener or stool-splitter is left open, the fertiliser can move straight up and over the top of the soil during rainfall or irrigation events," he said.

"Especially with any kind of serious downpour, the rain will be channelled to the base of the plant, so runoff is likely if the fertiliser is left exposed to the rain in an open slot."

"It's not so important how deep the fertiliser is applied, it's the depth of soil cover that is critical to keeping the nutrients where they have been placed."

Mr Dwyer said cane growers should aim for 10cm of compacted soil cover over their fertiliser.

**Rob Dwyer, Tropical Systems Agronomist with Incitec Pivot Fertilisers, provided practical guidance to hundreds of cane growers on getting the most out of nitrogen ahead of this season.**





At Incitec Pivot Fertilisers' seasonal cane meetings this season, growers were encouraged to adopt finger press wheels to ensure compacted soil cover over their fertiliser bands.

He quoted research by John Hughes from the Queensland Department of Agriculture and Fisheries in the Sandy Creek area south of Mackay, which showed that dissolved inorganic nitrogen (DIN) losses from runoff could be reduced by nearly half (46%) by using a 'Stool Zippa' closing wheel to achieve compacted soil cover over the fertiliser band.

"These finger press wheels do the job really well, especially over variable conditions like differing soil types, soil moisture, trash levels and crop heights," Mr Dwyer said.

"If you're having trouble consistently achieving adequate incorporation of your fertiliser, consider adding them to your fertiliser rig."

Adequate fertiliser incorporation is also

his key recommendation for reducing volatilisation losses.

Mr Dwyer said nitrogen losses from volatilisation could occur even with buried fertiliser when the fertiliser was still visibly open to the air or had a sparse and patchy soil covering.

Product selection also plays a role.

"Unstable ammonia gas is more likely to form when using urea, DAP or Muriate of Potash in the fertiliser blend, because they create an alkaline reaction locally in the soil," he said.

"Having 10cm of compacted soil cover is critical, because it gives enough of a buffer to that reaction that the ammonia doesn't break out into the air.

"The best equipment I've seen for doing this is the Stool Zippa."



Mr Dwyer said another option for reducing volatilisation losses for growers unable to consistently achieve 10cm compacted soil cover was to use GranAm® fertiliser as a nitrogen source.

"The acidic reaction GranAm produces locally around the fertiliser band gives it a natural protection against volatilisation, whether the fertiliser is applied in a slot or on the surface of the soil," he said.

By applying this advice, Mr Dwyer said growers could cover all four nitrogen loss pathways and protect against runoff in two ways, giving them confidence that they've done the best they can to manage nitrogen for the season ahead.

## HOLISTIC NITROGEN MANAGEMENT

Loss pathway	ENTEC Protected	Stool Zippa Protection
Volatilisation		✓
Denitrification	✓	
Leaching	✓	
Runoff	✓	✓



FROM INCITEC PIVOT FERTILISERS



BY INCITEC PIVOT FERTILISERS

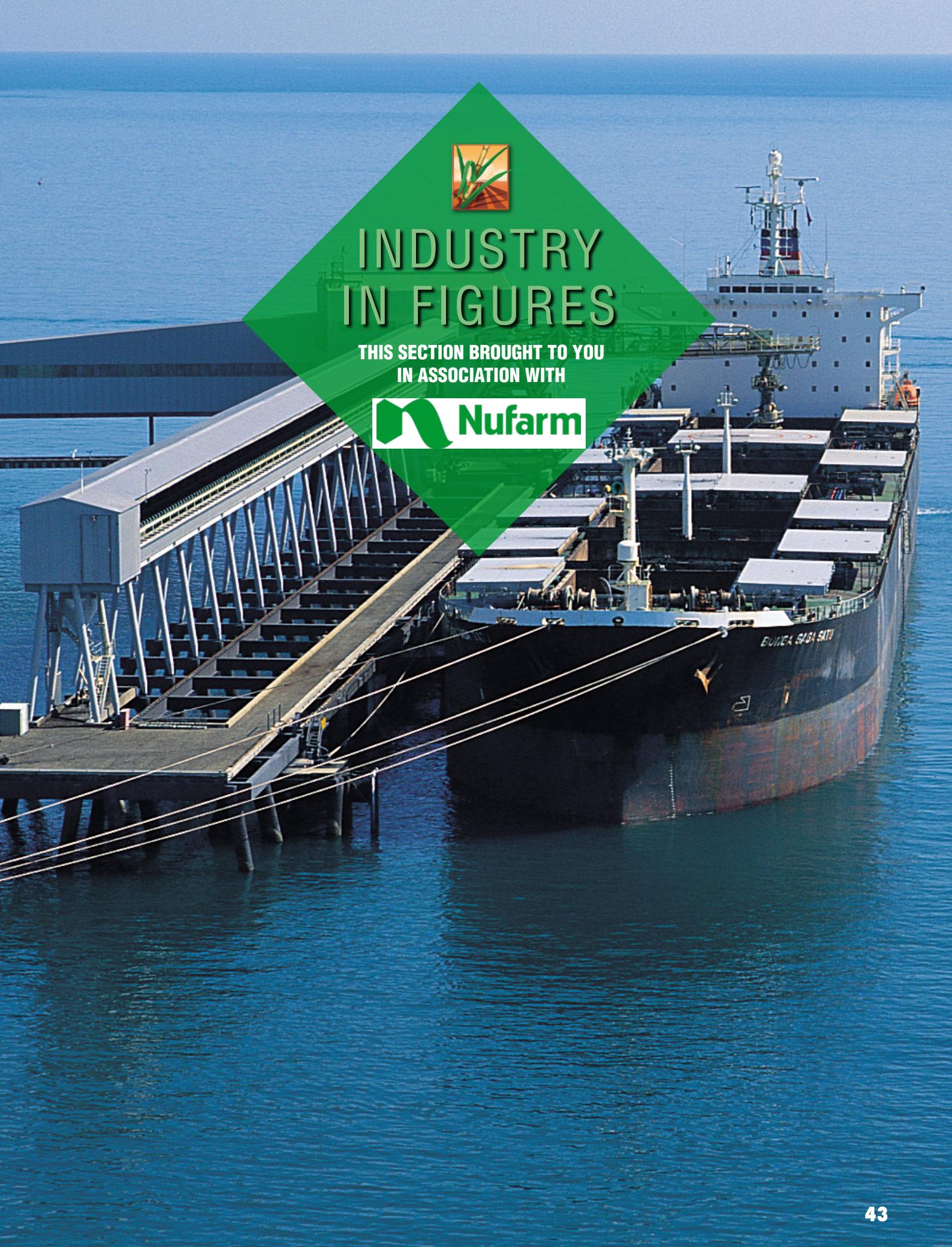


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# Australian production

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### Australian cane production

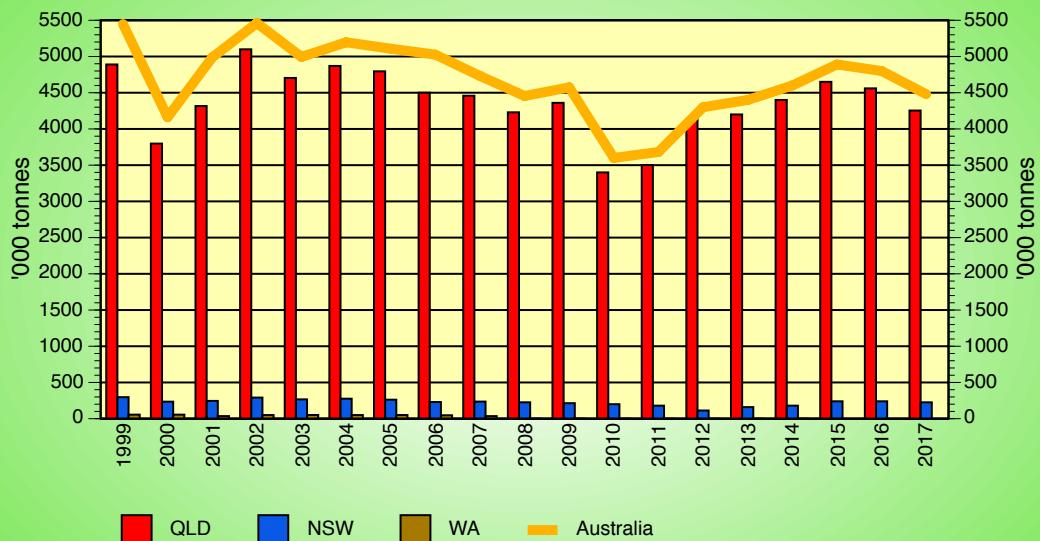


Source: SRA Mill Stats 2017 Season

**ABOVE:** Australian cane farmers produced 33.3 million tonnes of cane, down on the 2016 crop of 36.5 million tonnes. This was due in part to the impact of Cyclone Debbie in the early months of the year.

**BELOW:** Again, largely as a result of Cyclone Debbie, sugar production fell in 2017 to around 4.5 million tonnes, slightly back on last year.

### Australian sugar production



Source: SRA Mill Stats 2017 Season

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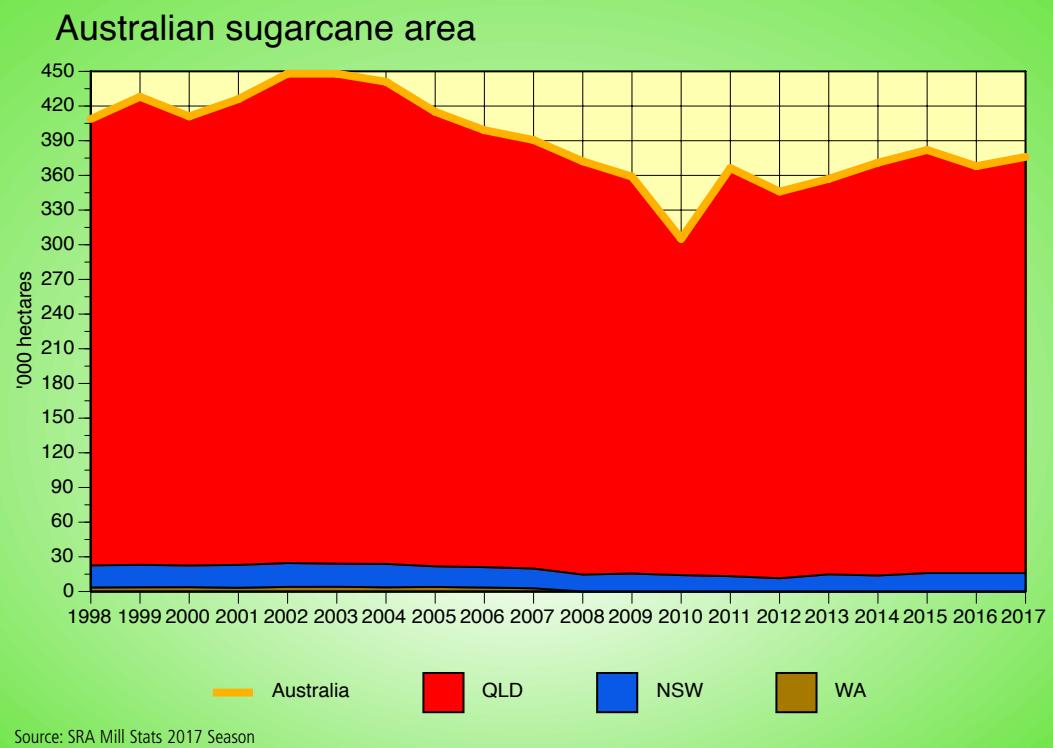
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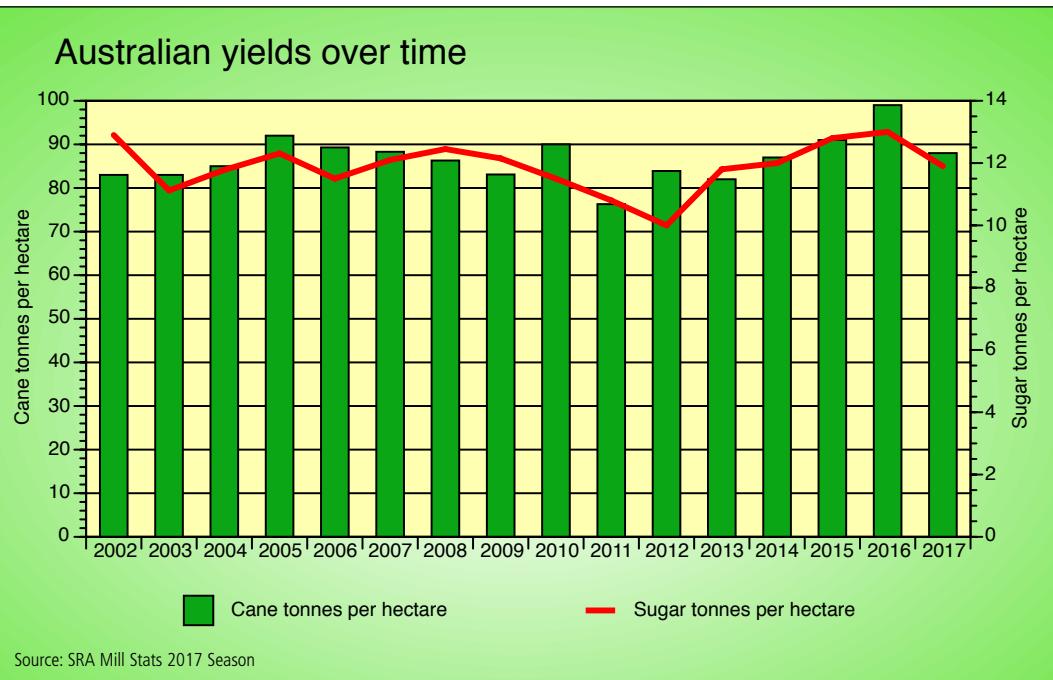
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**ABOVE:** In 2017 the mills continued the push to expand the area planted to sugarcane and this resulted in well over 5000 ha of additional harvested cane.

