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Editorial...

You will notice in this issue that the phrase “Case IH Next Gen StepUP! Conference” is repeated on a fairly regular basis and little wonder – the conference was a cracker!

You would be hard pressed not to enjoy a conference that was held at Palm Cove north of Cairns – very nice part of the world. And there was a little extra spice for the 160 delegates with Cyclone Nathan hanging just offshore, coming in, going away and then coming in again.

As it was we had beautiful weather, a good crowd, interesting presenters and a great buzz. Not that it contributed in any way to the ‘great buzz’ but I even got a gig as a session moderator. No doubt because I am well known as a man of considerable moderation!

In a very blatant plug, I took the opportunity to wave a copy of our last issue around – the issue with Opportunity, the Mars rover on the cover. Now many expressed surprise that I could link this in any way to sugarcane but my mind works in devious ways.

I thought it was a great image; it reminded me how far we have come with technology; the rover has happily continued on its lonely mission sampling Martian soils for 10 years longer than anticipated; those soil samples suggest that there had been water on Mars; where you have soil and water you may have life; this is the UN Year of Soils; and, finally, we depend on soil and water to grow our crop – of course an image of a Mars rover is relevant!

But wait – there’s even more!!

Scientists working with NASA’s Curiosity rover have recently reported that the rover has detected organic molecules on Mars. Although the detected molecules do not necessarily indicate past or present life – the compounds could also come from asteroid impacts or rocks exhumed from Mars’s mantle – they show that fragile organic materials can survive in the harsh environment.

In addition to organic molecules, the Curiosity rover has found another key chemical lurking in the Martian soil: nitrates – the NO₃-bearing compounds that are crucial ingredients for life on Earth and a chief component in fertiliser.

Did they say fertiliser? That’s better than blue cheese on the moon – this industry can do with a planet made of fertiliser!

So we have soils and fertiliser on Mars but it seems not a lot of water. Do you know how much water you have in the soils on your farm?

Well scientists working in Toowoomba might just be able to tell you (page 20 in this issue). They have been quietly using an EM38 to monitor soil water in a range of irrigated and dryland crop and pasture studies.

What’s an EM38 you might ask? It’s an instrument that measures the size of the magnetic field induced by transmitting a current through the soil.

They are easy to use, lightweight, and provide rapid, numerous measurements over large areas without the need for ground installations or destructive sampling. They are also particularly good at estimating soil water in heavy clay soils, like those found extensively in northern Australia.

Because they have a sensing depth to 1.5 metres, they are ideal for monitoring crop water use and plant available water.

They can be used by a grower to determine how much and how often to irrigate. And post-irrigation, they could assess application efficiency and uniformity and identify problem areas due to waterlogging or under watering.

They may well be able to help the cane industry maximise water use efficiency and minimise water application costs. Seems an appropriate story to run at this time – March 22 was apparently World Water Day.

In this issue...

Sugar marketing debate

In 2015, there are a number of themes in play. The sugar marketing issue is an historical struggle on the part of farmers to continue the right to influence how Grower Economic Interest Sugar is marketed and priced. So far the, Senate Inquiry into ‘Current and future arrangements for the marketing of Australian sugar’ has completed its public hearings.

See article .................. Page 4

Harvest feature

Are you comfortable with only delivering 80 per cent of your crop to the mill? This was the question Phil Patane asked of young growers at the StepUP! Conference at Palm Cove in March. Harvest losses are an area of concern for the entire cane industry and this concern is shared by the conference’s major sponsor Case IH, manufacturer of the Austoft sugarcane harvester.

See articles starting ................ Page 8

The day the earth SHOOK!

No – it was not an earthquake. Nor was it an asteroid collision. Not even a tsunami. The shaking of the planet was caused by tractors! And if you don’t believe me and think I must have been hallucinating, then read on!

See article .................. Page 23
SINKER® fungicide from Crop Care controls primary infections of sugarcane smut and pineapple disease in sugarcane.

Developed in conjunction with industry research body, BSES Limited, SINKER contains flutriafol, a highly soluble and systemic active ingredient in an easy to use formulation, with excellent activity against these two diseases.

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IN 2015, there are a number of themes in play. The sugar marketing issue is an historical struggle on the part of farmers to continue the right to influence how Grower Economic Interest Sugar is marketed and priced.

So far, the Senate Inquiry into ‘Current and future arrangements for the marketing of Australian sugar’ has completed its public hearings. The reporting date was originally November 27, 2014. On October 2, 2014, the Senate granted an extension of time for reporting by April 30, 2015 and on March 26, 2015, the Senate granted an extension of time for reporting by May 21, 2015. This inquiry has afforded much opportunity for debate and now stakeholders eagerly await the final report.

Code of conduct

The deadline for submissions to the Sugar Industry Code of Conduct Taskforce has been extended from April 17 to May 1, 2015. The Taskforce was announced on December 10, 2014 February and set up to investigate the need for a potential code of conduct for the industry. It was originally due to report to the Minister for Agriculture by May 2015 but hearings are now scheduled for budget week in May.

For a Code of Conduct to work well it must be tight, without loopholes and it must ensure a pro-competitive market environment.

If properly formulated, a Mandatory Code of Conduct could assist farmers by providing that:

- Millers and growers must negotiate in good faith;
- Cane supply contracts must link the price of cane to the price of sugar;
- Cane supply contracts must provide the grower with the right to choose the entity which will market the ‘grower economic interest’ sugar;
- Mill owners must not discriminate against growers, which choose to have an entity other than the mill owner or affiliate market their grower economic interest; and,
- There must be an affordable and timely pre-contractual arbitration process.

The sugar industry as a whole is keenly interested in the outcomes of these various marketing enquiries but, as always, the immediate challenge is getting the next crop through to harvest.

The world of sugar

Australia: The tropics and central areas have been a little drier than average and so would enjoy some useful rainfall over the next month. Southern Queensland has had mixed fortunes, while NSW has enjoyed good rainfall with a promising crop taking shape. Throughout the industry, Yellow Canopy Syndrome (YCS) continues to frustrate farmers and researchers alike.

China: Bunge, quoting Green Pool Commodity Specialists, reports that China sugar production is forecast to fall to 10.6 million tonnes, from the 13.32 million tonnes from a year earlier.

The reason attributed is bad weather in the major cane-area Guanxi, which has been responsible for lower yields.

India: Bloomberg reports that sugar output in India will reach the highest level since 2007 as cane yields increase. Annual production could top 27 million tonnes, according to the Indian Sugar Mills Association, the highest since 2006–07. Last season produced 24.4 million tonnes.

According to the International Sugar Organization (ISO), rising supplies from India and Thailand threaten to widen the global surplus for a fifth year and further decrease prices. Global production in the year ending September 30 is estimated to exceed demand by 620,000 tonnes, leaving record stockpiles of 79.89 million tonnes.

Reuters reports that India’s food minister announced that he would propose raising the import duty on sugar to 40 per cent, from 25 per cent as a preventive measure to protect farmers. The country has amassed large stocks through bumper local harvests but exports little sugar. Surplus production over the past few years has depressed prices, impairing mills’ ability to pay sugarcane farmers.

Brazil: Meanwhile, Brazil’s economy unexpectedly expanded in February, as the government cuts spending and raises interest rates to curb inflation.

A weaker Real reduces domestic sugar production costs in US dollar terms encouraging heavy exporter and producer selling in Brazil. This in turn puts downward pressure on the world price of sugar.

Similarly a lower world oil price means that Brazilian sugar moves away from ethanol production onto the crystal market.
The best choice for performance and reliability.

<table>
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<th>Description</th>
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So glyphosate ‘probably’ causes cancer?

By Nathanael Johnson – Food writer for Grist magazine

As you may well have already heard the World Health Organization recently classified glyphosate – the active ingredient in the herbicide Roundup – as a probable carcinogen.

The WHO cancer agency also added two other pesticides, malathion and diazinon, to this ‘probable’ category. That has received less press coverage because they, unlike glyphosate, are not associated with genetically engineered crops, always a lightning rod. There was a big increase in the use of glyphosate when farmers switched over to GE glyphosate-resistant crops.

So what does this new classification mean? There’s a great, er, roundup of reactions from scientific experts in the field here. That comes from the Science Media Center (www.sciencemediacentre.org) which does yeoman’s work in taking controversial headlines and placing them within the context of scientific knowledge. I highly recommend taking a look at that.

Here are the takeaways

- There is a real chance that these pesticides could cause cancer, and we should be careful with them.
- There’s controversy – several scientists disagreed with the designation.
- Don’t forget that the list of things that probably cause cancer includes … just about everything.

That last point is worth dwelling on a bit. The WHO’s full list of ‘known’ (group 1), ‘probable’ (group 2A), and ‘possible’ (group 2B) carcinogens stretches to 34 pages.

It’s a weird list. Sunshine, alcoholic beverages (the ethanol therein), wood dust, and outdoor pollution are ‘known’ carcinogens.

The ‘probable’ group includes wood smoke, night shifts (they disrupt circadian rhythms), and hot mate (the South American drink).

I make these comparisons not to downplay the risk – just to put it in proper context. Just about everything in life has risks – the trick is to weigh those risks thoughtfully against benefits.

The nice thing about glyphosate is that, at this point, it’s non-proprietary – Monsanto’s patent has expired and farmers can get it cheaply. It can be useful for poor farmers who want their kids to go to school rather than hoe the fields. It helps farmers adopt conservation tillage techniques where they don’t plough at all, or only minimally, to prevent erosion, and encourage soil ecology. But there’s also no doubt that farmers are using more glyphosate than ever before, in an arguably profligate manner.

It may be that we as a society decide that, if the carcinogenic risk of this herbicide is greater than its benefits, we should take steps to reduce it. We’d want to do this in a holistic way, looking carefully at farm practice to ensure that glyphosate isn’t replaced with something worse. And we shouldn’t let the fact that it’s associated with the GMO bogey-man cloud our thinking.


Organic advocate thinks African farmers need herbicide

By Nathanael Johnson – Food writer for Grist magazine

Why isn’t organic farming spreading faster among poor farmers? If you are a farmer in the rural part of an undeveloped country, where it’s hard to get synthetic fertiliser, pesticides, and genetically modified seeds, it only makes sense to turn to a form of agriculture that eschews those things.

Instead of requiring technological inputs, organic farming requires skills – which are free and non-proprietary. Organic farming also builds up the organic matter in the soil, which helps it catch and hold moisture; that’s especially important in semi-arid lands without irrigation infrastructure.

So why don’t we see organic production in developing countries raising rural areas out of poverty?

I’ve seen two possible explanations:

- Big agribusiness is sabotaging the nascent growth; or,
- Farmers aren’t getting the training they need.

I see the first explanation all the time, but I don’t see evidence. The second explanation, that there’s not enough education, seems more likely.

Farming knowledge is location-dependent, and it takes time to pass it on. With a saleable product, by contrast, the profit motive alone can drive adoption around the world. You can buy a Coke, for instance, just about anywhere in the world that a few people live together.

The combination of these two explanations is also plausible: It’s not that agribusiness is out there setting fire to organic crops, but Big Ag corporations are actively working with charities and aid organisations. That means they can influence the direction that education, and each nation’s agricultural policy, takes.

Of course, there’s one other possibility: It could be that organic methods just aren’t working for poor farmers.

A pragmatic take from Tanzania

I was intrigued by a paper titled “Facing food insecurity in Africa: Why, after 30 years of work in organic agriculture, I am promoting the use of synthetic fertilisers and herbicides in small-scale crop production.”

