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Dr Paul Nelson and technical officer Tracy Whiting checking measurements of leaching on a Gordonvale farm. Working with Dr John Armour, Paul found that industry-standard rates of nitrogen fertiliser use for sugarcane crops in the wet tropics resulted in low leaching loss. See article page 15.
I was recently in Ireland and the UK on an agricultural study tour. Our timing on the weather front couldn’t have been better – in 30 days travelling it rained twice, well the locals described it as a soft scotch mist but it felt like rain to me.

On the sporting front our timing couldn’t have been worse. The Brits had won Wimbledon; the Tour De France; the Rugby and the cricket unravelled as we travelled!

On the political/EU Subsidies/level playing field front it was also really interesting. Sugar beet farmers in the UK were up in arms – and on the seats of their tractors – threatening to blockade London.

According to the UK Department for Environment, Food and Rural Affairs the UK is the fourth largest and lowest-cost producer of sugar beet in the EU. Over 4,000 growers grow approximately 7.5 million tonnes of sugar beet each year on just over 100,000 hectares of land, producing half the sugar consumed in the UK.

British Sugar is the sole processor and marketer of home-grown sugar beet. Between September and March, British Sugar processes approximately 350,000 tonnes of sugar beet each week, amounting to over one million tonnes of sugar from homegrown sugar beet.

The National Farmers’ Union (NFU) has been meeting with British Sugar to try to resolve a row over the firm’s price offer for this coming beet harvest. British Sugar upset growers when it asked them to sign up to a £30.67 a tonne contract, despite it being rejected by the NFU negotiating on growers’ behalf. The NFU sugar board which negotiates with British Sugar, said growers were standing firm, pledging to hold back around five million tonnes of production.

All was not sweetness and light in the land of the endless subsidies – sorry, support payments.

So what is on offer in the way of entitlements and financial support for beet growers – in addition to the sale of their produce?

Well may you ask and I will now attempt to provide something of an overview.

Land used to grow beet is eligible to be used to claim under the Single Payment Scheme (SPS) – a feature of the EU Common Agricultural Policy (CAP). This is generally in excess of £250 per hectare – that’s AUD$430 per hectare.

And then there is the funding that is accessible under the Rural Development Program – in England this is jointly funded by the EU and the UK government. Oh, and did I mention the Natural England grants, the woodland grants and the energy crops scheme?

In order to receive the full SPS payment – and certain Rural Development scheme payments – farmers must comply with a set of Statutory Management Requirements. These relate to areas of public, animal and plant health, environment and animal welfare. They are also asked to demonstrate that they are keeping their land in good agricultural and environmental condition. UK farmers are paid to do this, we are fined if we don’t!

UK farmers told us that, at one time, they were paid to remove hedges and now are paid to maintain them. Some farmers are paid to look after the birds in the hedges and the flowers in the meadows; some receive support to help them preserve diminishing stock breeds; and others suggested that they were actually farming the taxpayer!

And there-in lays a problem. The EU is expanding and the farmers from the ‘new’ member countries are keen, very keen, to receive similar levels of ‘support payments’.

The general view amongst the farmers we spoke with was that the level of support payments will necessarily have to be reduced, none were keen to see them go entirely – and who can blame them!

I was always ready to reassure the farmers we met that we were not contemptuous of the support payments – we were envious!
Senator 700WG, a unique new water dispersible granule formulation of imidacloprid, is now registered for control of cane grubs in sugarcane. This innovative new high strength granule formulation is:

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Yellow Canopy Syndrome

industry update

Scientific Reference Panel now on board

The Solving Yellow Canopy Syndrome (YCS) research project – funded by the Sugar Research Development Corporation, The Department of Agriculture, Fisheries and Forestry Queensland and BSES Limited – is supported by an independent Scientific Reference Panel that is responsible for providing scientific opinion on the direction of the project.

The panel includes:

■ Professor John Lovett, Plant Biosecurity Cooperative Research Centre (PBCRC);
■ Dr Andre Drenth, The University of Queensland; and,
■ Dr Geoff Inman-Bamber, Crop Science Consulting.

The panel has travelled to the Burdekin and Herbert cane-growing regions to assess first-hand YCS in the field. They also met with the SRA project team and industry representatives. From their first inspections the panel confirms the view of SRA staff – that the condition is complex and is not yet fully understood. The panel reviewed all aspects of the project and endorsed the general directions being taken. They will soon recommend on any adjustments to the project.

Update on the Solving Yellow Canopy Syndrome research project

With our project partners we have made good progress in ruling out some possible causes and setting up new trials to learn more.

■ Planting material and the impact of stress – Based at our Burdekin facility, this recently planted trial seeks to understand how water stress and Imidacloprid treatments impact on clean and affected cane.

■ Imidacloprid – Field trials have been established in the Herbert cane-growing region – in collaboration with HCPSL – to investigate the effects of Imidacloprid on YCS expression and severity.

■ Transmission via planting material trial – A trial was set up – under optimal conditions – to see if YCS could be transmitted via planting material. After 10 weeks we did not see YCS symptoms expressed in young cane, even when the plant source was severely affected. Germination was impaired, but with reductions of up to 20 per cent when severely YCS-affected plant source was used. A water stress treatment has now been introduced to the trial. After a few weeks of this treatment we have seen some typical stress-related yellowing – but nothing resembling YCS symptoms. We will continue to monitor this trial to see how the cane progresses under these conditions.