**BELow:** Both cane and sugar yields were significantly reduced by the impact of Cyclone Debbie.



# Control sugarcane smut and pineapple disease.



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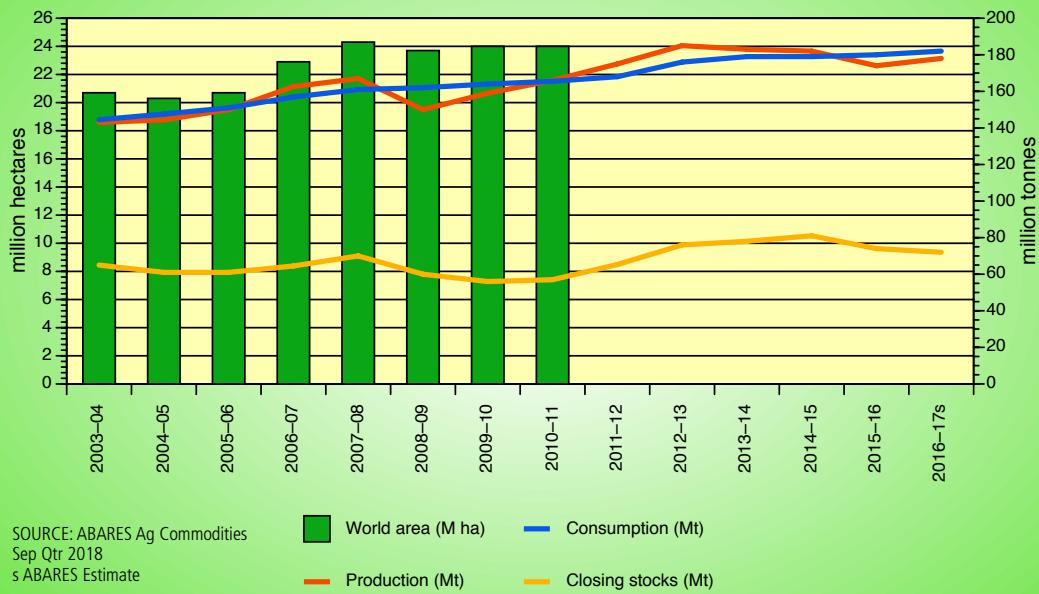
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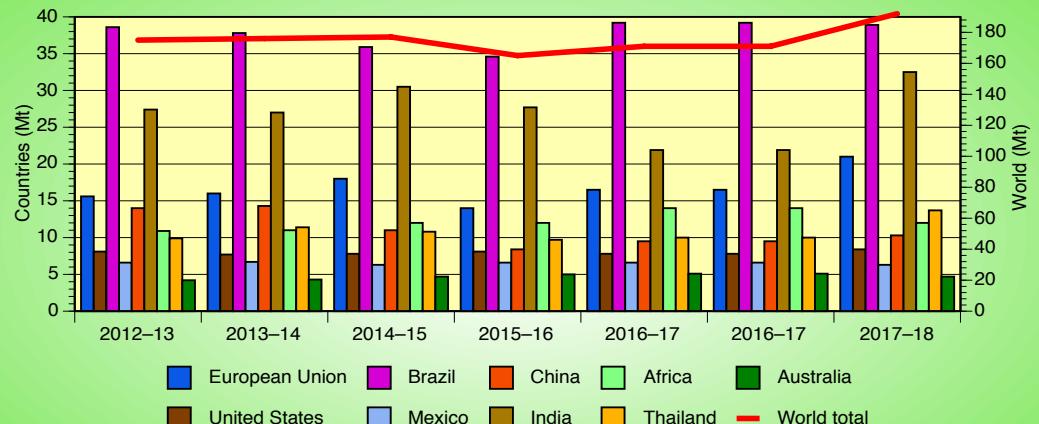
### World sugar supply and use



**ABOVE:** Despite ongoing health concerns being raised about sugar, world consumption and production continues its upward trend.

**BELOW:** Brazil continues its production dominance. Although down slightly on 2016-17 at 38 million tonnes, Brazil's sugar production was still 6 million tonnes ahead of its nearest challenger – India.

### Major sugar producers

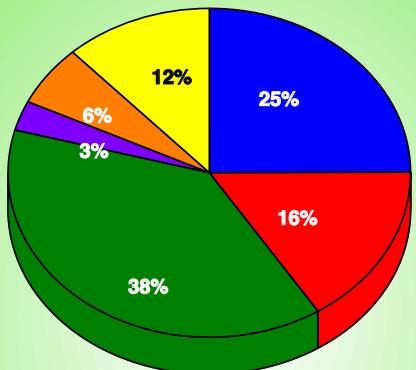


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Major importers of Australian sugar  
(2016–17)



2016–17 Total tonnage all sugar exports = 4,002,000 tonnes

2016–17 Total value of sugar exports = A\$2.232 billion

■ Indonesia (998,000 t)

■ Japan (640,000 t)

■ Korea (1,531,000 t)

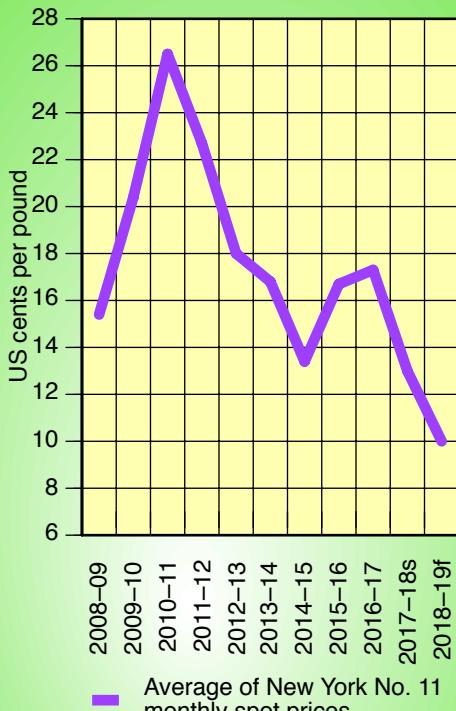
■ Malaysia (117,000 t)

■ China (240,000 t)

■ Other countries Including Taiwan, United States and New Zealand (476,000 t)

Source: Australian Commodity Statistics 2017

World raw sugar price



s ABARES Estimate from Ag Commodities Sep Qtr 2018  
f ABARES Forecast from Ag Commodities Sep Qtr 2018

### World Sugar

**Price:** From the relative highs of last year, prices have plummeted to their lowest level in nearly a decade.

**Major Importers:** Asia remains our major market – we are seen as a sustainable producer of a high quality product which is reliably delivered.

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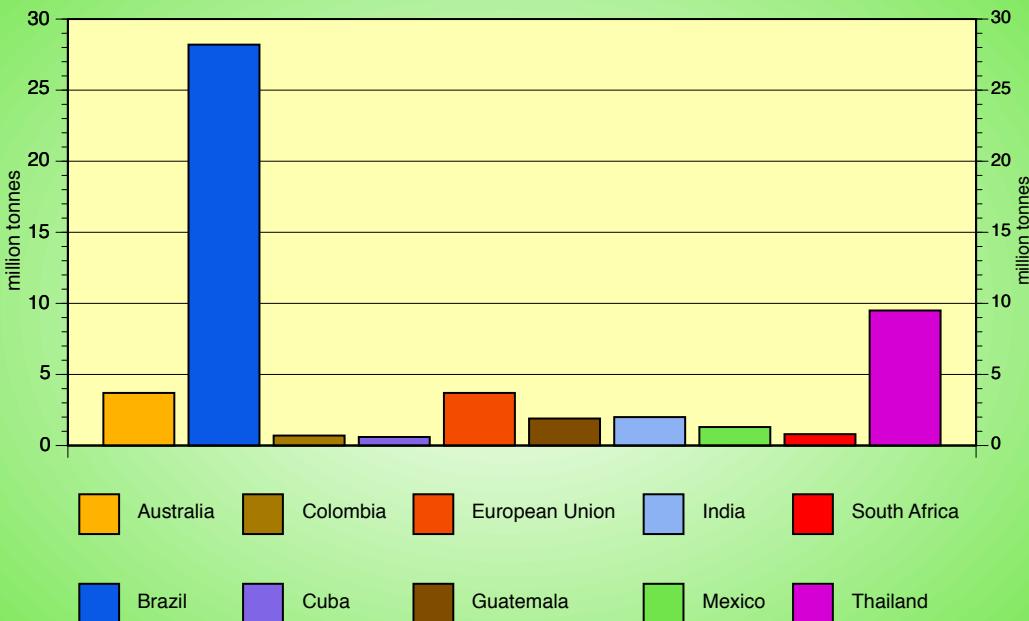
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### Sugar exports by major producers (2017–18)