The paper is by Don Lotter, a strong critic of genetic engineering with a PhD in agroecology who teaches conservation agriculture at St. John’s University of Tanzania. It’s a nuanced and valuable piece from someone driven by the facts on the ground rather than by ideology.

The problem, Lotter wrote, cannot be pinned on lack of education alone:

“An organic version of CA [conservation ag] (no herbicide or synthetic fertilisers) has failed to be adopted by the majority of African farmers subject to years of promotion and trials … The most recent report from Tanzania showed only 13 percent of targeted farmers adopting the practice after several years of promotion.”
There’s a hint of frustration in Lotter’s writing when he touches on the continued emphasis on techniques that don’t work for farmers in Africa, especially when it is justified with pseudoscience. For a while he managed an organic farm in a part of northern Tanzania that attracted lots of foreign volunteers. Corn in the area suffered nitrogen deficiency because farmers refused synthetic fertiliser.

“These farmers had been told by foreign volunteers, nearly all of them untrained in agriculture, that fertilisers ‘poison’ the soil – despite the fact that it is very likely that 99 per cent of the calories that these amply-fed volunteers had consumed in their lives were from crops amply fed with synthetic fertilisers, grown in fields that are to this day still highly productive.”

Lotter says that soils fertilised with synthetic nitrogen aren’t as healthy and microbially rich as those fertilised with compost and manure, but they are by no means toxic. The same goes for the herbicide. Some people are worried about the potential health effects of glyphosate, but these concerns are tiny compared to the real and undisputed dangers of soil loss and hunger.

“Life expectancy here in the central region is about 45 years – these people hardly get the opportunity to get cancer, largely because of food insecurity.”

The takeaway

There are hurdles no matter which way you turn, but the option to use synthetic fertiliser and herbicide could allow some farmers to shift from a destructive cycle, and into a virtuous cycle, enriching themselves and the land.

“The only route I see out of African food insecurity in the next decade is via sustainable intensification – the use of both agrichemicals and organic methods together. My change from working exclusively with organic methods to the inclusion of conventional agrichemicals in Africa is, I believe, not a change in my values. The well-being of people and the environment are still at the center of my ethos, with the proviso that the long-term care of the environment enhances human well-being.”

There are no easy answers here. Of course, it’s not like this is the only paper ever published on small farmers in Africa. There’s a study showing the success of just about anything, from cover crops to GM seeds, and oftentimes there’s another study showing its failure. But there’s special value in a paper like this from someone like Lotter – someone familiar with this entire literature, someone ground-truthing the claims every day. That makes his case against an all-organic program for small farmers in Africa all the more persuasive.

Grist is an American non-profit online magazine that has been publishing environmental news and commentary since 1999.
RE you comfortable with only delivering 80 per cent of your crop to the mill? This was the question Phil Patane asked of young growers at the StepUP! Conference at Palm Cove in March. Harvest losses are an area of concern for the entire cane industry and this concern is shared by the conference’s major sponsor Case IH, manufacturer of the Austoft sugarcane harvester.

The mechanical harvesting of any crop will necessarily result in some losses but we should aim to contain excessive losses where and when ever possible.

In cane harvesting there are a number of key factors that impact on harvester performance:
- Field conditions have most impact on Extraneous Matter (EM) levels and cane loss;
- Crop presentation (row profile/width) impacts on stool damage and pickup losses.
- Fan speed determines cane loss levels with limited impact on EM.
- Lower pour rates = lower EM, but this increases harvesting costs.

**Harvesting losses**

The main sources of harvesting losses affecting yield include:
- Extractor losses (5–25 per cent)
- Pickup losses (1–10 per cent)
- Chopper losses (2–8 per cent)
- Ratooning losses (hidden cost)

**Managing extractor losses**

The big challenge for the industry is finding a balance between cane cleaning and cane loss. Increasing fan speeds with the intent to deliver cleaner cane can cause excessive cane loss with minimal improvement on cane quality (Figure 1).

**Topping**

Tops make up a significant proportion of EM standing in the field prior to harvest so topping is a particularly important element of an efficient cane cleaning system.
- Topping removes EM without cane loss.
- Less EM into choppers reduces extractor losses by reducing chopper overload.
- Topping can improve CCS, bin weight, fibre and dollars/Ha return to the grower.

<table>
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<th>Yield t/ha</th>
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<th>Tops %</th>
<th>CCS</th>
<th>Grower $/ha</th>
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</table>

$165/ha difference

**Managing pick-up losses**

Crop presentation is the main factor determining the level of pick-up loss. Growers can do little to avoid a lodged crop but they can manage the row profile and width to reduce losses.

Harvester operators tend to select a basecutter angle which best suits the average row profile amongst the grower group. Growers and operators need to establishing a row profile which matches the basecutter setup and reduces pick-up losses, soil intake and basecutter damage.

The use of GPS guidance reduces variation in row width enabling operators to achieve a more consistent result.

**FIGURE 1:** Left – John Deere fan speed versus EM and cane loss. Right – Anti-vortex fan speed versus EM and cane loss.
Row profile (Figure 2)

**FIGURE 2: Pick-up losses are affected by**

- Poor filling in hill-up
- Mismatch between the arc swept by the basecutter blades and the row profile
- Cut high to minimise soil intake
- Cut deeper to gather up stalks

1. Increase stool shattering
2. Increase pick-up losses

**Basecutter height**

- Ideally operators should aim to ‘skim’ the surface of the soil with the basecutter blades giving a clean cut with minimal soil intake.
- Important to understand the link between crop presentation/basecutter setup and the impact of ground speed on stool damage.
- Focus on providing a row profile which matches harvester basecutter setup, to reduce pick-up loss and minimise stool damage.

**Harvester speed:**

- Disc contact causes an increase in stool damage and removal (disc busts through uncut stalks).
- With five blades per disc speeds greater than seven km/h causes disc to stool contact.
- Changing to six blades per disc would prevent disc to stool contact occurring until around eight to nine km/h.
- To minimise disc contact keep basecutter blades long and sharp (the shorter they get, the lower the speed at which disc contact begins)

**Managing chopper losses**

There will always be sugar loss associated with mechanical harvesting. The magnitude of this loss depends on:

1. **Billet length:** Billet lengths have decreased overtime – from. This has improved bin weight but increased sugar loss. With billet length decreasing from 250 mm+ in the early 1990s to as short as 100 mm with six blades/drum today, chopper losses have increased from two per cent up to six to eight per cent.

2. **Feed-train roller speed:** As feed-train roller speed is reduced to cut a shorter billet, the mismatch between surface speed of the roller and the tip speed of the chopper blades increases billet damage and sugar loss. The difference in sugar loss between the longest and shortest billet length settings on a harvester is around two per cent.

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For current machines, adjusting roller/chopper speeds to cut the longest billet minimises chopper losses by having the feedtrain surface speed to chopper tip speed ratio in the ideal 60–70 per cent range.

3. Condition of chopper knives: Blade condition also affects chopper losses. Badly worn or damaged blades triple sugar loss compared to new blades so attention to blade maintenance is important (Figure 3).

FIGURE 3: Managing chopper loss

As a grower what can you do to minimise harvesting losses?
- To minimise soil in cane supply and ratooning losses establish a row profile that matches basecutter setup, discuss this with your operator.
- Use GPS guidance reduces variation in row width.
- Improve farm efficiency by joining blocks together (if possible): providing adequate headlands to reduce turning time; maintaining headland and haul roads; and providing efficient access to blocks.

As an operator what can you do to minimise harvesting losses?
- To minimise cane loss there is a compromise between cane cleaning and cane loss.
- Topping can improve CCS, bin weight, fibre and dollars/ha.
- To minimise chopper losses set roller/chopper speeds to cut the longest billet; have the feedtrain surface speed to chopper tip speed ratio in the ideal 60–70 per cent range.
- Replace worn chopper blades – worn blades increase chopper losses.
- Keep basecutter blades as long and square as possible.
- Discuss with your customers what your needs are and theirs.

USQ boards
Precision Agriculture Flagship

THE University of Southern Queensland’s (USQ) position as a leading agricultural research centre has been reaffirmed through its affiliation with the Regional Universities Network (RUN) Precision Agriculture Flagship project.

“Through our work in practical sensing, and control and automation of farming operations, USQ has long recognised the importance of precision agriculture,” Professor Steven Raine, Executive Director of USQ’s Institute for Agriculture and the Environment, said.

“We are delighted to be part of the Precision Agriculture Flagship project which complements USQ’s Future Farm research to transform Australian agriculture through the application of robotic and automation technologies integrated with big-data analytics,” Steven said.

Future Farm, which is currently being evaluated by the Federal Government, is a multi-million dollar proposal that USQ has developed in collaboration with the Grains Research Development Corporation (GRDC), the Cotton Research Development Corporation (CRDC) and Australia’s CSIRO and seven other university and state-government partners.

“Future Farm is all about delivering technologies that increase farm productivity, reduce costs and enable better management of production and business risks,” Steven said.

USQ’s agricultural research footprint has also been valued by global agricultural equipment and services provider, John Deere through a collaborative partnership to develop new machine automation and control systems that improve agricultural productivity.

Initially, the RUN Precision Agriculture Flagship will establish and fund eight PhD scholarships to be cross-supervised by USQ in conjunction with the three other flagship members, Central Queensland University, Federation University and the University of New England.
A SINGLE-DROP DNA test invented by UQ scientists could revolutionise the detection of diseases in humans, livestock and crops.

The test works in a similar way to a pH test for swimming pools and gives a result in 90 minutes. It has been developed by researchers at UQ’s Australian Institute for Bioengineering and Nanotechnology (AIBN) and the School of Agriculture and Food Sciences.

AIBN’s Professor Matt Trau said the test detected viruses, bacteria, fungi or parasites in humans, crops and cattle and could be used by health workers or farmers in the field – saving lives, time and money.

“We’ve been able to take what would usually be done with complicated equipment in a centralised laboratory and miniaturise it into a single drop of fluid that farmers, for example, can use to get an almost immediate result in the field,” Professor Trau said.

The test uses a single drop of liquid that changes colour if the test is positive.

In its current form, the test can be made sensitive enough to detect even the smallest trace amounts of DNA or RNA, and it can also scan for multiple pathogens (bacteria, viruses and other micro-organisms that cause disease) or cancer markers.

“We can now detect as little as just a few molecules of DNA in almost any sample such as blood, saliva, or even soil.

“This part is particularly exciting for many future applications,” Professor Trau said.

A single drop to identify crop disease

The test has already proved accurate in detecting human diseases such as HIV, malaria, tuberculosis the H1N1 influenza virus, as well as E. coli in water, bovine herpes virus in cattle, and fusarium fungus in crops.

UQ School of Agriculture and Food Sciences Professor Jimmy Botella said there were virtually no limits for potential uses for the technology.

“This new test is especially suited for developing countries, but it will also be very useful for the Australian agricultural and livestock industries as it provides a fast method to detect diseases without the need to send samples to the laboratory,” he said.

“We expect that the technology would also be beneficial to the Australian Customs and Quarantine services and the Australian export industry as they could test produce in the packinghouse before shipping.

The technology will soon be trialled in Cambodia to test for food pathogens, in a project led by Professor Botella with support from the Australian Centre for International Agricultural Research (ACIAR).

Other key researchers involved in the project are inventor Dr Eugene Wee and PhD student Han-Yih Lau.

The research features on the cover of the latest edition of the Royal Society of Chemistry’s ChemComm journal.

For more information: AgriGenomics News published Monday, March 23, 2015
www.technologynetworks.com

Contact: Professor Matt Trau, E. m.trau@uq.edu.au or Professor Jimmy Botella, E. j.botella@uq.edu.au
Aerial imaging spots disease problems in crops

By Dennis O’Brien, US Agricultural Research Service

Many fields are too big to survey on foot to yield timely information about the health of the crop. Specific areas, for instance, may need treatment for diseases, weeds, irrigation, or applications that enhance plant growth.

Chenghai Yang, an agricultural engineer with the Agricultural Research Service’s Aerial Application Technology Research Unit in College Station, Texas, has developed an imaging system to help growers get that information – digital images are taken from aircraft and are detailed enough to show patches of large fields in need of special attention.

Small aircraft have been used for years to survey fields and treat crops for pests, diseases, and other problems. Chenghai, working with Texas A&M AgriLife scientists, began evaluating whether aerial imagery could spot specific problem sites in cotton fields when, a few years ago, growers started using a new fungicide for cotton root rot control. Root rot infections are usually limited to 20 to 30 per cent of a field. Ideally, growers should identify infected areas near the end of one growing season so they could apply the fungicide to just the areas that are infected at the start of the next season. But instead, many routinely treat entire 200 acre (90 hectares) fields, wasting a fungicide that costs about $50 an acre ($123 per hectare), says Chenghai.

“If you’re treating 100 acres unnecessarily, at $50 an acre, you’re wasting $5000, and some growers do that every year because there is no easy way to detect infection sites,” he says.

Chenghai and his colleagues mounted two digital cameras on the underside of a small airplane, equipped them with GPS, and took images of cotton fields to see whether they could identify areas with cotton root rot. They also evaluated whether the cameras could identify the widths of cotton rows – a key indicator of plant height. One camera took standard colour images. The other was filtered to shoot in near-infrared, which is often used in aerial imagery because of its effectiveness at detecting plant stress. Chenghai tested the system for two years in about 40 flights on both sunny and cloudy days.

Chenghai’s published results show that aerial imagery could detect the presence, location, and disease progression of cotton root rot. The team showed that cameras could be used to detect weeds and invasive plants and identify areas affected by drought stress.

The efforts mean that agricultural pilots have a new service: aerial surveys that help growers identify diseases, pests, and other problems in specific areas. The dual-camera system used in the studies costs about $6000. But Chenghai says that a $1500 system, with a single camera, a GPS receiver to geo-tag images, a monitor, and a remote control for shooting images while airborne, will also work well. The camera can be attached to the bottom of an aircraft with minimal modifications. Fees for aerial surveys should be offset by the reduced costs for the pesticide, and fewer chemicals will get into the soils and waterways.

Aerial colour-infrared image of a cotton field. Areas infected with cotton root rot are greenish.

Agricultural engineer Chenghai Yang (left) discusses image acquisition plans for a two-camera imaging system with technician Fred Gomez (center) and pilot Lee Denham. All three are with ARS.

Drawn from an article published in the March 2015 issue of Agricultural Research magazine.
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- Employees for breaches of OH&S laws
- Liability for aerial and ground spray drift

Our experienced team can provide you with further information, contact your nearest Aon Branch.

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This February and March marked the first ever Case IH Red Power Tour in Australia. A convoy of very shiny, very red, tractors was driven around the country on the back of three Iveco trucks, in a ‘roadshow’ for regional Case IH customers.

The tour presented the new Case IH product models for 2015. Over 250 customers came along to the five road-show events which kicked off in Perth on February 11 and then travelled on to Kadina, Mildura and Dubbo before arriving at Rockhampton on March 13.

The cavalcade then made a special trip up the coast to Palm Cove in Far North Queensland where Case IH was again the major sponsor of the Next Gen StepUP! Conference.

The Case IH machinery display – which now included a cane harvester – provided a spectacular backdrop at the conference venue for the 160 delegates.

Front and centre on the day was the new Magnum Rowtrac, which won Tractor of the Year for 2015 and most recently, Machine of the Year at SIMA in Paris.

The machine – the only one in Australia – arrived straight off the boat from North America on the first day of the tour.

“The Magnum Rowtrac is our newest tractor for row crop farming,” says Pete McCann, Product Manager for Case IH High Horsepower Tractors. “It’s got better flotation, manoeuvring and flexibility – it’s truly an industry leader, and the roadshow gave people an exclusive chance to test-drive it.”

Visitors could also test-drive the other models on show – the new mid-range Magnum, the Maxxum CVT, the Farmall C and Case IH Advanced Farming Systems (AFS).

The open days were a big success, with customers leaving excited and informed about the up-and-coming products. Ken Ohnell, one of Case IH’s North American Product Specialists who was flown to Australia for the Red Power Tour, was on hand to answer any questions.

“I enjoyed talking with Australian customers about their needs for the future,” says Ken. “It’s interesting to hear about what’s important to them in their businesses, so we can work together to give them the products they need. And nothing beats customers being able to touch and test the new machines and see the technology firsthand.”

The Red Power Tour was a unique opportunity for regional customers to meet global product experts face to face and try out brand new machinery before it became available at their local dealer.
With summer crop harvest and winter crop sowing upon us, many farmers will be thinking about equipment upgrades. Technology developments in tractors mean there’s a wide range to choose from. One important decision for farmers to make is whether to include tyres or tracks.

Some farming operations are better suited to tracks, while others are better suited to tyres. The decision is based on soil, crop type and the planting and harvesting timeframe.

Pete McCann, Product Manager for Case IH High Horsepower, says tracks are becoming more popular as farmers realise their benefits.

“Today’s designs have come a long way since the steam tractor with ‘dreadnaught wheels’, or tracks, in the mid 1800s. These days, tractors with tracks are highly manoeuvrable, offer excellent traction and are very effective at protecting the soil.”

Less compaction, earlier field accessibility

Because tracks have a greater contact area with the ground, they place even pressure on the soil, conform to contours and minimise compaction. They are also better suited to changing windows for planting, seeding and harvesting, because they can help farmers get on the paddock earlier.

“When choosing your tracked machine, it’s ideal to have four points of contact on the ground — whether that’s by a four-track system or a rear twin-track with tyres—it significantly reduces the berming effect produced by a stand-alone twin track system. Berms are good for landscaping your garden, but not in a paddock.”

Case IH’s new Steiger Quadtrac and Rowtrac have a four-track system, which ensures maximum manoeuvrability while increasing traction and reducing compaction and soil disturbance.

“There’s also a track-wheels combination in the Magnum Rowtrac. This gives farmers row-crop flexibility; it has the flotation benefits of tracks, with the manoeuvrability of a mechanical front drive. It also reduces berms and soil disturbance when turning.”

Pete says bespoke wheel-tracks tractors give the best of both worlds, as well as special features such as customisable row spacings for speciality crops, like many vegetable varieties.

Pete says a four-track system gives much better traction and optimum manoeuvrability.

“By keeping four points of ground contact, these Case IH tractors don’t turn like a bulldozer, so they reduce surface pressure and create less weight transfer from front to rear, and this is what reduces berms.”

Pete says these new Case IH track tractors are well suited to large-scale arable farmers and contractors—businesses that strongly depend on efficient, timely and soil-conserving operations.

As well as choosing a four-track system or a rear twin-track with tyres system, Pete says it’s also important to check out the tractor undercarriage.

“Case IH’s unique and proven track undercarriage design ensures maximum ground contact; more power to the ground means less compaction and soil disturbance. While independent, positive-drive tracks give the tractor full-time, full-soil contact, and that provides better traction and even soil pressure with less compaction.

“There are also many different tyre options, and they all still provide really good flotation and traction for specific soil conditions. They’re also available in a wider range of frame sizes, so they can be great for farmers who want a smaller machine.”

Deciding between tyres and tracks is just one aspect of choosing the best machine for an operation. Your local Case IH dealer can help you find the best tractor to maximise your yield.

For more information see your local Case IH dealer or visit www.caseih.com.
What’s on the Greenmount Travel radar for 2015?

✦ Japan (Cherry Blossom)
✦ South America
✦ Cuba & Central America
✦ United Kingdom & Ireland
✦ Central Europe & Turkey

For more than 20 years Greenmount Travellers have criss-crossed the globe visiting amazing agricultural, geographical and cultural destinations including China, Russia, South & North Americas, Cuba, Mexico, Canada, India, Tibet, Africa, Eastern & Western Europe, Scandinavia, United Kingdom, SE Asia, Japan, The Kimberleys and Papua New Guinea.

Express your interest by giving Lloyd (0428 724 615) or David (0417 703 169) a call or visit www.greenmounttravel.com.au
It’s been a very busy start to 2015 for Next Gen with preparations for Case IH Step UP! 2015 which took place in Palm Cove mid-March. I am pleased to say that the event went very well and the Next Gen team are very happy with the outcome. Thank you to all of you who attended and to all of our sponsors, exhibitors and speakers. It was great to see such enthusiastic interaction between people from all corners of the industry.

Have you seen ‘That Sugar Film’? If you have, you’ll know that the film is about the apparent effects of a man increasing his daily sugar intake from very little to 40 teaspoons a day. Nutritionist Katie Ayling has penned an interesting article regarding the film and it’s ‘message’, highlighting a few key ‘grains of salt’ that viewers should keep in mind.

It’s that time of year again, Nuffield Australia are calling for applications for the 2016 Nuffield Australia Farming Scholarships. Next Gen is happy to say that we have developed strong relationships with all three sugar industry scholars, Joe Muscat, Bryan Granshaw and Simon Mattsson, and are excited by the results they are getting from their studies. Details on how to apply are located later in the edition.

To keep up to date with all that is going on in Next Gen, ‘friend’ us on Facebook (Next Gen), ‘follow’ us on Twitter (@nextgenfarmer) or log onto our website (nextgenfarmer.com).
March was a busy month for Next Gen with the program hosting Case IH Step UP! 2015 in Palm Cove in far north Queensland.

With the event only being the second one ever held, organisers were very pleased to see a 160-strong delegation turn up for the two days to discuss the future of the Australia sugar industry.

The event began with a welcome function which gave attendees a chance to network with other farmers, researchers, harvesters and millers from all regions of the industry while exploring the trade exhibition.

The first official day of Case IH Step UP! 2015 saw delegates return to the Conference Centre to hear industry experts discuss advanced farming practices, Bonsucro, Smartcane BMP, new technologies and machinery.

One standout speaker for many was Michael Camilleri, owner and manager of Maalacan Engineering, Director of Australian Cane Farmers Association and cane farmer. Michael’s passionate talk about innovation and focusing on the things you can change, not the things you can’t was received with an animated round of applause and left delegates enthusiastically discussing their ideas for innovation.

“It’s heartening to see so many young faces taking such a keen interest in the topics discussed at Case IH Step UP!,” Michael said.

“I think if the enthusiasm of the bunch of people we saw at the conference is anything to judge by, our industry has a bright future ahead.”

The day also featured a Case IH machinery display which included a harvester and an array of tractors including the 2015 Tractor of the Year, the Magnum 380 CVT, the only one currently in Australia. Delegates were also fortunate because US Case IH tractor specialist, Ken Ohnell, was on hand to give a personal tour of the machines.

The delegation welcomed 2013 Nuffield Scholar, Joe Muscat, to the conference dinner to hear about his study and travels that he has undertaken as part of his scholarship. The group was captivated by Joe’s presentation and motivated by the work he is conducting on his farm in the Mackay region.

The final day of the event saw sugar research and extension discussed, along with sugar marketing and finance and succession planning.

CEO of Queensland Sugar Limited (QSL), Greg Beashel’s presentation was received with interest as he outlined QSL’s vision for the future of raw sugar marketing in Queensland.