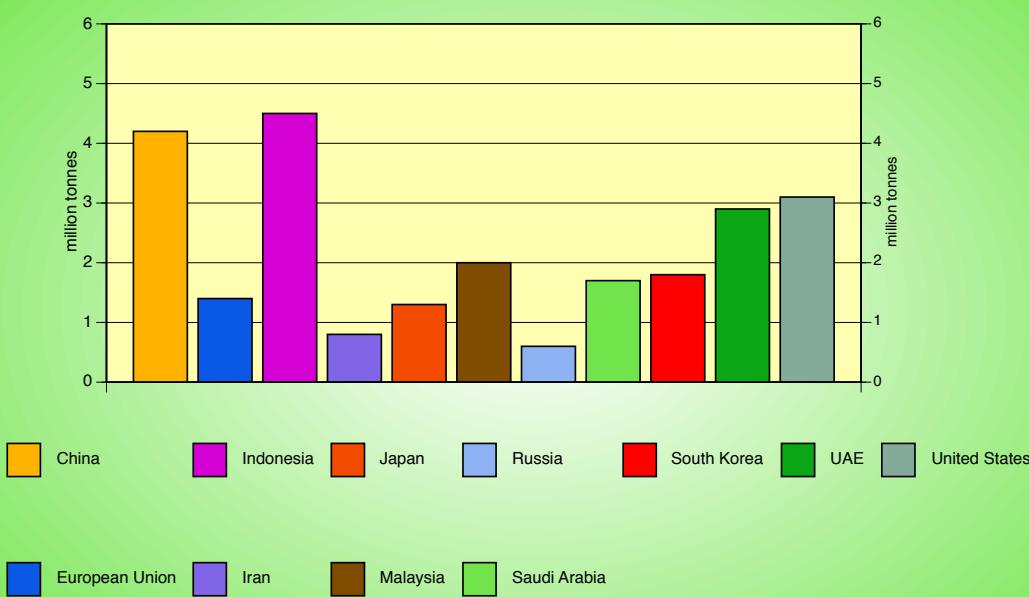


**NOTE:** Includes exports of both raw and white sugar measured in raw sugar equivalents.  
**SOURCE:** USDA Sugar World Markets Trade May 2018

**ABOVE:** In terms of exports, Australia (3.7 mt) is ranked equal third in the world with the EU, a long way behind Brazil (28.2 mt) and Thailand (9.5 mt).

**BELow:** Indonesia, closely followed by China, was the largest importer of the world's 2017-18 sugar production – both are significant clients of the Australian sugar industry.

### Sugar imports by major consumers (2017–18)



**SOURCE:** USDA Sugar World Markets Trade May 2018



Australian  
*Cane*  
Farmers



2018

**SECTION 5**  
**AUSTRALIAN**  
**CANE FARMERS**  
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# The Australian Cane Farmers Association

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**Don Murday, Chairman.**

# Chairman's comment

● By Don Murday – ACFA Chairman

**S**UBSIDISED sugar production continues to suppress prices and threatening the viability of non-subsidised sugar industries.

The Global Sugar Alliance of exporting countries says the Indian Government's approval of a Rs. 5500 crore (USD760 million) support package for its sugar industry, including assistance to export up to five million tonnes of subsidised sugar, is a snub to world trade rules, adding a new layer of distortion to the world sugar market.

Already down by 36 per cent in the past year, sugar prices sank to a new 10-year low as the market reacted to the announcement and the fact that the world market no longer reflects the cost of production in the most efficient producing nations.

Greg Beashel, Chairman of the Global Sugar Alliance and QSL Managing Director and CEO said that, "The illegal subsidy announced by the Indian Government caused life-of-contract low prices in the subsequent trading session of the world sugar market.

"If the subsidy is not repealed, dire social and economic consequences will be felt by sugar producing countries around the world. The Global Sugar Alliance calls on governments from sugar producing countries around the world to launch a WTO action to limit the damage.

"The illegal subsidy has serious consequences for the Australian sugar industry and the regional communities it supports, driving world prices well below the cost of production. The Australian Government needs to take action immediately to prevent the unsustainable sugar policies of India decimating the returns of Australian producers."

Sue Neales, writing in *The Australian*, explains that "India is heading to a general election in April next year and, with more than 50 million people farming sugarcane or working in its sugar mills, generous crop incentives have seen national sugar production leap from 20 million to 35 million tonnes this year, with the surplus heading for export."

"Australia says subsidies to Indian cane growers – who form one of the biggest voting blocs in the country – far exceed the level of farmer assistance permitted under WTO rules of a maximum 10 per cent of the total value of the industry's average production."

Eduardo Leão de Sousa, Executive Director UNICA said, "With this bitter announcement, India sends the wrong signal to the Indian producers and, in parallel, hurts even more the revenues of mills and cane growers throughout the world.

"Artificial solutions such as export aids may seem to be an easy solution to get rid of surpluses but they are highly distortive for international trade and must be condemned. The Brazilian industry does not see these measures as an option and we have been encouraging our government to challenge them in the WTO dispute settlement mechanism."

Vibul Panitvong, Chairman of the Executive Board, Thai Sugar Millers Corporation: "The Thai industry along with the Office of Cane and Sugar Board have asked our country's Mission at the WTO in Geneva to raise urgent questions with India. It is important that all countries work together on this."

Leopoldo Bolaños, International Trader, Guatemalan Sugar Association: "Improved trading conditions are in everyone's interests. Subsidised sugar exports must not be allowed to prevail."

Global Sugar Alliance members are committed to supporting the effectiveness of the WTO. Its rule setting, monitoring and dispute settlement functions deliver real benefits to the world economy, generating employment, raising living standards and lifting people from poverty.

## Reef regulations

The Queensland Government is finalising plans to tighten up reef regulations in a new Bill. While the details are still being negotiated with agricultural industries, the Government wants to submit the Bill in 2018, but there are only seven sitting days available in November and December.

The bill would be introduced along with the decision Regulatory Impact Statement (RIS). The Bill would be in committee over summer until the committee sits in January/February 2019. Commencement of the new regulations could be as early as March 2019.

All of this hits home while environmental lobby groups press Government for stricter measures before the industry has been able to fully implement the current measures, including the industry owned BMP program. This is clear evidence that the insatiability of interest groups results in a changing of the regulatory goal posts, which in turn makes it difficult for industry to deploy agreed programs and for farmers to comply and to build trust.

Wishing you all a safe and profitable conclusion to the 2018 season.





## MILLING & MARKETING



# Milling in the Australian sugar industry

**A**USTRALIA'S sugarcane industry is one of the nation's biggest rural industries and sugarcane is Queensland's largest agricultural crop. The industry is primarily located along Australia's eastern coastline, from Mossman in far north Queensland to Grafton in northern New South Wales.

Over 4000 cane farms grow sugarcane on around 380,000 hectares annually. There are 24 mills, owned by eight separate milling companies.



## Major products

The industry's major product is raw crystal sugar, which is sold to refineries both domestically and abroad. Approximately 95 per cent of Australian raw sugar is produced in Queensland with the balance from Northern New South Wales.

Up to 35 million tonnes of sugarcane is grown each year. Over a season, the sugarcane crop can produce up to 4.5 million tonnes of raw sugar, 1 million tonnes of molasses and 10 million tonnes of bagasse (a fibrous cane residue, which fuels boilers to generate steam and electricity).

Approximately 85 per cent of the raw sugar produced in Queensland is exported, generating up to \$2.0 billion in export earnings for Queensland.

## Green energy

Sugar mills are almost self-sufficient in energy. By burning the fibrous cane residue, bagasse, they generate electricity and steam for factory operations. In addition, more than half of the renewable electricity generated (around 500 GWh) is exported to the electricity network. The use of renewable bagasse to produce 'green' biomass energy reduces the nation's greenhouse gas emissions by over 1.5 million tonnes annually.

## Industry changes

The Australian sugar cane industry has undergone significant rationalisation over the past decade. Several mills have closed and a number of growers have left the industry, resulting in an amalgamation of farming and harvesting operations. Changes to mill ownership has promoted greater efficiency of operations. The sugar industry directly employs about 4,000 people across the growing, harvesting, milling and transport sectors, with a further 12,000 employed indirectly.

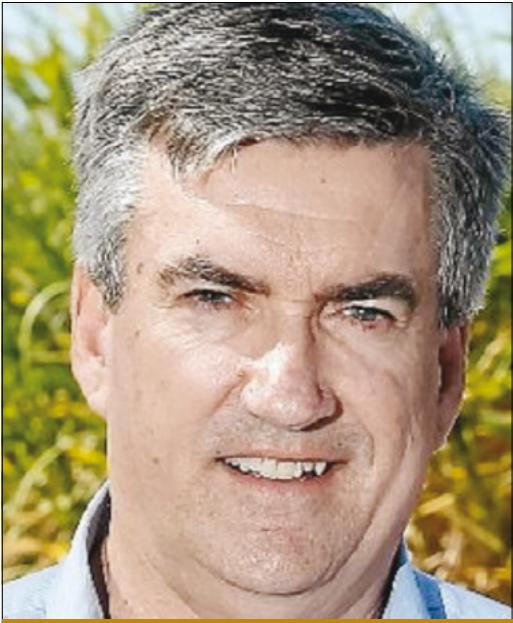
## The Australian Sugar Milling Council – ASMC

Established in 1987, the Australian Sugar Milling Council (ASMC) represents Australia's raw sugar producers and exporters.

Their aim is to be a leading voice for change to create opportunities for a more profitable and sustainable Australian sugar industry.

Key Focus Areas for 2018–19 are to:

- Enhance market access and trade policy outcomes for Australian sugar;
- Maintain our industry's social licence to operate;



ASMC Chairman John Pratt.

- Advocate industry responsive regulation that encourages investment and innovation;
- Pursue energy policy that recognises the sugar industry's co-generation potential; and,
- Prioritise research that delivers impact for industry.

## ASMC members

The current members of the Australian Sugar Milling Council are:

- Bundaberg Sugar Limited;
- Isis Central Mill Company Limited;
- Mackay Sugar Limited;
- MSF Sugar Limited;
- Tully Sugar Limited; and,
- Wilmar Sugar Australia Limited.

## ASMC Board

The ASMC Board consists of up to 12 Board members including a Chair and two Deputy Chairs. Board members are nominated by the member companies and the Chair and Deputy Chair are elected by appointed Directors.

The ASMC Board currently consists of 8 Directors including a Chair and two Deputy Chairs. Board members are nominated by our represented member companies. ■

John Pratt	Wilmar Sugar	Chairman
Mike Barry	MSF Sugar	Deputy Chair
Andrew Cappello	Mackay Sugar	Deputy Chair
Guy Basile	Bundaberg Sugar	
John Gorringe	Isis Sugar	
Paul Heagney	MSF Sugar	
Shunjie Guo	Tully Sugar	
Shayne Rutherford	Wilmar Sugar	

# Why the code of conduct fails the sugar industry

● By David Pietsch, CEO ASMC

**A**LARM bells sounded in global sugar markets early in 2018, and the Australian Sugar Milling Council (ASMC) was first to calculate the likely impact of foreign subsidies on returns for Australia's sugar producers and exporters.

At this time of global market instability, the last thing our sugar industry needs is to be held back further by unnecessary, restrictive domestic regulation.

A case in point is the federal Sugar Code of Conduct (Code) and its mirroring Queensland state marketing legislation. Both instruments ignore the fact that price discovery for sugarcane in Australia is completely transparent and opportunities exist for grower price exposure to be managed independent of sugar millers.

ASMC believes the Sugar Code of Conduct must be repealed because it:

- Delivers no net benefits to the industry and the communities that rely upon it
- Usurps millers' rights by confusing the issues of grower price exposure with the ownership and marketing rights of sugar, and
- Adds risk to future investment through its provisions for pre-contractual arbitration. Our AU\$2 billion industry is at a fork-in-the-road, where policy decisions can help stimulate growth in income and jobs or consign us to a stagnant future. Viability, competitiveness and growth will only come with investment, and investment will only come with confidence.