Juanita Maiden from MacDonnell’s Law was also received very well, discussing the extreme importance of careful succession planning for family farms.

“Juanita’s presentation was highly informative and was delivered in a very clear way. I think it was of great benefit to the younger farmers, as well as to the older ones in the room,” Next Gen Officer, Gerard Puglisi, said.

Delegates also had the opportunity to attend two field trips whilst at the event. One of the trips offered was to Sweet Farm Tours in Mossman to see first-hand the diversification of the Puglisi family farm. The other saw delegates travelling to the Cairns Sugar Terminal where QSL Industry Relationship Manager, Carla Keith, gave an in-depth tour of the facility. This was followed by a trip to the Barron Delta to hear from Derek Sparkes about the important nitrogen trials he is conducting there.

Next Gen was very pleased with the high level of industry support that was shown for Case IH Step UP! 2015, with key industry bodies such as QSL, SRA, ACFA and Canegrowers partnering with Next Gen for the event.

“Case IH Step UP! 2015 was the success it was because of the support from our sponsors, particularly the team at Case IH, as well as the exhibitors, speakers and, of course, the delegates,” Gerard said.

‘I would like to thank all of those who took the time away from their farms and other jobs to contribute to the event. I hope that we can keep in touch with the help of the Next Gen program and continue the discussion about how to ensure a sustainable future for our industry.’

Photos and speaker presentations from Case IH Step UP! 2015 are available at nextgenstepup.com.

More information about the Next Gen program can be found at nextgenfarmer.com.
ABC Rural reporter Charlie McKillop with Gerard Puglisi.

Delegates outside the Cairns Sugar Terminal.

Case IH Step UP! 2015 delegates.

Case IH tractor specialist, Ken Ohnell, talks to the delegates about the Case IH Magnum 380 CVT tractor and its Rowtrac technology.


Tiffany Hunt (BPS), Carolyn Martin (SRA), Jess Smas (EHP) and Zoe Tkai (EHP) catch up at the Conference dinner.

Greg Beashel presenting to delegates on raw sugar marketing.

Young delegates chat with Suzi Moore and Matt Keally at the Smartcane BMP stall.

Delegates outside the Cairns Sugar Terminal.

Nuffield Scholar, Joe Muscat, speaks at the Case IH Step UP! dinner.

Jack Robertson from the dual sprayer project working on with AI.
Derek Sparkes talks to delegates about the trials he is running on the Barron Delta.

Delegates at the opening of Case IH Step UP! 2015.

Lawrence Polga from Case IH talks to delegates about the latest Case IH harvester.

Gerard Puglisi addresses delegates at Sweet Farm Tours in Mossman.

Tony Chapman, Claire Bailey and Mitchell Chapman catching up at the Welcome Function.

Rebecca Bolt from Bonsucro chatting with Jess Sams from EHP and Noel Wright from Wilmar.
What’s with ‘That Sugar Film’?

By Katie Ayling, Nutritionist

Whether you’ve heard of it, seen of it or didn’t know it existed “That Sugar Film” as you can imagine is about sugar and like the rest of the media at the moment it demonises sugar as the villain for most problems in society today. No longer are we focusing on “fat” as the villain we have moved onto sugar because let’s face it we still have an obesity epidemic.

Australian actor Damon Gameau directed and stars in the “super-size me” inspired documentary.

Damon, who has eaten little sugar for the past two years, puts himself through a 60 day ‘experiment’ consuming 40 teaspoons of sugar per day found in common ‘healthy’ foods and drinks e.g. yoghurt, breakfast cereal and juice.

If taken with a grain of salt, the top line message from the film is great. It makes people like you and me think about what we are eating and reduce processed foods in our diet. There are however many miscommunications about sugar, were clearly the highly entertaining nature of the film outweighed the importance of exhaustive and credible research.

Here’s a few grains of salt that should be taken when watching or hearing about the film:

- **Grain of salt number 1:** Damon eats 40 teaspoons of sugar as he claims this is “the average daily intake of a young adult male, 14–16 years”. There are a number of flaws here. Firstly the latest national survey showed males aged 14–18 years consumed on average 33 tsp of total sugars. In fact the average Australian total sugar intake is around 26 teaspoons. Secondly, this is clearly not an appropriate amount of sugar for his age and physical activity. Young growing boys have the highest energy requirements.

- **Grain of salt number 2:** Damon claims to be eating “perceived healthy foods” were in fact he was eating a diet of only processed foods. This is very different from a healthy balanced diet. There were no vegetables, legumes, nuts, whole grains, whole fruits, plain dairy, plain meat in his experiment diet. His diet would be lacking in protein, fibre, healthy fats (and hence feelings of satiety) and many vitamins and minerals as well as containing excess sugar.

- **Grain of salt number 3:** Damon claims to put on nearly 8 kg and develop early signs of fatty liver disease over the 60 days. The first law of thermodynamics (sorry for the nerdy language) and a bit of common sense tells us you cannot put on this much weight without eating too many calories or not burning enough off.

Applications for the 2016 Nuffield Australia Farming Scholarships opened on April 1. There are more than 20 scholarships open to primary producers and managers, which includes a Contemporary Scholars Conference (CSC), Global Focus Program (GFP) and individual study program.

A $30,000 bursary is available for successful applicants to study a topic relevant to their business and industry. The tenure is 16 weeks over two years with flexibility provided.

Nuffield awards primary producers with a life changing opportunity to travel overseas and study a topic related to primary production.

Nuffield has been selecting primary producers for over 60 years and it is the leading program for primary producers in Australia, awarding 20–25 scholarships annually.

There are over 300 scholars in Australia, who, through their scholarship, have had a world experience into global agriculture to enhance their knowledge and skills.

Funding is available to support scholars overseas travel and study. So if you are in primary production as your main occupation, please take the opportunity to explore the Nuffield Australia website http://nuffield.com.au/scholarships/
A new chapter in the history of the Queensland sugar industry was written in Cairns recently when Queensland Sugar Limited (QSL) loaded the first shipment of high-polarity Brand 1 sugar bound for Japan.

The cargo of 26,000 tonnes of North Queensland raw sugar set sail from the Cairns Bulk Sugar Terminal for one of QSL’s Japanese refining customers aboard the Transformer.

QSL General Manager Trading and Risk, Dougall Lodge, said although QSL had a 50-year history with Japanese sugar refiners and had already exported over 21 million tonnes of raw sugar to Japan to date, this cargo marked an important milestone.

“The Japan-Australia Economic Partnership Agreement, which came into force on January 15 this year, now enables us to export Queensland’s high-quality Brand 1 sugar to our Japanese refining customers,” he said.

Dougall said QSL, Australia’s largest raw sugar exporter, was hopeful that the Trans-Pacific Partnership (TPP) trade negotiations currently underway would result in further reductions to the existing levy for high-polarity Australian sugar sold into Japan.

QSL is a not-for-profit organisation which provides raw sugar marketing, finance, risk management and logistics services to the Queensland sugar industry. It operates Queensland’s six bulk sugar terminals, located at Cairns, Mourilyan, Lucinda, Townsville, Mackay and Bundaberg.
Burdekin welcomes new SRA development officer

Cane growers in the Burdekin are looking forward to working with energetic and well-respected research operative, Belinda Billing, who joined the Sugar Research Australia (SRA) team recently as the new Development Officer based in Ayr.

According to Andrew Ward, Manager of SRA’s Professional Extension and Communications (PEC) unit, Belinda will be a key interface for SRA in the Burdekin.

“This role works closely with grower groups and industry advisors to direct and extend SRA’s research outcomes,” he says. “The flip side of the job is feeding back into ensuring SRA’s research remain targeted and relevant.”

Andrew says Belinda will promote the adoption of research and management practices proven to improve the productivity, profitability, sustainability for our grower and milling members.

Herbert region given R&D boost with appointment of local Development Officer

Soil health in the Herbert will be given a boost with the appointment of full time agronomist, Phil Patane, who has recently joined the Sugar Research Australia team as Development Officer in Ingham.

SRA Executive Manager for Professional Extension and Communications (PEC) Dr Andrew Ward said the Herbert region is an important production area generating over four million tonnes annually.

“Phil has been a valuable member of the PEC team for the past two years and his breadth of research and development knowledge will be an asset to Herbert cane growers,” Andrew said.

From a cane farming background originally, Phil developed a keen interest in soils and went off to study agronomy at Gatton.

After graduation, he was quickly picked up by SRA and has been stationed at SRA in the Burdekin for the past two years working as the Development Officer for harvesting and machinery.

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Sugar outlook to 2019–20

By Benjamin K Agbenyegah, ABARES

AT A GLANCE...

- Over the medium term, higher world sugar consumption than production is projected to reduce world stocks. The world stocks-to-use ratio for sugar is expected to decline over the medium term.
- Reflecting expected higher Australian sugar production over the medium term, sugar exports are projected to reach 3.8 mt in 2019–20.

Sugar demand to support world prices

World sugar prices are forecast to be lower in the short term, reflecting expected record world sugar stocks resulting from increased world production in 2014–15. But the world indicator price for sugar is projected to increase over the medium term to average around US18 cents a pound (in 2014–15 dollars) in 2019–20.

This projection of world indicator price largely reflects expected higher growth in world sugar consumption relative to production, which will reduce world stocks by a significant volume over the next few years.

World sugar production is projected to rise by an average 2.3 million tonnes (mt) a year from 2016–17 to reach 193.3 mt in 2019–20. This projected increase is based on an assumption of average seasonal conditions in major sugar producing countries and improved production in some smaller producing countries in response to productivity increases. The projected increase in world sugar prices in the latter part of the outlook period is expected to provide incentives for higher sugar production.

World sugar consumption is projected to grow at an annual rate of 1.7 per cent from 2016–17 to reach a record 197 mt in 2019–20. This projection largely reflects the effect on world sugar consumption of rising world population and continued income growth in non-OECD countries, particularly in India, China and Brazil.

The rate of growth in world sugar consumption is projected to be faster in the earlier years of the projection period because of forecast lower prices and to gradually slow towards the end of the projection period.

Sugar production prospects for major producers

Brazil: Sugar production in Brazil is projected to increase to 46 mt in 2019–20, 20 per cent higher than forecast in 2014–15. Brazil has a large amount of suitable land to expand sugar cane production. In 2012 the Brazilian Government announced a loan package of US$2.2 billion to support sugar cane production. This package is for replacing ageing cane plantings and bringing new land into cane production.

The demand for sugar cane for ethanol in Brazil is also expected to rise over the medium term because the Brazilian Government is expected to continue to raise the ratio of mandatory blending of anhydrous ethanol in gasoline. By 2019–20 the share of cane for ethanol production is expected to rise to 59 per cent, compared with an expected 57 per cent in 2014–15.

India: In India, sugar production is projected to reach 33 mt in 2019–20, slightly above the record of 31 mt in 2006–07. Depending on rainfall during the Indian monsoon, sugar production in India can fluctuate widely from season to season. India is expected to invest in the construction of more irrigation dams to reduce the reliance of sugar production on monsoon rainfall. The Indian Government is expected to continue the scheme of minimum support prices for raw and refined sugar to support sugar production.

European Union: In the European Union, the quota system ends in 2017 and higher sugar beet planting is expected to follow. EU sugar production is projected to increase to 21.2 mt in 2019–20, 11 per cent higher than the forecast for 2014–15.

In the Russian Federation, sugar production is being encouraged by policies aimed at achieving more than 90 per cent self-sufficiency in meeting higher domestic demand. Sugar production is projected to be 5.8 mt in 2019–20, 1 mt more than forecast production in 2014–15.

For Europe as a whole, the sugar beet producing countries are projected to produce 29 mt of sugar by 2019–20, compared with a forecast 26 mt in 2014–15.

Thailand: Sugar production in Thailand is projected to reach 14 mt in 2019–20, compared with 11.5 mt forecast in 2014–15. Higher world sugar prices in the latter part of the projection period, and the Thai Government’s policy of investing in new mills and support for ethanol production, are expected to provide incentives for shifting rice and cassava to sugar cane production. Sugar production in Thailand is also being encouraged through administered sugar prices for domestic consumption set at levels higher than world prices.

USA: In the United States, sugar production is projected to reach 9 mt in 2019–20, 13 per cent higher than forecast production in 2014–15. The US Government is expected to continue supporting its domestic cane and beet growers by keeping domestic sugar prices above world prices.

Mexico: In Mexico, sugar production is projected to reach a record 8.5 mt in 2019–20, in response to favourable returns to sugar production, which are being maintained above world levels because of access to the higher-priced US market under the North American Free Trade Agreement.
Can cocoa improve cognitive function?

A study recently published in the American Journal of Clinical Nutrition (AJCN) adds to the growing body of evidence suggesting that cognitive function is improved with a diet high in cocoa flavanols—a group of naturally occurring bio-actives found in fresh cocoa beans.

The medicinal use of cocoa or chocolate derived from cacao beans is not new. It has a very long history of being used as both a primary remedy and as a vehicle to deliver other medicines.

These practices originated in Central America among the Olmec, Maya and Aztec nations and were taken back to Europe by the conquistadors in the mid 1500s. The word cacao is derived from Olmec and the chocolate-related term ‘cacaoatl’ is from the Aztec language.

Early colonial era documents included instructions for the medicinal use of cacao to treat a wide variety of ailments from poor appetite for food to poor appetite for sexual activity.

And now it’s chocolate and cognition

It’s normal for cognitive function to slightly deteriorate with age. Memory capacity begins to worsen, along with processing speed and the ability to form long-term memories. Finding a way to defer the onset of these issues becomes increasingly important as life expectancy gets longer and global populations age.

This latest study was conducted by researchers from Italy’s University of L’Aquila and chocolate giant’s Mars Center for Cocoa Health Science. The study reinforces the results of several recent cognitive studies—throwing more light on the important role diet plays in maintaining cognitive health.

Dr. Giovambattista Desideri, lead author on the paper, said, “The results of this study are encouraging—they support the idea that diet, and specifically a diet rich in cocoa flavanols, can play an important role in maintaining cognitive health as we age.”

This study was the second instalment in a two-part investigation by this team into the effects cocoa flavanols have on the brain. The first study, published in the journal Hypertension in 2012, found cognitive and cardio metabolic benefits of habitual cocoa flavanol consumption in older adults who had been diagnosed with mild cognitive impairment (MCI).

Despite these findings, the question of the benefits of cocoa flavanols on cognitive function among individuals without MCI remained uncertain. This second study looked to address this question.

Enrolling men and women aged 61–85 years with no evidence of cognitive dysfunction, the participants in this controlled, randomised, double-blind study were assigned to one of three flavanol groups, consuming a drink containing either high (993 mg), intermediate (520 mg) or low (48 mg) amounts of cocoa flavanols every day for eight weeks. The nutritionally matched drinks were specially prepared. Other than the inclusion of the test drink, normal diets and regular lifestyle were maintained throughout the study.

At the start of the study and again after eight weeks, cognitive function was assessed using a battery of tests that...
examined memory, retention, recall, as well as executive function. Among those individuals who regularly consumed either the high or intermediate-flavanol drinks, there were significant improvements in overall cognitive function after only eight weeks.

**Not just for the aged**

As cognitive function was normal for this aged population, this study shows that even cognitively healthy individuals can quickly benefit from the regular inclusion of cocoa flavanols in their diets.

It is not yet fully understood how cocoa flavanols bring about improvements in cognitive function, but the study’s authors suggest that the improvements in insulin resistance and blood pressure could be revealing. “Earlier studies suggest a central role for insulin resistance in brain aging,” said Giovambattista. “These results could therefore provide some insight into a possible mechanism of action for the cognitive improvements we have observed.”

**But wait there’s more – improved blood pressure**

In addition to evaluating cognitive function, the researchers also monitored insulin resistance, blood pressure and other metabolic markers. Excitingly, there was also evidence of improvements in these cardio metabolic outcomes. In the high- and intermediate-flavanol groups, both systolic and diastolic blood pressures were reduced and insulin resistance was significantly improved.

In contrast, only a modest improvement in diastolic blood pressure was observed in the low-flavanol group, with no significant improvements in either systolic blood pressure or insulin resistance among the consumers of the low-flavanol drink.

Over the past decade, there has been significant evidence indicating that consuming cocoa flavanols improves vascular function. Dr. Catherine Kwik-Uribe, human health and nutrition director at Mars, Incorporated, and co-author on this latest study, said, “Since the brain is a heavily vascularised tissue, we might also be looking at vascular improvements as underlying the observed improvements in cognitive function.”

**NOTE:** This research trial was carried out with a special cocoa flavanol test product, designed to deliver a standardised amount of flavanols within a nutritionally suitable drink. This test product is currently not commercially available. Flavanol content of commercially available chocolate is variable and, given its macronutrient profile, it is not recommended as a health food.

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A feature of the recent Next Gen Step UP! Conference was the field trip to Mossman to visit Puglisi Farming’s diversified agricultural enterprise. Yes, the name is familiar – Gerard Puglisi is an ACFA director and their Next Gen Officer.

On top of their 185 hectares of sugarcane, the Puglisi family has a two hectare cocoa plantation which supplies cocoa to the only commercial producer of Australia-origin chocolate, Daintree Estates Chocolate.

And the sweet fix doesn’t end there – amongst other things under trial, the family is also growing vanilla. I was surprised I couldn’t find a dairy farm!

“Having a crop like cocoa enables Terese and I to even out the uncertainties of a commodity like sugar. It helps us make sure there is a future in the farm and it can pass on to our children, our next generation,” says Gerard.

“The timing of the cocoa harvest complements the sugar industry well, with farmers better able to use farm labour and utilise all their available land.”

When I asked Gerard to qualify this last comment about using all the available land one of the other farmers on the tour interjected saying “just look around for the steepest, poorest, most mongrel bit of ground and that’s where you’ll find the cocoa trees!”

Gerard laughingly agreed.

“As long as the climate is right – and around here it is – the trees can be planted in small, less productive areas on virtually any sort of soil.”

The family has further diversified its operation by recently opening Sweet Farm Tours, Australia’s first sugarcane and cocoa experience.

“As I said before, cocoa’s got a limited window where it’ll grow in Australia and we’re just lucky enough to be in a location where we can grow the two main ingredients that you need in chocolate, the sugar and the cocoa,” explained Gerard. “And we’re on the doorstep of two global tourism attractions in the Daintree Rainforest and the Great Barrier Reef.”

When Gerard and Terese talk about the cocoa diversification helping to ensure that their own ‘next gen’ has a future on the farm they mean it in a very practical sense. Growing cocoa would seem to be suited to a family farming operation – it’s very hands on. All the family members supply the hands, be it planting, pruning or picking – every one plays a part.

Terese Puglisi is only too happy to satisfy your chocolate craving – and it’s little wonder she can with cocoa, vanilla and sugar all near to hand.
Measuring soil water with an EM38

By Jenny Foley, Department of Natural Resources and Mines, QLD

AT A GLANCE ....

EM38s are instruments used by researchers, agronomists and growers to provide rapid and reliable information on soil water within the root zone.

They provide accurate estimates of soil plant available water (PAW) so that informed management decisions can be made eg. the application, timing and conservation of irrigation water and fertiliser.

Despite an extensive range of monitoring instruments now available to us, measuring paddock soil moisture is still a considerable challenge. Among the suite of instruments currently available, one that stands out and is increasingly being used by researchers and agronomists is the EM38 (Geonics Ltd, Ontario, Canada).

For many years EM38s have been used to generate maps for precision agriculture and yield mapping applications.

But DNRM, DAFF and CSIRO scientists in Toowoomba have been quietly using EM38s to monitor soil water in a range of irrigated and dryland crop and pasture studies.

They are particularly good at estimating soil water in heavy clay soils, like those found extensively in northern Australia. Because they have a sensing depth to 1.5 metres, they are ideal for monitoring crop water use and plant available water (PAW) throughout a growing season.

They could be used by a grower to determine how much and how often to irrigate. And post-irrigation, they could assess application efficiency and uniformity and find problem areas due to waterlogging or under watering (see Figure 1).

So why do we like these devices so much? Very simply – they are easy to use, lightweight, and provide rapid, numerous measurements over large areas without the need for ground installations or destructive sampling. They also have none of the wiring, electronic logging or access tube requirements of other monitoring technologies. Information can be gathered rapidly for a large number of sites. With new advances in EM38 technology, survey and GPS receiver information can also be recorded in the paddock using handheld computer acquisition systems.

What do EM38s actually measure?

Like all other soil water monitoring devices on the market, EM38s do not directly measure soil water. They measure other attributes of the soil, which can be related to soil water via a soil calibration.

Capacitance probes (eg. C-Probes, EnviroPro) measure the soil dielectric, or the ability of the soil to store a charge; neutron probes measure neutron scattering; TDR probes measure the transmission time of the soil to return a current; and EM38s measure the size of the magnetic field induced by transmitting a current through the soil, called the apparent electrical conductivity (Eca).

The amount of water, clay and salt in a soil mostly determines the way a soil will transmit or store an electric current. Wet soils conduct a current better than dry soils. Clay soils are better conductors than sandy soils because they naturally hold more water and the pore spaces within the soil are mostly small and water filled. Whereas the pore spaces in sandy soils are mostly large and air filled (and air is not a conductor). Salts in the soil water also increase the conductivity because they turn the water into a highly conductive electrolyte.

How do we measure soil water with an EM38?

The EM38 sends a current into the soil and the depth measured is determined by the choice of instrument orientation and coil offsets. To track water movement and re-distribution throughout a growing season, repeated measures at the same locations within the paddock (with salt and clay remaining constant) allow for any changes in ECa to be attributed to changes in soil water content. We can convert this to mm of stored water by using a simple linear soil calibration.

The EM38 can be towed along a survey line in a paddock while the PC records the GPS and ECa data. A map of soil texture can then be generated using free software available on the web. This map can also be converted to a map of stored water in the soil (mm) by using the soil calibration.

The Leader in Precision Irrigation.

CENTRE PIVOT and LATERAL MOVE IRRIGATION
There is a labour component required to taking EM38 readings. The instrument cannot be used remotely. But this means it is also mobile and the advantage of this mobility is that it allows numerous readings to be taken across a paddock. Instantaneous readings can be viewed on-screen as the operator walks through the paddock and literally hundreds of reading can be taken in a short time.

With capacitance devices only small volumes of soil are being measured at a few locations in a paddock. These values may have to represent what is going on across the whole paddock (so probe positioning is very important). They may also have problems on clay soils with cracking around the access tubes. Air gaps prevent the device from ‘seeing’ soil and may result in null readings. Over-wetting the soil may also happen during irrigation because water runs down the cracks. The EM38 avoids these problems because it is not installed in the soil and each reading is an average for a large soil volume (one metre length).

**Soil calibration for estimating soil water**

To get a soil calibration, EM38 readings and soil cores are collected together. Volumetric water content is measured from the soil cores. Sampling at a range of wet to dry paddock conditions provides the best calibration eg. after irrigation and after harvest. A single calibration can be used for each paddock or the whole farm if the soil is reasonably uniform. As few as six sampling points gathered across a range of soil moistures may be sufficient to develop a calibration that provides a very good estimate of soil water.