The Code discourages both. ■



CEO David Pietsch.

# India – The need to challenge and reform

● By David Rynne, Director of Economics, Policy and Trade ASMC



David Rynne, Director of Economics, Policy and Trade.

INDIA is a member of the World Trade Organisation (WTO) and as a developing country enjoys certain subsidy entitlements. It is obliged to report domestic levels of assistance to the WTO, and to stay within its entitlements. India can and should expect to be challenged if inconsistencies are identified, including through formal WTO dispute proceedings.

Since March 2018, the Australian Sugar Milling Council (ASMC) with like-minded bodies has been working with the Australian government to investigate and pursue remedies to prevent subsidised Indian sugar exports from entering the global market.

## The case against Indian subsidised sugar

Through regulated cane prices, the Indian national and state governments provide significant assistance to Indian growers. Additional aid, in the form of export and assistance payments have been announced more recently and there is additional support

by way of fertiliser, power and water subsidies. India is suffering from the vicious cycle of subsidies that incentivise production leading to further support measures that respond to high stocks levels, and cash-flow issues and mounting debt levels for mills.

## World Trade Organisation – action to uphold the rules

In partnership with government, the Australian industry has assessed whether the growing list of Indian interventions have exceeded allowable:

- Export subsidies under the WTO Agreement of Agriculture (AoA) and Subsidies and Countervailing Measures (SCM) Agreement, and levels of
- Subsidy support to cane growers under the same two Agreements – including the so-called 10 per cent de minimis test, as measured by the product's Aggregate Measure of Support (AMS).

Of particular interest to ASMC is the 10 per cent de minimis test. It assesses whether the root of the problem – the very high and increasing minimum cane prices set by the Indian governments – are within their entitlements (through Fair and Remunerative and State Advised Prices). These minimum prices generate returns considerably higher for cane than for alternate crops like wheat, and incentivise over-production and the need for subsidised exports.

Under the 10 per cent de minimis test, some support for growers is allowed, but only to a maximum of 10 per cent of the sugarcane crop's value in any given year. The AoA provides a market price support (MPS) methodology to calculate whether the 10 per cent limit has been exceeded. MPS calculations for India suggest that the high minimum cane prices do create an exceedance of entitlement and would need to be considerably reduced to become compliant with the WTO obligations.

## Where to from here?

ASMC remains concerned that India will continue to produce sugar in excess of its domestic requirements. WTO dispute cases can take time, but in our view the threat is likely to continue and needs to be addressed. Previous successful WTO disputes of this nature (EU in 2004 and Thailand in 2017) have been a major catalyst for reform and liberalisation and we believe a similar outcome is possible in India.

FIGURE 1: Indian fair and remunerative price of sugarcane

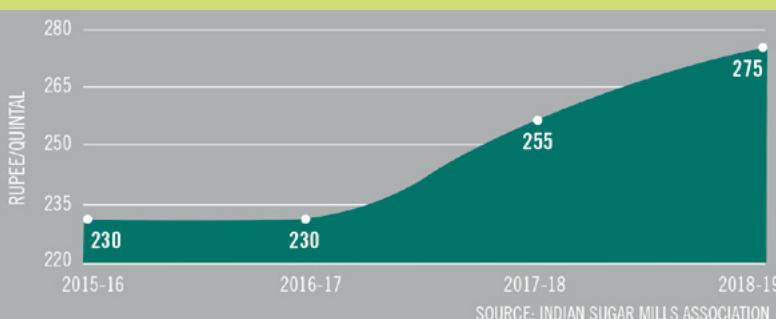
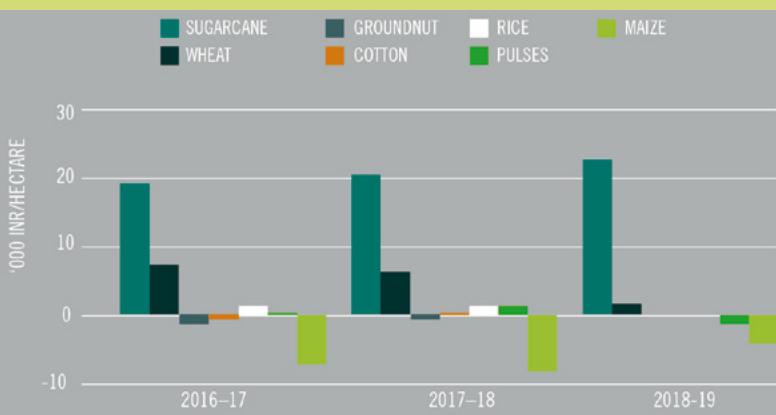


FIGURE 2: India high relative cane returns per hectare

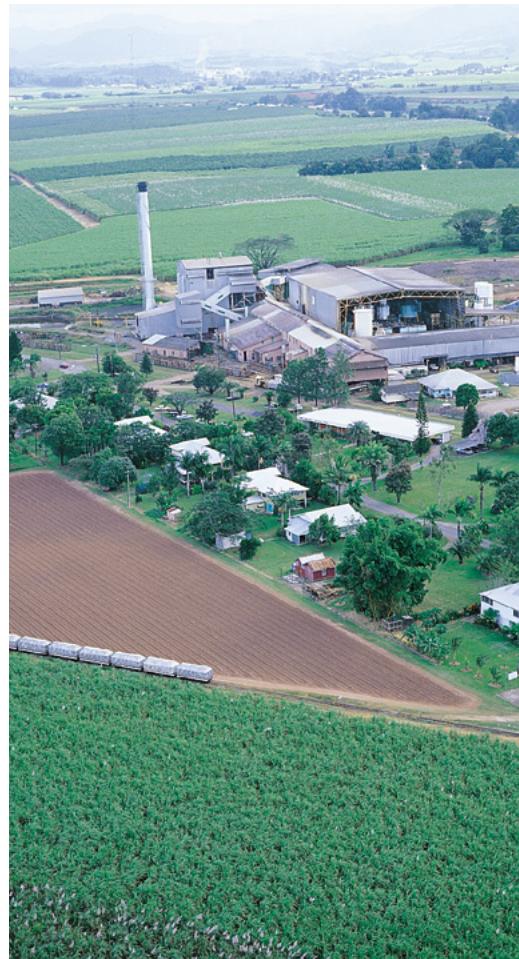


ASMC continues to advocate and work with like-minded global producers, the Department of Foreign Affairs and Trade and the Department of Agriculture and Water Resources to advance trade liberalisation in the global sugar industry.

The Sugar Milling Council supports a number of actions going forward:

- Commencement of formal WTO proceedings, including lodgement by the Australian government of a counter-notification at WTO at the next opportunity in November 2018;
- Continued international pressure on the Indian government to adhere to its WTO obligations and particularly and urgently to agree to store rather than export subsidised sugar onto the global market as well as to remove the compulsory obligation on Indian millers to export;
- Commitment by the Indian Government to reform of the Indian sugar industry including a move to market driven cane prices, removal of product-specific subsidies and a move to an improved welfare safety net for cane growers; and,
- WTO parties to pursue reforms that achieve greater WTO transparency requirements on subsidies, stronger subsidy rules and stricter disciplines on public bodies and state-owned enterprises.

Drawn from ASMC Sugar Policy Insights – November 2018.  
Visit: [www.asmc.com.au](http://www.asmc.com.au)



# Milling NSW – Sunshine Sugar

SECTION 6  
**MILLING AND MARKETING**

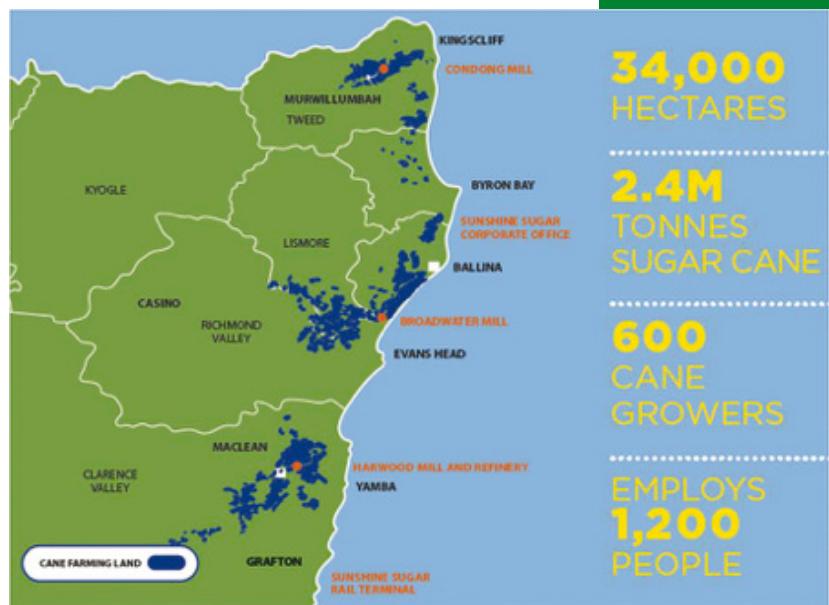
**S**UNSHINE Sugar is a partnership between the grower-owned NSW Sugar Milling Co-operative (formed in 1978) and the Australian family-owned business Manildra with each holding a 50 per cent share. It is the only 100 per cent Australian owned producer of raw and refined sugar products.

Sunshine Sugar owns and operate sugar mills at Harwood, Broadwater and Condong and a refinery co-located at Harwood. Sugar production has been a major industry in the Clarence, Richmond and Tweed Valley's for over 150 years, with the Harwood Mill being the longest running sugar mill in Australia, having commenced operation in 1874.

Sunshine Sugar is the retail name used for the NSW sugar industry. This industry



Sunshine Sugar CEO Chris Connors.



## SECTION 6 MILLING AND MARKETING

supports more than 500 farming families and over 1,000 direct and indirect employees. The farming footprint covers some 34,000 hectares with up to 2.4 million tonnes of cane grown and 275,000 tonnes of raw sugar produced each year. These operations contribute over 200 million dollars per annum to the Northern Rivers' economy.

### The Manildra Harwood sugar refinery

The refinery commenced operations in 1988 when the grower-owned NSW Sugar



Milling Co-operative Limited and family-owned Australian agribusiness Manildra Group joined forces to form a partnership to produce, distribute and market refined sugar products throughout Australia.

The refinery, which is located alongside the Harwood Sugar Mill on the majestic Clarence River, produced its first refined sugar on 28 September 1989 and since then has produced over five million tonnes of refined sugar and related products. The refinery capacity is 260,000 tonnes per year. It is one of the largest employers in the area and is a major contributor to the economic and social prosperity of the region.

### Low GI sugar takes out innovation award

Sunshine Sugar's Low GI Sugar, which hit the supermarket shelves around the country in July 2018, has taken out the award for Excellence in Innovation at the 2018 Northern Rivers Regional Business Awards.

Mr Chris Connors, Sunshine Sugar CEO commented; "We have been working for some time with Dr David Kannar of the Nutrition Innovation Group – they are leaders in the field of nutrition research and sugar innovation – to produce Nucane, a wholesome cane sugar that is rich in antioxidants with a low glycemic index."

With increasing focus on health concerns such as obesity and diabetes around the globe, Nucane offers the opportunity for Sunshine Sugar to manufacture a healthier cane sugar on a scale that makes it available and affordable for consumers as well as manufacturers of foods and beverages.

Developed in Australia, this technology applies advanced production methodologies at the sugar milling stage to consistently produce a sugar that retains naturally occurring and beneficial antioxidants. Nucane is a 100 per cent natural, low GI cane sugar that is more slowly digested, absorbed and metabolised – resulting in a lower and slower rise in blood glucose.

Sunshine Sugar is the only 100 per cent Bonsucro certified and Australian owned sugar operations in the world and is proud to be an Australian company leading the way in this initiative.

As a Regional winner, Sunshine Sugar we will now go on to compete for the State's top honour at the NSW Business Chamber State Business Awards, culminating in the Gala Awards Dinner in Sydney on Friday November 23, Luna Park.

"The NSW sugar industry is focussed on delivering a range of new products that meet the demands of consumers and give returns to our growers. With a worldwide focus on health concerns such as obesity and diabetes, Nucane offers our business the opportunity to manufacture a healthier cane sugar on a scale that makes it widely available and affordable," Chris said. ■



**Located on Harwood Island, the Harwood sugar mill sits on the banks of the Clarence river and is the oldest continuously operating sugar mill in Australia and has been crushing cane since 1874.**



**The Manildra Harwood Refinery is one of the largest employers in the area and is a major contributor to the economic and social prosperity of the region.**

# QSL MARKETING

## QSL enters into new era

● By Guy Cowan – Chairman's Report, QSL AGM 2018

THE past year ushered in a new era for QSL, with the implementation of Marketing Choice, the transition to new terminal operating arrangements and our new competitive operating environment reshaping the way we do business on nearly every front.

It's certainly been a significant transformation, but one that has not altered our wider corporate intent.

QSL has always been driven by our purpose to serve the long-term interests of the Queensland sugar industry, and so while our marketing focus has expanded from 'wholesale' arrangements with millers to include new 'retail' relationships with growers, and from a sub-lessee of Queensland's terminals to a terminal operator for Sugar Terminals Limited, our corporate mission remains the same – to maximise the value we deliver to all members of the industry we serve.

Both millers and growers are members of our company and are important to us. So while we spent much time in the past year developing an extensive new range of products and services

to support our new relationship with growers around the state, we recognise that we must work to support every aspect of the supply chain that underpins our industry's success.

QSL has long served Queensland's milling interests and operated our state's terminals, and we believe we still offer a range of services, expertise and synergies that are difficult to replicate. We continue to work closely with Bundaberg Sugar and Isis Central Sugar Mill to provide the full range of services available under the traditional Raw Sugar Supply Agreement contractual format, but we appreciate that the needs and priorities of Queensland's millers vary.

To this end, we're currently negotiating an On-Supply Agreement with Mackay Sugar which will enable Mackay growers to continue to access QSL marketing services into the future. We're also working with representatives of the new Far Northern Milling Company to provide support to enable Mossman Mill growers to access QSL pricing and receive payment if the local mill transitions to their ownership.

We also remain committed to working with MSF Sugar, Tully Sugar and Wilmar to improve existing Marketing Choice arrangements and identify potential new products and services which could add value.

And on the international stage, we continue to speak out for the entire Australian sugar industry and fight for fairer trade arrangements through our work with the Global Sugar Alliance and government free-trade initiatives.

The low sugar prices experienced during the current season have not only made our work to maximise returns more challenging, but have highlighted just why our ongoing commitment to innovation across every aspect of our business is so important.

To effectively serve the needs of the Queensland sugar industry, QSL must not only continue to implement efficiencies and cost savings, but also provide the new tools and services required to effectively navigate a volatile world sugar market and ever-changing operating environment.

I believe my fellow Directors and the QSL management team have already proven they can meet this challenge, and I'd like to thank them for their tireless efforts and continued support during the past year. The value of a stable Board, capable management team and dedicated employees cannot be underestimated, and I am proud to say that QSL boasts all three.

I'd also like to acknowledge the unwavering

### SECTION 6 MILLING AND MARKETING



Guy Cowan – QSL Chairman.

### ABOUT QSL

QSL is a public company limited by guarantee and incorporated under the Corporations Act 2001. It is a pass-through organisation which operates on a cost-recovery basis, returning all net value created through its activities to Queensland cane growers and sugar millers who choose to use our services.

Driven by the best interests of our members and the long-term prosperity of the Queensland sugar industry rather than corporate profits or shareholder dividends, QSL is a registered charitable institution and as such, exempt from income and payroll taxes.



**SECTION 6**  
**MILLING AND  
MARKETING**

support of our international customers throughout the recent transition to marketing choice, with the renewal of the long-term contract with our South Korean refiners a highlight of the reporting period and a powerful example of the customer loyalty QSL has cultivated over many decades.

As Australia's largest and most experienced provider of sugar marketing and operations services, our perspective is unique and our credentials are unsurpassed. The benefits of QSL are for all of industry and we will continue to work with this in mind as the next phase of our industry's evolution unfolds.

## **First full year under Marketing Choice**

● By Greg Beashel, Managing Director and Chief Executive Officer

THE 2017 Season marks our first full year under the new Marketing Choice arrangements which saw the introduction of a number of significant changes to our business to reflect our new operating environment. These significant changes included:

The first year of operations under our new contract with Sugar Terminals Limited (STL) whereby QSL operates Queensland's six sugar terminals on STL's behalf and STL is responsible for contracting terminal services to sugar marketers.

A new competitive landscape for sugar marketing resulting in major changes to our products and processes.

A new offering where QSL contracts directly with sugar farmers for marketing services.

We transitioned to these new arrangements while keeping a tight rein on expenditure, with initiatives such as a new lease agreement for our corporate office and reductions in staff, travel and professional costs resulting in a reduction in our Brisbane office cost base in addition to other cost-saving measures across our Marketing and Operations units.

In light of the challenges of the past few years and the changes outlined above, it would have been easy to lose focus, but I'm proud to say that the QSL team delivered on all fronts again during the past year.

QSL remained the largest marketer of Queensland sugar in the 2017 Season. Our



**Greg Beashel, Managing Director and Chief Executive Officer.**



**Damian Ziebarth, QSL Operations General Manager.**

Marketing team went on to outperform most of our competitors and exceed the benchmark (market average) price by \$29.95 per tonne IPS to finish the season with a weighted average return of \$414.56 per tonne IPS net for its managed pools.

During the reporting period our Operations division also successfully transitioned to new operating arrangements at our terminals under our new Operating Agreement with STL. Despite handling multiple clients and nearly 4 million tonnes of sugar, they notched up another faultless delivery record, with 100 per cent of all shipments from Queensland bulk sugar terminals delivered in full and on time.

This is the kind of excellence that QSL is known for, and it is this commitment to providing the very best service to industry that drives us forward. We thank all those who have supported us during the past year, and we look forward to finding new ways to benefit your business in the year to come.

## **QSL Operations New Operating Agreement with Sugar Terminals Limited**

● By Damian Ziebarth, QSL Operations General Manager

QSL's new Operating Agreement with Sugar Terminals Limited (STL) came into place during 2017, heralding a new chapter for QSL Operations.

Under the agreement, QSL remains one of the largest and most experienced sugar terminal operators in the world, managing Queensland's six bulk sugar terminals on behalf of the asset owner, STL. Marketers and terminal users, including QSL Marketing, now contract directly with STL for terminal access.

The agreement commenced on July 1, 2017 (it included transitional arrangements for 2017-Season sugar received prior to this date) and has an initial five-year term, with a three-year rolling term thereafter.

The new arrangements outlined above led to a significant revision of stock management practices, as the QSL Operations team reworked the existing logistics management system designed for a single marketing plan to cater for multiple terminal customers. Ring-fencing provisions within QSL were also expanded to include a new co-location with QSL Operations and STL in Brisbane and additional communications protocols to maximise the new synergies between QSL Operations and STL

while also protecting the confidential nature of the terminal customers' commercially sensitive marketing plans and operations requests.

Despite the challenges associated with the in-season transition to these new operating arrangements, the QSL Operations team produced a 100 per cent Delivered In-Full On-Time (DIFOT) performance result, with every terminal customer receiving the full volume of requested sugar at the quality they specified and the time they wanted it. ■

## Highlights



### Marketing



### Operations



### Corporate Services



# Milling

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### BULK SUGAR TERMINALS

Cairns, Mourilyan, Lucinda,  
Townsville Mackay, Bundaberg





# RESEARCH, DEVELOPMENT & ADOPTION

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**SECTION 7**  
**RESEARCH**  
**DEVELOPMENT &**  
**ADOPTION**

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# Sugar Research Australia

**S**UGAR Research Australia Limited (SRA) is a sugarcane grower and miller owned company and the declared Industry Services Body for the Australian sugarcane industry under the Sugar Research and Development Services Act 2013.

SRA is required to provide and manage research, development and adoption (RD&A) activities, for the benefit of the sugarcane industry and for the wider public good.

SRA invested \$37.7 million in RD&A activity in 2017–18, which was made possible through sugarcane grower and miller levy contributions; Commonwealth and Queensland Government co-investment; and collaborative funding partnerships with other research organisations, industry organisations and agri-businesses.

This investment was guided by SRA's 2013–14 – 2017–18 Strategic Plan and the 2017–18 Annual Operational Plan, that set the key focus areas (KFAs), intended outcomes and performance measures that SRA worked towards during the past year.

The 2017–18 Performance Report is by no means exhaustive but rather provides a selection of SRA's research highlights and performance. This report is a companion document to SRA's 2017–18 Annual Report where significant initiatives, collaborations and corporate governance overviews are provided. In addition, SRA's website and periodical publications, such as CaneConnection, MillingMatters and electronic newsletters, provide further information on SRA's research portfolio and the impact this research is having on the Australian sugarcane industry.

## State of the industry – 2017–18

The Australian sugarcane industry stretches the eastern seaboard from Northern New South

Wales (NSW) to Mossman in North Queensland, comprising approximately 4100 growers and 24 mills. In 2017–18, the industry produced 33.3 million tonnes of cane, a reduction from the 2016 crop of 36.5 million tonnes due in part to the impact of Cyclone Debbie affecting much of the industry in the early months of the year. The industry continued to face other local challenges of industry exit, land competition from other agricultural industries and rising input prices.

Entering the second year of world market surplus, the global market experienced substantially low world sugar prices, adversely affecting the Australian industry. 55 per cent of Australian growers reported profits to be below that of the five-year average coupled with industry confidence falling due to the sustained low sugar prices, overseas competition and the pervasive negative sugar nutrition media debate (Grower Survey, 2018).

In spite of local, price and climatic challenges, the industry exported 3.7 million tonnes of raw sugar in 2017, maintaining Australia's place as the third largest exporter in the world. To strengthen Australia's export position and potentially increase the volume of industry exports, some advancements were made in trade policy and market access, including the securing of duty-free provisions for Australian sugar into Peru through the Peru-Australia Free Trade Agreement (PAFTA).

Australia continues to lead the world as the highest producer of cane yield per hectare, maintaining a substantial margin above that of Thailand, which has seen considerable industry growth in recent years.

Looking forward, SRA will continue to grow the profitability, sustainability and capability of the Australian sugarcane industry. Through appropriate and effective research and development solutions that are translated into timely on-the-ground outcomes, SRA will enable our growers and miller investors to respond to opportunities and buffer the impact of the abovementioned challenges.

## 2017–18 Performance Report outlines SRA's achievements

In October 2018 Sugar Research Australia (SRA) released a comprehensive report on its performance for the 2017–18 financial year. This publication explained how SRA has delivered return on investment for its industry and government investors.

In releasing the 2017–18 Performance Report, SRA CEO Mr Neil Fisher said that SRA was committed to keeping all investors, research partners, collaborators and other stakeholders informed regarding the value that is provided by SRA.