Once we get a calibration for a paddock, or whole farm, we have it for life. The calibration will only be affected by things that significantly vary the soil texture (major earth works) or the amount of salt in the soil (for example – switching irrigation water supplies from clean to salty water, or vice versa).

**What if I don’t have a paddock calibration?**

The EM38 can be used to enhance and support our instinct, experience and knowledge. By simply walking in the paddock during fallow and cropped conditions with the EM38, changes in soil water and ECa can be observed. Over time we come to know both the degree of paddock variability, and the expected ECa for a range of moisture conditions for a particular paddock or whole farm.

**What about soil texture variability?**

When we measure ECa across a paddock with variable soil texture, differentiating soil water content from other attributes becomes increasingly difficult. An increase in ECa may be due to an increase in water content, or salinity or it may be due to an increase in clay.

EM38s are ideal for use on clay soils. They are not suitable for use on iron rich soils, as the iron in the soil interferes with the instrument’s electromagnetic frequency. Most red soils are rich in iron.
THE 2015 Rotary FNQ Field Days will deliver the largest and most comprehensive display of agricultural equipment and associated services and industries in the region when it throws open the gates on May 27 and 28, 2015.

The expansive parkland at the Mareeba Rodeo Grounds, west of Cairns, in Far North Queensland, will be transformed into a tent city, with 400 sites on offer – nearly double the 2013 number.

It showcases the very industries that underpin and support the region’s $420 million agricultural industry.

The award-winning event is held every two years and largely delivered by volunteers – members of the combined Tableland Rotary clubs of Atherton and Mareeba.

Each club has its priority projects and causes while the field day committee also donates to service clubs across the Tableland region.

The event raises much needed funds for the community, with $160,000 raised in 2013.

Critical to the success of the event is the support of strategic partners – Bendigo Bank, Mareeba Mazda and MSF Sugar – along with a number of other sponsors whose continued support ensures the event will grow.

Key attractions welcomed back this year include a tractor pull. Introduced for the first time 2013, the tractor pull was a resounding success and prompted the organising committee to invest further funds to make it bigger and better.

Vintage and classic tractors with engine capacity of up to 80 horse power will pull a purpose-built, five tonne transfer sled along a 120 metre track. Competition classes range in 10 horse power increments, from 20 to 80.

Tractors fit into the vintage category for those manufactured in 1959 or earlier or classic for tractors made between 1960 and 1973.

The field days offers a platform for aspiring inventors through its Inventors Contest. Competition is open in two categories for inventions valued at over $1000 and under $1000.

The class winners will receive $500 cash each, with the overall winner to also receive $500 cash and free travel and entry in the Australian National Field Days in Orange, NSW, in October.

Interest has been strong, with eight entries confirmed.

The field days will put a further spin on agricultural, partnering with the Mareeba District Fruit and Vegetable Growers Association to deliver career workshops for young people and education, training and information sessions.

The art union offering $46,000 in prizes also returns this year.

www.fnqfielddays.org.au
O – it was not an earthquake. Nor was it an asteroid collision. Not even a tsunami. The shaking of the planet was caused by tractors! And if you don’t believe me and think I must have been hallucinating, then read on!

The event

The occasion was Easter weekend 2004. The venue, a paddock near Cootamundra, where Australia’s reputation for integrity, ingenuity, probity, absurdity and larrkinism was on the world stage. News editors around the world’s capitals had the headlines put on hold, awaiting the outcome of this global event! Spy stealth satellites hovered unseen overhead. Watchful tall thin men, hiding behind dark sunglasses dressed in equally dark suits and dark hats, mingled with the crowd imagining they would remain unnoticed, but in fact might have well had signs around their neck spelling out FBI, OSS, M.I.4 or whatever.

So what was occurring that Easter weekend at Cootamundra? A world shattering event – that’s what! No less than an international challenge by Australia to win The Guinness World Record for the greatest number of tractors ploughing simultaneously in the one paddock. So would the number have to be around 10, 20, 50 or could it be as many as 100? Guess again! The Irish held the world record at a whopping 1833! We Aussies had to do better. A challenge indeed!

Some uncharitable souls suggested the Irish had only achieved that figure as a result of an inducement of a dozen free bottles of Harp lager for each contestant. They said that Ireland tilted to the south that day, as the only field sufficiently capacious was situated near Cork. It was further alleged that most of the tractors were Grey Fergies, on account of their slow road speed enabling their drivers to weave their inebriated way home without attracting the attention of the constabulary! (Only joking).

Cootamundra

Possibly because no one else was daft enough to take on the job, I was recruited by the organisers Vic Muscat and Brian Sainsbury, to do the commentating over the two days. What I was not told was that in order to have a necessary panoramic view of the proceedings, I would be elevated aloft in a wobbly hair raising scissor type contraption, the inspection of which by a work safety guy would have had it condemned to the nearest meltdown joint. I do not enjoy heights. (In my view, ladders are things to walk under – not climb)!

I arrived at the site on Good Friday to an unforgettable spectacle. Hundreds (and I mean hundreds) of trucks of all description, loaded with tractors, were either lining up patiently at the unloading ramps, lining up impatiently on the approach roads or clogging the main highway causing motorists and truckies, who had nothing to do with anything, to lose their patience.

Vic Muscat was weighted down with a gaggle of walkie talkies, each of which seemed to demand his urgent attention. Brian Sainsbury kept tearing off on a quad bike in an endeavour to direct the incoming trucks and plead with their drivers not to yarn at the unloading ramps, but move on and park their unloaded vehicles elsewhere.

But magically, a pretty lady with a welcoming smile and the stoicism of a New York cop, was creating order out of the mayhem. She warmly greeted and registered each arrival. By late afternoon over 1000 trucks had been unloaded and parked. Tractors of all descriptions were being fuelled, fixed, polished, cursed or seemingly abandoned. And this was only Friday!

Legions of tractor drivers, plus their wives and kids, were reunited with old friends, made new friends or simply dozed off following a long drive. Many had travelled from interstate and there was even a group who had journeyed from South Africa and brought their tractor along for the ride! Great stuff!
There were quite a few Brits in the crowd. In the main they were a sullen lot. You see their cricket test team were getting used to being beaten by we Aussies. But more importantly, the attempt some months earlier by UK tractor enthusiasts to wrench the Guinness record from the wild Irishmen, had ended in a dismal failure! They could only marshal 771 tractors, despite the encouragement from all the Earls, Lords, Bishops and the new gentry (foreign speaking Squires) throughout the Realm, who magnanimously offered cups of tea to each contestant should they win!

**Saturday**

Saturday was only a fun day, with the actual world record attempt not scheduled until the Sunday. So a competitive tractor pulling contest had been organised.

Frankly I consider such competitions with a jaundiced eye, in much the same way as I do rodeos, camel racing and er – cock fighting. You see these grand old tractor classics entered into these events, many of which have survived for around a century, are routinely subjected to having massive weights attached to their driving wheels in order to gain additional traction, tyres deflated to possibly six or seven psi (for the same reason) and engine governors ‘worked over.’ But worst of all – red neck drivers, the sort who would flog an old horse, thrash their poor old tractors mercilessly in an endeavour to outpull their rivals. Engines roar and black smoke pours from exhaust stacks.

OK so maybe that is a bit over the top. Perhaps I am just a softy who cares for old tractors. Anyway, I did the commentary from my perch but probably, despite the scores of loud speakers positioned around the ground, could not be heard over the protesting screams from the engines.

**Sunday – and the earth shook!**

Another blistering hot day, not welcomed by farmers in the area praying for rain to end the drought. Not welcomed by me, aloft in my perch with only my old battered Akubra for shade.

By 10 am around a thousand tractors had been lined up like regiments of North Korean troops. Not nearly enough! But still convoys of trucks kept arriving with their colourful tractors and still the welcoming Red Lady signed them in and told the operators where to go – politely of course.

In between swigs of bottled water, I kept the crowds of spectators informed of the numbers and generally how things were shaping up. An obnoxious Irishman positioned himself in the shade below my roost and proceeded to yell up to me indicating we Aussies would never beat the Irish. I was tempted to pour the contents of one of my water bottles over him. But why waste water?

By high noon around 1500 tractors were lined up patiently awaiting the fire truck siren, which would be the ‘go’ signal. But remember, to defeat the Irish we required 1833. Still the trucks arrived. Delay the starting time from 2 pm until 3 pm and cross all fingers and toes! So I made the announcement – the start would be delayed. The Irishman laughed and shouted something quite vulgar which, being a gentleman I cannot repeat!
An hour later it was 1 pm and still we were approximately 200 tractors short! Strewth! Desperation time. I endeavoured to hush everyone and begged them to listen to my appeal. I urged all local farmers who had arrived tractorless to immediately hi-jack a truck with its driver and rush home, forgetting about speed limits, load a tractor and hasten back to the ground – immediately.

The response was amazing! Empty trucks raced away in all directions, and it seemed in no time at all they charged back into the ground with the weirdest assortment of tractors imaginable. I deliberately did not notice that a few patriotic Aussies had returned with ride-on lawn mowers and even a grader or two. Who cared? The Irishman did, judging by his jumping up and down, accompanied by his shouting protests. But as everyone knows I am hard of hearing (too many hours driving a Chamberlain Super 90)! So I ignored him, but not before extending a friendly two finger wave!

It was actually 4 pm before the organisers gave the signal to the fire truck. The earth literally shook and the roar of exhausts could probably have been heard back in Sydney. (Acid rain reportedly fell on New Zealand the next day).

There were 1897 tractors of all types, each pulling an alleged plough, which commenced their crawl across the landscape! What a spectacle! The drivers were ecstatic. They waved and cheered as did the spectators. But the resulting dry red dust rapidly blocked out the sun and soon the tractors were all but hidden from view.

We Aussies had done it! We were now proudly the holders of The Guinness World Record for the greatest number of tractors ploughing in a single paddock – simultaneously!

Of the Irishman, there was no sign!

And yes, ‘The London Times’ did feature the event!

**IAN’S CLASSIC TRACTOR QUIZ**

A score of 8 or above would be considered excellent and reveal an in-depth knowledge of classic tractors. 5 or over is still a good result. If in doubt, by applying logic, quite possibly the answer will become obvious. Or maybe even an educated guess? (Consulting Google would be cheating!) Good luck and have fun – Ian M Johnston.

1. The Massey Ferguson MF 30 was manufactured in which country –
   - Turkey, South Africa or France?
2. In 1953 the Ota Monarch lightweight tractor was taken over by which car company –
   - Morris, Jowett or Daimler?
3. Which Australian firm produced a 4 wheel drive industrial tractor named ‘The Crab’ –
   - Conquip, Cranvel or Toft?
4. The 411R was a model of which tractor –
   - John Deere, Nuffield or Fiat?
5. Which British tractor firm produced a range of Oliver tractors for the USA market –
   - David Brown, British Leyland or Fowler?
6. Name the German equivalent of The Nebraska Test –
   - Marburg Test, Hanover Test or Dusseldorf Test?
7. The Best and Holt tractor firms amalgamated in 1926 to form which company –
   - White, Caterpillar or Moline?
8. Which early American tractor firm is often credited (wrongly) as coining the term ‘tractor’ –
   - Hart Parr, Wallis or Emerson Brantingham?
9. The Best and Holt tractor firms amalgamated in 1926 to form which company –
   - White, Caterpillar or Moline?
10. Which early American tractor firm is often credited (wrongly) as coining the term ‘tractor’ –
    - Hart Parr, Wallis or Emerson Brantingham?