**FIGURE 1: Average global sugarcane yields (t/ha)**





## Quality Fuel

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Local Service

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Experienced Service Team  
Bulk Delivery Available

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Pumps & Dispensing Equipment  
Workshop Consumables



**For more information:**  
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[lowespetrol.com.au](http://lowespetrol.com.au)

## SECTION 7 RESEARCH DEVELOPMENT & ADOPTION

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association with



"Our annual Performance Report details the achievements of SRA and how they align to our Annual Operational Plan and our five-year Strategic Plan," Neil said. "This Performance Report provides robust, quantifiable and meaningful data that articulates how SRA is creating impacts and outcomes for sugarcane growers and millers."

For example, in the 2017–18 financial year SRA helped optimise the feed-train of 24 harvesters, reducing sugar loss for the value chain and improving profitability.

SRA also released six new sugarcane varieties that have a range of productive traits for growers and millers, and we developed the CogCalibrator tool to make calibrating fertiliser boxes easier and allow growers to save money on their fertiliser inputs. SRA investment also saw the development of a blueprint for sugarcane mill managers to guide improvement strategies. This blueprint

details new processing technologies and their cost-benefit relative to conventional technologies in the Australian industry.

Neil said that SRA has also embarked on major initiatives to improve the adoption of technology in the industry, and to modernise the sugarcane breeding program.

SRA is the industry-owned company for research, development and adoption for the Australian sugarcane industry.

"SRA has listened to our investors and their need for us to demonstrate how we are providing value," Neil said. "We are delivering against the four goals in our Strategic Plan: driving profitability; improving sustainability; enhancing capability; and strengthening organisational excellence.

"Our Performance Report is one tool we use to communicate how SRA is delivering for our investors against these overarching goals." ■

## SRA IN 2017/18 SNAPSHOT

88

USERS ENROLLED IN THE NEW  
LEARNING MANAGEMENT  
SYSTEM (LMS) FOR SUGAR  
MILLING OPERATIONS  
PROVIDING 312 TRAINING  
COURSES TO DEVELOP MILL  
OPERATIONS CAPABILITY  
AND SKILL

6.8:1.0

RETURN ON  
INVESTMENT  
FROM RESEARCH  
OPTIMISING  
PRODUCTIVITY  
THROUGH  
ANALYSIS OF MILL  
DATA



11,400

HECTARES OF CANE  
LAND MANAGEMENT  
CHANGED IN  
ACCORDANCE WITH  
CHEMICAL BEST  
MANAGEMENT PRACTICE  
IN THE WET TROPICS  
REGION FOLLOWING  
INVOLVEMENT IN SRA'S  
ADOPTION PROJECT  
2016/022

43%  
OF GROWERS WHO  
REPORTED PRACTICE  
IMPROVEMENTS IN 2018  
ATTRIBUTE SRA AS AN  
IMPORTANT SOURCE  
OF INFORMATION FOR  
PROMPTING CHANGES

24

HARVESTER FEED  
TRAINS WERE OPTIMISED,  
REDUCING SUGAR LOSS  
FOR OPERATORS BY  
\$70 PER HECTARE

7

BENCHTOP NEAR INFRARED  
(NIR) SPECTROSCOPY  
INSTRUMENTS HAVE BEEN  
INSTALLED IN AUSTRALIAN  
SUGAR MILLS AND  
REFINERIES IMPROVING  
MILL EFFICIENCY AND  
PROFITABILITY

2.9:1.0

AGGREGATED  
RETURN ON RD&A  
INVESTMENT



6  
NEW VARIETIES RELEASED:  
SRA11<sup>®</sup>, SRA12<sup>®</sup>, SRA13<sup>®</sup>,  
SRA14<sup>®</sup>, SRA15<sup>®</sup>, SRA16<sup>®</sup>

92%

SRA'S SCORE IN THE  
ANNUAL EXTERNAL AUDIT  
OF THE WORKPLACE  
HEALTH AND SAFETY  
(WHS) MANAGEMENT  
SYSTEM REFLECTING  
EXCELLENT WHS  
PRACTICES



72%

OF SURVEYED  
GROWERS  
RATED SRA'S  
PERFORMANCE  
'HIGH' TO  
'VERY HIGH'

# CSIRO has appointed their new Chief Scientist

● By Nicholas Kachel, CSIRO

**W**HEN Dr Cathy Foley was in primary school she found out she was dyslexic. She had terrible handwriting and spelling and was struggling in class. As one of seven kids, her brothers teased her relentlessly about her challenges with reading and writing. But she managed to turn her tribulation into determination and resilience. And those are traits that she still carries with her today. The teasing, she says, just helped push her even harder to prove them wrong.

And then when she was just nine years old, her mother passed away. This obviously took a huge toll on Cathy but she says it helped teach her resilience and that even painful situations show you that you can move on and survive another day. In high school, Cathy had a teacher who picked up that although she was struggling in most of her subjects, she was excelling in one – science. At that stage, though, Cathy thought she'd channel this into becoming a science teacher.

"I always thought you had to be sort of Einstein's relative if you were going to be a physicist. But I still had that secret desire," Cathy says.

That teacher was one of Cathy's first science mentors and she attributes some of her success to those formative years where she finally felt like she was doing well in a subject she enjoyed.

## Change the world

It wasn't until Cathy was at a youth camp that she realised she wanted to change the world. Her compassion for others and a sense of wanting to see more fairness in the world, changed the course of her career.

"At the youth camp, I found one on one interactions were frustrating for me. It was then that I decided I wanted to change the world rather than work face to face, one engagement at a time. Science and technology seemed like the way I could do this. And then CSIRO was the perfect vehicle for me to realise this vision."

She studied physics and education at Sydney's Macquarie University with the intention of becoming a high school science teacher.

"But I fell in love with research and I did my PhD in nitride semiconductors and did a smidgen of the early work that led to the white LED," she says.

Today Cathy's achievements over a career spanning 33 years are pretty intimidating.

SECTION 7  
RESEARCH  
DEVELOPMENT &  
ADOPTION

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Physicist Doctor Cathy Foley has been appointed the new chief scientist of the CSIRO after 30 years working with the country's peak science body.

## SECTION 7 RESEARCH DEVELOPMENT & ADOPTION

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Superconductors in the search for ore  
Having decided to pursue a career in research, Cathy joined us as a post-doctoral fellow working in magnetics and was asked to join the team working on applications for the new high temperature superconductors.

Cathy is a world-renowned physicist and science leader most noted for her work developing superconducting systems including a technology called LANDTEM which uses superconductors to create three-dimensional maps of underground ore bodies. The device that Cathy helped develop has revolutionised the way mining companies detect ore underground and uncovered deposits worth billions of dollars around the world.

Cathy has risen through the ranks here holding many senior positions is currently the Deputy Director and Science Director of our Manufacturing business unit.

And in her latest venture, Cathy has just been appointed as our Chief Scientist. This is one of the most senior roles in the organisation and she says her priority will be putting science, STEM and women in science back in the spotlight.

Although Cathy is now less involved in hands-on research than she used to be, she still finds her job exciting.

"It's pretty exciting to think that the work you do actually has an enormous impact and



**Cathy is leading the way for women in science and encouraging the next generation of young girls to follow in her footsteps.**

can make a difference. If you ask the people I work with, they all say that's what they love about working at CSIRO. We do things that actually change the world and I think that's a nice thing to do," she says.

### **Leading the way for women**

Not only is she one of Australia's leading scientists, has a Doctor of Philosophy in Physics, a Bachelor of Science and a Diploma of Education, but she is leading the way for women in science and encouraging the next generation of young girls to follow in her footsteps.

"Australia's future prosperity will be fuelled by science. Science which creates new industries, new jobs and shapes the minds and aspirations of our future leaders. We can't keep thinking about science as something which is locked away in a lab. It connects and drives everything we touch and do."

"In my new role, I'm looking forward to not just spreading the word, but helping shape the science agenda, raising the profile of the role of women in STEM and being a mentor to other women inspired by science."

Cathy credits much of her success to being supported by her family, particularly her husband, her six siblings and step-mother.

"My step-mother helped me to not only have attention to detail, but also be organised. While my sisters and brothers have always been my mentors and greatest supporters. We all mentor each other swapping between being the mentor and mentee."

"And my husband Tony is a rock. Having a supportive husband and great children has been absolutely critical to my success."

**At Dinner Plain the pace is easy going...**

Dinner Plain is the place where the family can be together by the fireside or miles apart exploring the cross-country trail network. Where you stroll the treelined streets simply for the sights or to meet friends for a restaurant dinner or drinks at the bar. The village itself helps set the community atmosphere, natural building materials and earthy tones blur the line between man made and alpine environment. Over 200 lodges and chalets with all the conveniences of a modern resort.

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Explore our website at [www.dinnerplain.com](http://www.dinnerplain.com) or call our info number 1300 734 365 or email to [info@dinnerplain.com](mailto:info@dinnerplain.com)

**Dinner Plain**  
**Visitor Information**  
**Centre**

# Lowes Petroleum Serving Regional Communities Since 1977

We've been part of regional communities, delivering fuel and lubricants to rural businesses for over 40 years.

Starting from a single truck in Boggabilla to delivering over a billion litres of fuel a year, Lowes Petroleum is proud to be part of the success story of rural and regional Australia.

Lowes Petroleum has become a trusted name for fuel and lubricant solutions throughout QLD, VIC and NSW.

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- Experienced local staff
- Company owned fleet (accredited under mass and maintenance with the National Heavy Vehicle Regulator)
- Storage & pumping equipment
- Access to 1400+ national refuelling sites with our no-fee Lowes BP+ Fuel Card.



**For more information:**

1300 4 LOWES  
[lowespétroleum.com.au](http://lowespétroleum.com.au)



## Alternative Fertiliser

An Australian owned fertiliser manufacturer has invested significant resources since 2005 in the development of more biologically and eco sensitive agricultural practices.

Hibrix Gold is a biologically based liquid fertiliser. It contains molasses, (sugars and minerals), twenty-eight measured minerals, two kelps and the Hibrix Chelator.

Chelators attach to metal ions and carry them into the plant. The Hibrix chelator is better than existing chelators in two ways:

**1** When the Hibrix chelated nutrient comes in contact with the root system the chelating agent is immediately repelled as it delivers the nutrient load through the plant skin barrier. Once repelled it is free to seek out metal ions to protect and deliver. This shuttling back and forth of nutrients is highly efficient and unique to Hibrix.

**2** The Hibrix chelator also attaches to macro nutrients (NPK) and prevents them from breaking down or combining with aluminium or iron in the soil. This means the available pool of phosphorus is larger for longer. With less fertiliser lost into the soil profile, farmers can choose to apply less fertiliser to begin with. This improves the farmer's profit margin and the long-term soil health.

## Hibrix Efficient Farming

### More benefits with less fertiliser

Pre-Hibrix farmers apply 20 – 60 kg of phosphorus to the soil. What most don't realize is that only 25% goes into the plant. The remaining 75% goes into the soil, much of it ends up in our waterways. Not only is this bad for the environment, it is also expensive.

Scientist and industry leaders agree we are headed for a phosphorus crisis. The human population is growing and world phosphorus reserves are not renewable or replaceable. Once they are gone – they are gone.

Hibrix has been tested successfully on a wide variety of grains (wheat, oats, barley, triticale), several forms of Hay (with great positive reaction from cattle producers), stone fruits, nuts, rice and we are two years into a three-year, triple replicated sugarcane trial in North Queensland. A number of alternative fertiliser products are being compared to standard fertiliser applications at Six Easy Steps rates. Results to date for both yield and CCS are very encouraging.



You can view these trials on our website:  
[www.nwsolutions.com.au/hibrix-trials](http://www.nwsolutions.com.au/hibrix-trials)

For more information please contact us: **1800 226 303**  
[info@nwsolutions.com.au](mailto:info@nwsolutions.com.au) | [www.nwsolutions.com.au](http://www.nwsolutions.com.au)



## Decrease water pollution and increase yield

With world attention being focussed on the great Barrier Reef, the sugarcane industry faces two major environmental challenges.

## Herbicide and Pesticide Runoff

Herbicides are a concern due to their impact on a range of marine plant species such as corals, sea-grass and macro-algae. High levels of nutrients encourage algae blooms and can change the diversity of animals and plants found along inshore reefs.

## Nutrient Runoff

To obtain satisfactory production farmers have resorted to ever increasing use of NPK fertilisers, with the subsequent increase in cost as imported fertilisers increase in price.

Nitrogen inputs have a higher correlation with crown-of-thorns starfish(COTS) outbreaks than other nutrients such as phosphorus (Queensland Government 2018). When environmental conditions are suitable, COTS proliferate and can reach plague populations, devastating the hard-coral population. Each starfish can eat up to one square metre of coral per month.



Three-year, triple replicated sugarcane trial underway in North Queensland – Hibrix Gold and other alternative fertiliser products are being compared to standard fertiliser applications at Six Easy Steps rates.

## What can we do about it?

Hibrix Gold is a proven product that we believe will help cane farmers meet these environmental challenges. And the cane farmer also stands to benefit from a fertiliser cost saving using the product.

The cane farmer begins by using Hibrix Gold as a supplement, replacing up to half of their standard NPK fertiliser. He contributes to solving the pollution challenge, saves money and increases his production over subsequent years.

The world food industry has never had more mouths to feed. It also has never had as many pressing environmental concerns. Years of chemical overload into our soils and toxic run off into wetlands are global agricultural concerns. Such issues urgently call the industry to look at more biologically sound practices.

The transition to commercial organic farming can be very time consuming and cost prohibitive. With Hibrix Gold the process to become commercially organic becomes less time consuming and a much more cost-effective, realistic proposition due to a simpler transition.

**GENERAL DISCLAIMER** - Many factors govern the efficacy of the product such as adherence to application protocols, chemical use, climatic conditions, quality of the soil, microbial activity in the soil and other naturally occurring factors in our environment and as such, Hibrix Sales Pty Ltd is unable to guarantee any results by the use of the product. However, research has shown improvement in yield and the quality of the soil due to continuous usage.

This section  
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# Can we reduce fertiliser without reducing yield?

A THREE-YEAR soil additive trial is nearing completion in the Tully area. The trial aims to determine if the standard sugar industry rate of nitrogen and phosphorous fertilisers can be reduced when using particular soil additive products without there being associated reductions in yields.

Being able to reduce applied fertiliser rates offers both environmental and economic benefits. Rainfall run-off and irrigation tail water can wash nutrients, pesticides and sediment into freshwater zones and coastal wetlands.

Similarly, water drainage through agricultural soils can cause leaching of soluble nutrients and pesticides which infiltrate groundwater and then find their way into rivers emptying into the sea.

The sugarcane industry is committed to reducing nutrient and pesticide run-off into the Great Barrier Reef catchment. Soil additive products like those being trialled at Tully offer the possibility of a commercially viable reduction in current fertiliser application rates.

One of these products is Hibrix Gold from Natural Water Solutions.

Hibrix Gold is not a new product. It has been previously trialled and utilised on a wide variety

of grain crops and pastures. It contains a brace of minerals, sugars, kelps and the Hibrix 'chelator'.

## Increased fertiliser efficiency

A chelator bonds to metal ions in the soil and carries them into the plant. This increases the efficiency of fertilisers by reducing nutrient loss into the soil profile.

When the Hibrix chelated nutrient comes in contact with the root system the chelating agent is repelled as it delivers the nutrient load through the plant skin barrier. Once repelled it is free to seek out other metal ions to stabilise and deliver.

The Hibrix chelator also attaches to macro nutrients (NPK) and prevents them from breaking down or combining with aluminium or iron in the soil. This means the available pool of nutrients is larger for longer.

If the product can stabilise the existing fertiliser in the soil then this would suggest that the farmer can reduce the total amount of fertiliser required to be applied each year. Hence the trial at Tully.

## Improved root systems

Apparently, the root systems of plants are only able to source nutrients from an area within 1mm of their surface. Any nutrient outside this area is un-obtainable.

There are trials that suggest Hibrix increases the number of fine root hairs. This would increase the plant's ability to seek out, dissolve and absorb otherwise locked-up nutrients.

The Tully field trial is exploring the possibility that the use of soil additives like Hibrix can deliver reductions in fertiliser rates whilst maintaining or improving yields.

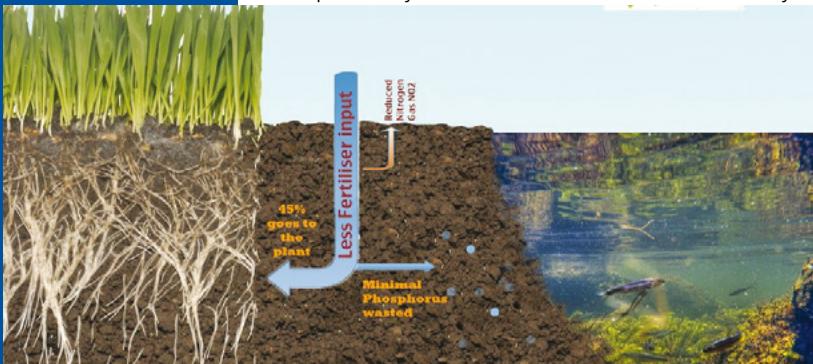
The trial began with the additives being applied at planting in September 2015. The trial is set to last three years with triple replicate sites as a minimum.

## Each harvest cane and sugar yields are recorded

In a Hibrix pasture trial in Western Australia it was demonstrated that fertiliser rates could be significantly reduced without a yield or quality penalty. If this proves to be the case with the Tully sugarcane trials then the next round of trials could explore the 'nutrient retention' aspects of the products.

We would all be very pleased to learn that the use of soil additives can reduce the amount of nutrients leaching into our waterways – particularly those bordering the GBR!

For more information and crop trial results visit:  
[www.nwsolutions.com.au](http://www.nwsolutions.com.au)



When a farmer applies fertilisers such as phosphorus to the soil only 25 per cent is taken up by the plant. The remaining 75 per cent goes into the soil and much of it could end up in our rivers and oceans. The Hibrix chelator promises to significantly reduce these losses.



The plant on the left from the Hibrix trial plot has far more fine root hairs than the plant from the control plot.



# Look no further for 2019 travel destinations...

- ★ South Africa
- ★ South America
- ★ Cuba & Mexico
- ★ UK & Ireland
- ★ Netherlands, France,  
Portugal & Spain
- ★ Japan

Express your interest in the above study tours – or let us know what's on your wish-list – and if there are enough like-minded souls, we'll do our best to make it happen.

Contact details:  
Lloyd (0428 724 615) or  
David (0437 000 234)  
Email: [travel@greenmountpress.com.au](mailto:travel@greenmountpress.com.au)  
Or visit: [www.greenmounttravel.com.au](http://www.greenmounttravel.com.au)  
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120 Herries St, Toowoomba Q 4350

# New variable rate liquid fertiliser applicator

● By Cameron Liddle, LiquaForce Managing Director

**U**SING the latest technology and combining it with traditional agronomy, LiquaForce can now offer growers a true variable rate, in block nutrient application.

Supported by the Federal Government's Wet Tropics Sugar Industry Partnership, our Ingham based business LiquaForce was successful in gaining a Reef Trust 3 grant to develop a variable rate liquid fertiliser applicator – and we think it's an invention that will revolutionise how fertiliser is applied to cane paddocks.

The applicator was manufactured by TDC Auto Electrical in Ingham, supported by a team of local agronomists and cane farmers.

Like farms the world over, every sugar cane farm has variations in their soil types, and that means how the crop takes up fertiliser nutrients can vary from block to block. Liquid fertiliser is becoming more popular throughout Queensland and northern New South Wales cane growing regions due to its flexibility in adding precise elements when the crop needs it.

The variable rate liquid applicator takes that level of precision one step further, based on a dual-tank liquid fertiliser application with GPS rate controllers.

It will allow the operator of the applicator to independently control the delivery rate from each of the tanks, which will deliver key nutrients such as nitrogen and phosphorus in the necessary amounts for the crop. Obviously, this also means a reduction in over application – which is good for the farmers budget and the environment.

The new system also includes the ability to download mapping data of fertilised areas, as well as other rate application analysis.



Cameron Liddle, LiquaForce Managing Director.

This will allow growers to continually build personal data and understanding of the necessary fertiliser amounts based on site-specific, on-farm mapping.

Site-specific agriculture and variable rate application deliver improved farming practice and economic benefit compared with a blanket application of one fertiliser product and rate across a field.

The invention complements our existing three step nutrient management strategy – Liquid Ezy3.

**Step 1** consists of PlantStarter – a fit for purpose mix of nitrogen, phosphorous, zinc and other organic stimulants that delivers a superior strike, greater shoot length plus faster, easier and safer application.

**Step 2** is a product called BigShot. This was recently the subject of an independent research project carried out by the University of Southern Queensland, that found that 37 per cent of the nitrogen from the BigShot molasses-blended fertiliser was still in the soil four months after application, compared to just 27 per cent with granular.

**Step 3** is our Value N and NK range which is compatible with current herbicides and offers a split application function – offering greater efficiency.

And now, all steps are supported by our Variable Rate Liquid Applicator.

This applicator will save growers time and money, plus help to maximise yield potential without wasting nutrient. This is obviously good for both the bottom line and the environment.

LiquaForce is also really excited about the



The variable rate liquid applicator is based on a dual-tank liquid fertiliser application with GPS rate controllers.

opportunities this type of technology can and will bring to our smaller rural and regional centres.

For a long time now, our younger generation looking for skilled job careers have had to leave and head away from our communities. We hope developments like these will provide some extra prospects – which is exciting in itself!

The entire project really is an inspiring example of regional ingenuity.

This project brought small business, farmers, and state and federal government bodies together all for the betterment of the local sugar cane industry and the health of our waterways – it is an exciting innovation that north Queensland can be very proud of and we look forward to sharing it with cane growers along the eastern seaboard in the future.

For more information visit: [www.liquaforce.com.au](http://www.liquaforce.com.au) or Email: [cameron@liddles.com.au](mailto:cameron@liddles.com.au)



LiquaForce believes this type of technology will provide opportunities for young people seeking skilled job careers in our smaller rural and regional centres.