See answers on page 72.
NORTHERN REGION

April is here already and to date the weather has been kind to us. The wet season arrived later than usual, but the northern crop has generally handled the dry start pretty well. For the first three months of this year the Mossman region received around 1320 mm of rain. The January total for 2015 was 243 mm, February's total was 538.5 mm and the March total was 538.5 mm. With the recent rain and at times wild winds associated with TC Nathan there appears to be small areas of lodged cane. These areas are very isolated and I expect it to have a minimal effect on the 2015 crop. With the cyclone season drawing to an end and a relatively dry summer, the crop in all the northern areas is looking like an average season.

Mossman Mill is again aiming to start this year's crush in mid May and the Mossman region's chance of a reasonable crop appears very likely with the crop estimate coming in around 1,255,000 tonnes (including the Tablelands). A reminder to all farmers that their estimates along with any map correction should be sent back to the Mossman Mill field staff as soon as possible.

Local farmers are also eager for some dry weather so they can start their planting programs – to date there's not been any early planting carried out. Growers are reminded that before they intend to plant, to please contact their local Productivity Board for a plant source inspection. For an accurate reading it can take a few weeks for the results, so please give your field officer plenty of notice before you intend to plant.

Next Gen on the move

As most of you may be aware, I am the current Next Gen Officer for the entire Australian Sugar Industry. The Next Gen program's aim is to facilitate and encourage an active network of young and established farmers in each mill region. Since I have started this role I have undertaken annual road trips from Mossman to Harwood in NSW and travelled over 35,000 km.

On these journeys through the industry I have had the privilege of meeting many innovative farmers, both young and old. I have found these meetings very productive, the feedback very encouraging and I am sure that the sugar industry has a ‘sweet future’. Being able to meet with fellow farmers from different regions and talk to them on their relevant issues and even their current farming practices has been very exciting for me.

In March The Next Gen team had the pleasure of hosting the second Case IH Step Up! Conference. This was held at Hotel Grand Chancellor in Palm Cove, Cairns. More than 160 cane farmers, cane professionals and industry stakeholders met to discuss the future of the Australian sugar industry.

The conference aimed to build on the Next Gen program’s network of young and established cane farmers across Queensland and Northern New South Wales.

Of the delegates that attended, around 120 were younger farmers and they were able to identify and address topics such as:

- Best farming practice;
- Precision farming;
- Sugar marketing;
- R&D;
- Agricultural engineering and technology; and,
- Financial products and planning.

The main themes of the conference focused on sustainability, profitability and innovation so speakers from our industry were able to talk to farmers about the real issues which weigh heavily on them.

The Next Gen program wants to encourage younger people to “Step Up” and take more of an industry role. All in all it was a very exciting conference and I hope that industry continues to show support for our Next Generation farmers.

Gerard Puglisi
Northern Region Director
April 22, 2015

SOUTH JOHNSTONE, MULGRAVE, TULLY

This year we’ve had an outbreak of Panama TR4 disease reported in the Tully district. Although this is not a direct threat to sugar cane, it will certainly create some bio-security issues.
Because the disease is a soil-borne fungus, it means that machinery cannot traverse through different properties without adopting the policy of Come Clean – Go Clean.

Banana disease significantly impacts sugar industry

Banana growers are busily adopting processes to reduce movement through their properties by fencing farm boundaries and installing wash bays at a single entrance point to their farm. Vehicles and footwear are washed and sanitised on the way into the property and again on the way out.

This is where a disease in bananas will affect the sugar industry and supply contractors. Banana paddocks are scattered through cane growing areas, sometimes within the one property. It will mean that machinery and vehicles will no longer be able to travel freely through differently categorised farm lands.

In many cases, banana and cane paddocks share a common headland between more than just the neighbouring growers. With cane rail networks and headlands weaving through different properties, these will somehow need to be separated. An individual farm biosecurity policy could well be the best method for preventing your farm from an unwanted disease outbreak that affects the sugarcane crop or the soil.

The Far North crop this year has struggled with the shortage of rainfall with the month of March only receiving 262 mm. January to March 2015 received 1088 mm of rain, and although this is a considerable amount of rain, it’s approximately 800 mm less than we received during the same period last year. Due to the high expectancy of rain in this area, water is dispersed quickly.

This, together with the summer heat, the crop in a high growth stage and longer than usual dry periods, has inhibited growth. We can’t claim that the area is in drought compared to other parts of Australia but the crop at this point in time is heavily affected, in my view it will be reduced by approximately 20–25 per cent.

YCS was suspected, now confirmed

Over the past two years we have noticed cane in some fields displaying yellow leaves in the lower canopy. This was never positively identified as Yellow Canopy Syndrome (YCS) by cane productivity service officers. During the latter part of March this year, James Dunn from the Innisfail Babinda Productivity Board has definitely confirmed YCS in the South Johnstone area. The full effects of the damage caused by YCS are still being monitored.

Many growers have gained some renewed optimism from the senate inquiry into the sugar marketing debacle. It would appear from the inquiry that the senators can relate to the vulnerability of growers’ current bargaining position with mills, due to the bulk and perishable nature of our crop; understanding that our cane has to be harvested within a six-month period, and once it has been harvested there is a 24-hour window from harvest to crush.

All growers seek:
- Recognition of grower economic interest sugar;
- Grower choice model in marketing and pricing of their individual sugar;
- Retention of our industry owned Queensland Sugar Limited marketing body; and,
- An arbitrative dispute resolution process in our cane supply agreement negotiations.

Interesting discussions happen on a regular basis and it is important we stay connected – if you would like to receive information on current sugar topics, please provide your current email address to:

email address to: information on current sugar topics, please provide your current

Michael Camilleri Northern Director April 22, 2015

HERBERT

The Herbert River District has been missing out on their annual rainfall this year and we feel we are experiencing drought conditions. Some rain has fallen along the coast but other parts of the district have had little or no rainfall – the west has had only a few millimetres.

March has been a busy month with meetings. I attended a SRA Variety meeting and also the Senate Inquiry hearing regarding marketing of sugar and growers being able to make a choice. It was well supported by farmers from Tully, Herbert and the Burdekin who all made clear to the Senators the degree of concern we feel for our future wellbeing.

I attended the Next Gen Conference at Palm Cove. A complete success! This conference was fully booked out. Please look at the Next Gen website as the presentations are available for anyone to read.

April has been extremely busy with information meetings including an interesting meeting on soil biology, held on April 9. Yellow Canopy Syndrome is running rife again in the Herbert this year. Abergowrie and other parts of the district are really

27 & 28 May 2015 Mareeba Rodeo Grounds

suffering. It is to be hoped that a solution to the problem is just around the corner as this disease is affecting productivity. Not what we need with cane already suffering in some areas from lack of rainfall.

**Pigs getting smarter!**

Feral pigs and rats are an ongoing problem. Seems the pigs in particular are becoming smarter. They are coming out of the National Parks during the day, feeding and wallowing inside the cane and then, just before dark, heading back into the National Parks for the night. They are also good at using avoidance tactics – moving from one end of the paddock to the other if they know someone is around. In our area it took two years to dispatch one of these smart pigs.

Carol Mackee  
ACFA Herbert Director  
April 22, 2015

**Editor’s Note:** Our apologies to readers – unfortunately we are unable to provide a Burdekin report for this issue.

**CENTRAL REGION**

The period of February to March is usually the wettest part of the year – not so this time around. As of now – mid April – we’ve only received about 50 per cent of what we would normally have expected. Going forward this will affect our harvest estimate for this season.

Grower estimates that were submitted before Easter were down on last year, reflecting a crop of somewhere about five million tonnes. There will need to be continued showers and rainfall events to qualify this year’s crop. An open winter would help to carry the crop through.

**Crush to start early June**

The Mackay crushing season will start in early June, with the dates to be confirmed in the near future. The maintenance period is progressing well, with all business units close to anticipated schedule and budget. In general it’s the work on the milling trains at each site that requires the entire maintenance period to complete. Additional crews are being used where necessary to meet the targeted completion dates.

The Farleigh Boiler Efficiency Project is advancing with the economiser sections lifted into place. The air heaters for the boiler have landed on Australian soil. But the delays incurred during the fabrication process have required a change to the erection sequencing by the site contractor to ensure readiness for the crush.

Mackay Area Productivity Services (MAPS) has been conducting the annual shed meetings to inform growers of the current issues. Their main points have been:

- Varieties;
- Irrigation efficiencies;
- Harvesting performance and losses;
- Management of fallow areas;
- Supporting the uptake of BMP; and,
- Trial results undertaken by farmer groups.

MAPS will hold their Annual Field Day on May 28 at the Victoria Plains MAPS farm.

The Community Bank sponsored Ag.Trade.Life Field Day will be held at the Mackay Show grounds on May 1–2, 2015. The main beneficiary will be the Pioneer Valley Rotary Club’s Drought Assistance for Longreach and Districts project. Visit their website www.agtradelife.com.au for further information on this event.

**SOUTHERN REGION**

Preparations are underway for the 2015 harvest. Crop estimating has begun in the Isis Mill Area and therefore the cheap part of cane harvesting is behind us. A retired contractor said recently that he liked owning a cane harvester from January until the end of April. They look impressive standing in the yard and don’t cost much at all. Then May happens and the shine goes off his machine.

The cane loss from current harvesting systems has prompted several growers to go it alone in pursuit of better outcomes. I certainly hope that everyone has talked to some retired harvesting operators to get a grasp of the ‘shiny impressive’ factor of harvesting.

Harvesting losses are significant. Milling company Field Officers are appealing for correct information to help even out the flow of cane to the mill as this plays a part in the reduction of cane loss. Having to pick up extra bins after the normal days quota can lead to rushing resulting in poor quality cane in the bin.

Harvesting Best Practice Manuals are now on the web. We are encouraged by SRA staff who prepared these to put a copy on the ‘smoko’ table and just mull it over. The effort by the SRA guys was seen at the Next Gen Conference with presentations, discussions and field tours.

**It’s out – Michael’s getting old!**

Next Gen was a great thing for me. I was the old bloke sitting down the back of the bus – and sometimes I felt really old. And
all the rest of the time I kept thinking, “Gees when I get back to my patch I want to try that” – adjusted for age that is.

I am so pleased to hear of the ways that the Next Gen people are getting on with it. I learn as much from them as I do from the academia. Well let’s say I learn different things.

I hope I was able to provide at least a bit of good advice to those I shared time with. It was a privilege and I will carry an ear trumpet should it make to the next event!

Soybean and peanuts are doing well, although some rotation pumpkin growers are also pretty happy with their results.

After I received the maps and paper work for preparing the 2015 crop estimate, I realised that there is one area of estimation often over looked – and that’s estimating ‘person power’ available.

May is my month for medical checkups and a spell. Not so lucky this time. My blood pressure was too high for my Recreational Aviation/ Heavy Vehicle Medical – the two things outside of my family and friends that I need most. What to do?

Healthy farmers, healthy industry

I’ll spend the time with our family doctor and find a cure, whatever that may be. I know this is a bit away from the crop, how much rain and YCS worries and so on – but without healthy farmers out there I won’t have anyone to read about the crop, how much rain and YCS etc. Pertinent to this, I can report that I was not the only farmer at the surgery!

Flood, drought and finances are a tough job. I want to be able to write reports in the future that tell of 100 per cent of our farmers being 100 per cent fit for duty. My ‘two bobs’ worth (showing my age again) on this is that you can choose to curl up echidna-style and present a spiky exterior and hope the situation has resolved itself when you uncurl. Or you can do as Sun Tzu advises in the Art of War (editors note – this reference may indicate that Michael could be 2000 years old) – “keep your friends close and your enemies closer”.

I guess this means nowadays talk to the banks, but also talk to your friends about the banks.

To the call of duty – the ACFA Board recently approved the start-up of a Southern Region Irrigation Group. I envisage a group of people who together can re-think and rework crop irrigation – all aspects – from engineering to finance. Some of the systems are older than grey ‘Fergys’. We will somehow have to do better, affordably. Can you contribute? Online will work – surely we can gain a bit of ground here.

The Tweed had the third wettest summer on record but fortunately no floods to speak of – I guess we have been lucky. This is the meeting season, with meetings every week almost all the way up to the season start in June.

Every now and then a variety comes along that is outstanding and Q248 is one of these. Unfortunately it has a very high smut rating in the field – many growers will assess very closely the risks of using this variety before the planting season comes around in September, October.

Soy beans will once again put some dollars in the pockets of the growers with some excellent crops in all three mill areas.

Together with three growers from the Richmond, I was very pleased to attend the Next-Gen conference at Palm Cove North QLD. This conference is held every two years and, with the support of Case IH, it looks like it will be on growers’ calendars for many years to come – certainly it will be for the 160 who attended.

Most of the organising was done by the Next-Gen committee, Next-Gen reps and members – it was a credit to them all. I do get to attend a lot of conferences and I will rate this year’s Case IH Step Up! Next-Gen conference as one of the best I have ever attended.

Congratulations to Gerard Puglisi, his Next-Gen reps and Amanda Sheppard from the AFCA secretariat!

Robert Quirk
ACFA New South Wales Director
April 22, 2015

NEW SOUTH WALES

The weather has been kind to the NSW industry this year and for the first time in a quite a few years the estimate is over two million tonnes.

Let us hope that all goes well and the farmers in NSW get back on their feet. There has always been a willingness on the part of farmers to produce – even through the gloomiest days of low tonnages brought on by floods and frosts.

We can only hope that all goes well and that our mills can now process the crop that will be presented to them in the time agreed in the cane purchase agreement.

The prediction of normal rainfall in autumn and early winter augurs well, and the prediction of above average temperatures for autumn could see the crop grow on in the next three months.
SUMMER in Queensland is the best of times, and the worst of times. The worst of times because of the cyclones, floods, heat, humidity, insects and all the other associated issues that go with living in the tropics!

The best of times because of the heat, humidity, and insects! Above all because of the appearance of one of the most magical of all insects – the cicada.

The cicada has an awesome reputation amongst freshwater fishermen and especially fly fishermen. In the US the cicada hatch only happens once every seven years so fishing a cicada hatch is a major event and the stuff of legend. This explains why so many yanks flock to New Zealand every year to live their dreams.

Satanic cicadas

In Queensland we don’t just have cicadas we have CICADAS!!! Huge, fat, succulent insects in yellow, pale blue and olive green, and the face of all things evil in insects, the giant black cicada with luminous red eyes.

The first time I came across the black cicada I thought it was some sort of satanic experiment gone wrong. Cicadas mean more than just summer and bass season – they are the voice of the bush in summer.

I’ve always been amused by people who carry on about the quiet of the Australian bush. I’ve spent more than a day or two in the scrub and I can remember only one day when it was totally quiet.

Once upon a time in the Northern Territory, between Darwin and Nhulunbuy there was this secluded waterway called Crab Creek. I doubt the creek has a given name at all but we called it Crab Creek. Although it looks like any other creek in this part of the world it’s unique. Behind the ubiquitous shallow tidal mouth there’s a long stretch of deep water running back through the overhanging mangroves to terminate in a primordial swamp bordered by an ancient escarpment.

In the seventies the geopolitical situation in our neck of the woods was a little tense. It’s probably not common knowledge but back in those days Australia and our most significant northern neighbor weren’t getting along too well – technically we’d been at war for a couple of years. They, our northern neighbors, put a lot of effort into acquiring an intimate knowledge of our northern coast and the islands between them and us and I don’t think their interest was limited to the barra and muddies.

The silver lining in all this was someone had to keep an eye on the place, and the best way to do that was to go fishing.

Cold War comes to Crab Creek?

The incident, for what it was worth, became known as the Crab Creek encounter. In brief, we were camped up on Crab Creek trying to look inconspicuous when an Indo fishing boat arrives on the top of the tide. They were well into the creek and the tide had turned before they realised they weren’t alone. With only one tide a day they spent 22 uncomfortable hours convincing us they were lost fishermen before they could clear the bar and get back out to sea.
In hindsight it was like something out of Monty Python. We knew they weren’t fishermen and they knew we knew and we knew they knew we knew. They, in turn knew we weren’t locals on a fishing trip and we knew they knew and they knew we knew, so a good time was had by all.

It was customary and in keeping with the charade to trade fishhooks for their cooking oil, so we did, and off they went. I don’t know how they make their cooking oil and I’ve never been able to duplicate it but it’s the oil the gods use for cooking seafood.

That afternoon the mercury dropped and by dark everything was quiet, far too quiet. No birds in the mangroves, no crabs clicking on the mud flats at low tide, no insects in the treetops. Nothing!

Next day Cyclone Tracy dropped by on her way out of Darwin and dumped just about everything we owned into the Arafura Sea.

So next time the bush goes super quiet like that I’m heading for the high ground. What happened to our unwelcome visitors we’ll never know but I think the records will read as just ‘misadventure’.

It’s interesting to note that the development roads, or beef roads as they were known in the day, were actually built for the rapid military response to any threats from our northern neighbour. And it’s ironic those same roads now carry our live stock exports to that very same neighbour.

So you want a trophy fish?

Meanwhile back on the creeks, dams, and sweet water rivers the raucous crescendo of the cicadas heralds some of the best fly and light tackle fishing of the year.

Now, I’ve never made any secret of my love of poppers and top water fishing but I’m a realist – I know that freshwater fish take about 99 per cent of their food subsurface. It’s only logical when you think of how vulnerable a fish is when it’s taking food off the surface.

So, while the brave and foolish fish are snatching the unfortunates who splash down amongst the drowned timber and lily pads, the big smart guys are lying in the shadows taking the doomed and drowned as they sink slowly past.

I’m a firm believer in ‘match the hatch’ and give fish what they expect. But when the action is hot and I’m looking for a trophy fish a change of tactics will often produce the best results.

Firstly I go up in size and fish a bigger lure or fly. Secondly, I go for something different.

What’s a bass or barra’s all time favorite, top of the menu forage species? Crustaceans! Prawns, crayfish, marron, red claw, yabbies – they all take pride of place at the top of the list.

The other advantage of fishing a crustacean pattern is movement. Fish expect to see their shellfish move and in the dappled half light of the lily pads or turbid waters of the wet season runoff movement can often be the difference between fish and no fish.

The other big attraction of an artificial crustacean pattern is all the legs and feelers that will give the impression of movement even when the lure is standing still.

It’s all about illusion

At this point it’s important to understand that to be a successful lure fisherman, and I include fly because flies are just lures by another name, you must enter the world of illusion.

Forget the end of month figures and all the other self imposed constraints you’ve let the world oppress you with – give your mind totally to the sensory, tactile relationship between you and the lure.

If you don’t know how a prawn or yabbie swims, find out – catch a couple and watch them. Feed them and see how they handle their food. Put a pump in their tank and see how they handle the current, where they hide and how they get about.

Knowledge is power and once you can mimic the actions of their prey the predators will do the rest.

Let’s tie Philthy Phil’s Secret Sacred Yabbie Pattern

The foam used for the shell on this one has been touched up with a black marker but you could use brown, green, yellow or red.

You will need

- A long shank hook with a wide gape like the Mustard 80300dr in a #2;
- Something to hold the hook like a fly tying vice;
- Monofilament sewing thread and a fly tying bobbin,
- Two large black beads,
- 200 lb monofilament fishing line,
- Craft fur, thin foam and super glue – the craft fur you can cut off an old fluffy toy and the thin foam comes with every electrical appliance you’ve ever bought; and,
- 10cm of large bead chain is an optional extra.

The hook may look huge but remember the gape of the hook needs to fit around the bass or barra’s jaw, plus we don’t want it all choked up with tying material. If you want a 100 per cent guaranteed totally snag free fly use a bent back or keel hook, like a plastic grub hook, and have the lure swim hook point up.

Let’s go to work

1. Clamp the hook in the vice and tie a jam behind the eye using the mono thread. Take the thread down the hook in close tight turns until you are over the point of the barb. Use the bobbin as a plum bob to be exact.
2. Take a piece of the 200 lb mono two and a half times the length of the hook and superglue a black bead to each end. Bend the mono in the middle to create two equal halves and crimp, don’t cut, the bend with a pair of pliers.
3. Lay the mono over the hook with the eyes down at the bend of the hook and the crimped end about 1cm short of the
hook eye. Bind on with the mono sewing thread using tight close turns. Finish back above the point of the barb. Secure with super glue and let dry.

4. Cut a strip of thin foam 1cm wide and twice the length of the hook. Using about 1cm at the end of the foam tie it to the hook sticking forward between the black bead eyes. Finish with the thread over the point of the barb. We’ll bend this over later to create the shell-like back of the lure.

5. To make the nippers. Take a tight clump of craft fur about the thickness of a match and cut it off close to the base. Don’t let go.

6. Lay the butt-end of the fur beside the hook, next to the foam, and take two or three turns of thread to hold it in place. Finish with the thread over the point of the barb. Take another clump and tie it on the other side. Tie in tightly with the mono thread, finish with the thread over the point of the barb, and apply superglue to the thread. I find it easier to tie the first clump on the opposite side of the hook first, that way you can see what you’re doing.

7. Cut a strip of craft fur about 5mm wide and 100mm long and tie in between the eyes over the point of the barb and on top of the foam. Wind the mono thread down to the eye of the hook.

8. Take the strip of craft fur and stroke all the fibres out straight and wind around the barb. Start in front of the bead eyes and over the foam then close turns along the hook. Stop about 5mm short of the hook eye and tie off with the mono thread. Cut the craft fur at the base so you don’t get bits of fluff everywhere and be careful not to catch any of the fur in the turns.

9. Take the thread back along the hook in big turns and stop about 1cm short of the bead eyes, roughly where the piece of white foam is tied in. Wiggle the thread and it will pass between the strands of fur without pulling any of them down.

10. Part the craft fur down the middle along the hook and pull the white foam back along the hook to the eye. The foam needs to be reasonably firm but be careful not to break it.

11. Wind the mono thread tightly along the hook in big open turns to create segments in the foam to mimic the segmented body of the yabbie. These turns should get closer as you get to the tail just as they do in real life.

12. When you get to the eye of the hook, go under the foam, and tie the thread off around the eye of the hook. Cut the thread and apply a drop of super glue. CAUTION! Don’t get superglue in the eye of the hook. Cut the foam about 5mm longer than the hook so it looks like a tail.

13. The craft fur should stick out all around the hook except for the foam section down the back. With a long pair of sharp scissors cut from the eye of the hook to the point of the hook so it’s short at the tail and long at the head. Do this all the way round. Basically you cut off everything that doesn’t look like a crayfish.

Be mindful that wet fur appears less dense when it’s dry so it pays to get an idea of what it should look like wet. Taking it off is the easy part, putting it back, well.

Remember movement is life and this fur will give the illusion of life with the tiniest movement so your lure can spend a lot more time in the strike zone.