## SECTION 7 RESEARCH DEVELOPMENT & ADOPTION

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# R&D organisations contact details

## ASSCT

Australian Society of Sugar Cane Technologists: Secretariat

### POSTAL ADDRESS

PO Box 5596  
Mackay Mail Centre QLD 4741  
Ph: 07 4954 3956  
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Website: [www.assct.com.au](http://www.assct.com.au)

## SRA

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Website: [www.sugarresearch.com.au](http://www.sugarresearch.com.au)

## Cane Productivity & Sugar Services

### QUEENSLAND

**Bundaberg**  
Ph: 07 4151 2555  
**Burdekin**  
Ph: 07 4783 1101

### Herbert

Ph: 07 4776 1808

### Innisfail Babinda

Ph: 07 4064 3300 (South Johnstone)  
Ph: 07 4067 1266 (Babinda)

### Isis

Ph: 07 4126 1444

### Mackay

Ph: 07 4963 6830

### Maryborough

Ph: 07 4121 1100

### Mossman

Ph: 07 4098 2286

### Mulgrave

Ph: 07 4043 3342

### Plane Creek

Ph: 07 4956 1488

### Proserpine

Ph: 07 4945 1844

### Rocky Point

Ph: 07 5546 1481

### Tableland

Ph: 07 4048 4207

### Tully

Ph: 07 4088 0706

### NSW

**Broadwater**  
Ph: 02 6620 8257  
**Condong**  
Ph: 02 6670 1745  
**Harwood**  
Ph: 02 6640 0479

## Peak bodies

### Australian Cane Farmers Association

#### HEAD OFFICE

Level 3, 447, Upper Edward St  
Spring Hill, Brisbane 4000  
GPO Box 608, Brisbane QLD 4001  
Ph: 07 3839 1900  
Freecall: 1800 500 025  
Fax: 07 3303 2011  
E: admin@acfaf.com.au

#### BOARD OF DIRECTORS

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##### Directors

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Ph: 0428 988 136  
Michael Camilleri (Northern Region)  
Ph: 0419 738 702  
Carol Mackee (Herbert Region)  
Ph: 0419 652 102  
Steve Fordyce (Central Region)  
Ph: 0408 883 907  
Stephen McKeering (Central Region)  
Ph: 0439 088 654  
Michael Hetherington  
(Southern Region)  
Ph: 0407 621 694  
Robert Quirk (NSW Region)  
Ph: 0413 677 727

#### EXECUTIVE TEAM

General Manager: Stephen Ryan  
Administration Officer:  
Alicia Opajdowska



### CANEGRROWERS

#### AUSTRALIAN OFFICE

Canegrowers Building  
Level 6, 100 Edward Street, Brisbane  
GPO Box 1032 Brisbane QLD 4000  
Ph: 07 3864 6444, Fax: 07 3864 6429  
E: info@canegrowers.com.au  
www.canegrowers.com.au

#### STATE OFFICES

##### New South Wales

NSW Canegrowers Association  
239 River Street, Maclean  
PO Box 140 Maclean NSW 2463  
Ph: 02 6645 2515  
Fax: 02 6645 3250

##### Queensland

Queensland Canegrowers  
Organisation  
Canegrowers Building  
GPO Box 1032  
Level 6, 190 Edward Street  
Brisbane QLD 4000  
Ph: 07 3864 6444  
Fax: 07 3864 6429  
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##### Chairman

Paul Schembri Ph: 07 4959 8237

##### Senior Vice Chairman

Allan Dingle Ph: 07 4156 1118

##### Vice Chairman

Kevin Borg Ph: 07 4950 2272

#### SENIOR MANAGEMENT

##### Chief Executive

Dan Galligan CEO

##### Chief Financial Officer

Jodie Mittelheuser

##### Industry

Burn Ashburner – Senior Manager

##### Economics

Warren Males – Head

##### Environment & Sustainability

Matt Kealley – Senior Manager

##### Communications

Neroli Rooke – Manager

#### REGIONAL OFFICES

##### FAR NORTH QUEENSLAND

##### Mossman

Centenary Building  
Shop 1, Front St (PO Box 789)  
Mossman QLD 4873  
Ph: 07 4098 2377  
Fax: 07 4098 3567

##### Tableland

Shop 11B/94 Byrnes Street  
(PO Box 1359)  
Mareeba QLD 4880  
Ph: 07 4092 6065 Fax: 07 4092 5857

##### Cairns/Mulgrave

29 Norman Street (PO Box 514)  
Gordonvale QLD 4865  
Ph: 07 4056 1251 Fax: 07 4056 3669

##### Cairns/Babinda

87 Munro Street (PO Box 169)  
Babinda Qld 4861  
Ph: 07 4067 1313 Fax: 07 4067 1775

##### Innisfail

18–22 Bruce Hwy (PO Box 67)  
Mourilyan QLD 4860  
Ph: 07 4063 2477 Fax: 07 4063 2488

##### Tully

59 Butler Street (PO Box 514)  
Tully QLD 4854  
Ph: 07 4068 4900 Fax: 07 4068 2351

#### NORTHERN QUEENSLAND

##### Herbert River

11–13 Lannercost Street  
(PO Box 410)  
Ingham QLD 4850  
Ph: 07 4776 5350 Fax: 07 4776 5380

##### Burdekin

141 Young Street (PO Box 933)  
Ayr QLD 4807  
Ph: 07 4790 3600 Fax: 07 4783 4914



## CENTRAL

### Proserpine

88 Main Street (PO Box 374)  
Proserpine QLD 4800  
Ph: 07 4945 1844  
Fax: 07 4945 2721

### Mackay

120 Wood Street (PO Box 117)  
Mackay QLD 4740  
Ph: 07 4944 2600  
Fax: 07 4944 2611

## SOUTHERN

### Bundaberg

32 Bourbong Street (PO Box 953)  
Bundaberg QLD 4670  
Ph: 07 4151 2555  
Fax: 07 4153 1986

### Isis/Childers

48 Churchill Street (PO Box 95)  
Childers QLD 4660  
Ph: 07 4126 1444  
Fax: 07 4126 1902

### Maryborough

106 Bazaar Street (PO Box 172)  
Maryborough QLD 4650  
Ph: 07 4121 4441  
Fax: 07 4121 6115

### Rocky Point

1214 Stapylton/Jacobs Well Road  
Woongoolba QLD 4207  
Ph: 07 5546 1481  
Fax: 07 5546 1481

## NSW Canegrowers Association

239 River Street  
PO Box 140 Maclean NSW 2463  
Ph: 02 6645 2515  
Fax: 02 6645 3250

## Government bodies

### Department of Agriculture and Water Resources

Ph: 1800 900 090  
Website: [www.agriculture.gov.au](http://www.agriculture.gov.au)

### NSW Department of Primary Industries

Ph: 1800 808 095  
Website: [www.dpi.nsw.gov.au](http://www.dpi.nsw.gov.au)

### Queensland Department of Agriculture and Fisheries

Ph: 13 25 23  
Website: [www.daf.qld.gov.au](http://www.daf.qld.gov.au)

### Queensland Department of Natural Resources, Mines and Energy

Ph: 13 74 68  
Website: [www.dnrme.qld.gov.au](http://www.dnrme.qld.gov.au)

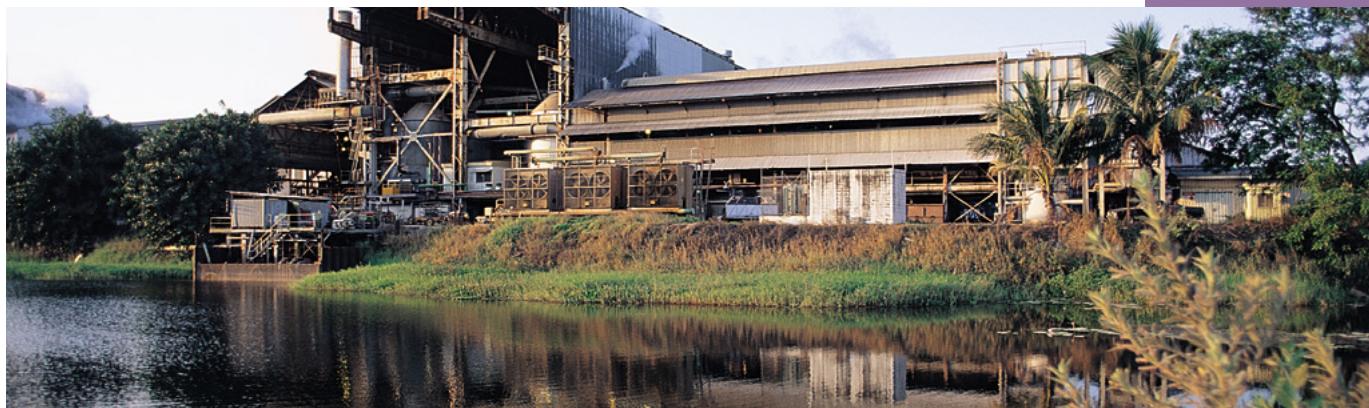
### Queensland Department of Environment and Science

Ph: 13 74 68  
[www.des.qld.gov.au](http://www.des.qld.gov.au)

## Plant biosecurity

### Plant Health Australia

Ph: 02 6215 7700  
Website:  
[www.planthealthaustralia.com.au](http://www.planthealthaustralia.com.au)



# SUPPLIERS' DIRECTORY

## AG CHEMICALS AND FERTILISER

Adama – [www.adama.com](http://www.adama.com)  
Arysta LifeScience – <https://www.arystalifescience.com/>  
Bayer – [www.bayer.com.au/](http://www.bayer.com.au/)  
Incitec Pivot Fertilisers – [www.incitecpivotfertilisers.com.au/](http://www.incitecpivotfertilisers.com.au/)  
LiquaForce – [www.liddles.com.au/](http://www.liddles.com.au/)  
Nufarm – [www.nufarm.com](http://www.nufarm.com)  
Natural Water Solutions – <https://www.nwsolutions.com.au>  
OCP – Organic Crop Protectants – [www.ocp.com.au/](http://www.ocp.com.au/)  
Sumitomo – [www.sumitomocorp.com.au/](http://www.sumitomocorp.com.au/)  
Tessenderlo Kerley International – <https://www.tessenderlo.com>  
Yara Australia – [www.yara.com.au/](http://www.yara.com.au/)

## ENGINEERING AND MACHINING

Shute Upton Engineering – [www.shute-eng.com.au/](http://www.shute-eng.com.au/)

## IRRIGATION

Draintech – [www.draintech.net.au/](http://www.draintech.net.au/)  
Leverlink – [www.leverlink.com.au/](http://www.leverlink.com.au/)  
Lindsay Irrigation – [www.zimmatic.com/](http://www.zimmatic.com/)  
Padman Stops – [www.padmanstops.com.au/](http://www.padmanstops.com.au/)  
Trailco Irrigation – [www.trailco.com.au/](http://www.trailco.com.au/)

## MACHINERY

Case IH – [www.caseih.com](http://www.caseih.com)  
Honeycombes – [www.honeycombes.com.au/](http://www.honeycombes.com.au/)  
John Deere – [www.deere.com.au/en/](http://www.deere.com.au/en/)  
McDonald Murphy Machinery – [www.mcdonaldmurphy.com.au/](http://www.mcdonaldmurphy.com.au/)  
New Holland – [www.newholland.com](http://www.newholland.com)

## PETROLEUM

Lowes Petroleum – [www.lowespétrol.com.au/](http://www.lowespétrol.com.au/)  
Penrite Oil Company – [www.penriteoil.com.au/](http://www.penriteoil.com.au/)

## SPECIALIST TUNING

Agri Tune – [www.agritune.com.au/](http://www.agritune.com.au/)

## TILLAGE

BMS Lasersat/Vantage – <http://vantage-wa.com.au>  
Gessner Industries – [www.gessner.com.au](http://www.gessner.com.au)  
K-Line Industries – [www.k-line.net.au/](http://www.k-line.net.au)

## TRAINING AND EDUCATION

Agsafe – <https://www.agsafe.org.au>  
CountryCo Training – [www.countryco.com.au](http://www.countryco.com.au)  
Ergon Energy – [www.ergon.com.au/](http://www.ergon.com.au)

## TYRES AND TRACKS

Big Tyre – [www.bigtyre.com.au/](http://www.bigtyre.com.au)  
Titan Australian – <https://titanaust.com.au/>

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