■ Observation trials – With BPS and HCPSL, we have identified and begun establishing the sites where we will monitor and track the development of YCS in two successive crops. Soil sampling has started and data is being collected to assist with mapping and cataloguing site history and inputs. BPS and HCPSL are also helping us assess the industry impacts of YCS on this year’s yield and sugar. This data is being collected and YCS-affected blocks are being monitored through to the mill.

Next steps

The first edition of our new extension-focused newsletter CaneConnection will be sent to the whole-of-industry in the next few weeks. An information sheet which can help growers identify YCS and compare it against other conditions will be included. By educating our industry on what to look for we can ensure that YCS is identified accurately and can then be monitored.

Drawn from the SRA Yellow Canopy Syndrome industry update – August 27, 2013.

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Yellow Canopy Syndrome in the field. (Image: SRA)
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THE Board of Sugar Research Australia (SRA) has appointed the Research Funding Panel (the RFP) to manage the organisation’s contestable research grants process and broader research investments.

SRA is expected to invest around $32 million per annum in research, development and extension activities of which approximately $18 million per annum will be contestable.

Paul Wright, Chairman, SRA said that the RFP will be pivotal to the future success of the organisation.

“The SRA Board is confident that the highly skilled panel will deliver a transparent research selection process and maximise the return on research investment, as expected by our levy payers,” said Paul.

“With their expertise in funding management, research investment and sugarcane production through the entire value chain the RFP will grow our industry’s research capacity.”

“Open funding programs can ignite new ideas and innovation. We expect the contestable funding pool to encourage researchers and research organisations from other agricultural sectors or specialist areas to bring their best ideas to our industry,” he said.

Research funding unit

The RFP will be supported by the Research Funding Unit. The Unit will manage all SRA-funded research programs to ensure that:

- Milestones are met;
- Reporting requirements adhered to; and,
- Research outcomes are delivered to levy payers and stakeholders.

“The Unit will introduce accountability to the research projects funded by SRA. Our levy-payers want to see that every dollar they invest is used wisely to produce knowledge and practices they can adopt on-farm for better results,” said Paul.

The members of the RFP are:

**Professor Alan Johnson (Chair)**

Professor Johnson has enjoyed an academic career in microbiology and bioscience. He brings a strong knowledge of leading plant science centres around Australia and currently provides training to scientists on early career development and preparing research funding applications, including critiquing draft proposals.

Professor Johnson formerly served as the Deputy Vice-Chancellor (Research & Innovation) the University of Adelaide and Executive Director Australian Research Council Biosciences & Biotechnology.

**Dr Andrew Wood**

Dr Wood is a Winner of the SRDC Innovation Award, Winner of the ASSCT President’s Medal and Life member of past president of the Australian Society of Sugarcane Technologists.

He is also the former Leader of the Cane Productivity Initiative which developed and implemented a focused approach to cane productivity improvement in the key areas of variety improvement, soil health, drainage and water management, and harvesting.

**Dr Nils Berding**

A former principal scientist at BSES Dr Berding has experience in cultivar development and release. He is now an international consultant on cane breeding and crop improvement and is an Adjunct Professor at James Cook University.

**Dr Paul Donnelly**

Dr Donnelly is a board member of the Sugar Research Development Corporation and a consultant in biotech and commercialisation.

He has formerly served as the CEO of the Dairy R&D Corporation and Cooperative Research Centre for Innovative Dairy Products. He was also Science Leader at the Ministry of Agriculture and Forestry, New Zealand.

**Mr Laurie Watson**

Mr Watson has worked in the areas of mill operation, research and management. He is a former advisor to the Sugar Research Development Corporation and Director of Sugar Research Ltd.

Mr Watson has published 11 papers with the Australian Society of Sugar Cane Technologists and holds an MSc in chemical engineering.

**Dr Ian Johnsson (SRA Board Nominee)**

Dr Johnsson is a Board Member of Sugar Research Australia. He has been a Member of the Australian Institute of Company Directors since 2002 and is currently a Board member of the Cooperative Research Centre for Sheep Industry Innovation. He is also a consultant in rural RD&E strategy development and program evaluation.

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MONDAY, August 5, 2013 marked the commencement date for Sugar Research Australia (SRA), the new research and development entity for the entire Australian industry. SRA will subsume both BSES and SRDC, which will be wound up in late 2013.

In June 2013, three Bills were passed by the Australian Parliament. These were:
- The Sugar Research and Development Services (Consequential Amendments and Transitional Provisions) Bill 2013;
- The Sugar Research and Development Services (Consequential Amendments – Excise) Bill 2013; and,
- The Sugar Research and Development Services Bill 2013.

From July 2013, the compulsory statutory SRDC levy increased from 7¢ per tonne of cane accepted by a mill for crushing to 35¢ per tonne of cane delivered to a processor. This is a five-fold increase in the compulsory statutory levy and a tightening of the definition of cane that attracts the levy.

SRA has a big job to do and very big shoes to fill. The global world of sugar waits with anticipation to see whether the well-worn soles of BSES and SRDC can be successfully grafted onto a shiny new SRA that must hit the ground running.

SRA has launched a Draft Consultation plan for the development of SRA’s 2013–18 Strategic Plan. SRA states that “the purpose of this Consultation Plan is to outline the approach that SRA will take when communicating and consulting with stakeholders in relation to the development of SRA’s 2013-2018 Strategic Plan (Strategic Plan)”.

This is an inclusive approach and a good start to a process that must be solid enough to set the tone for future R&D in our industry while being flexible enough to adapt to changing needs and conditions. Here is a crucial opportunity to get most things right from the outset and all stakeholders need to input promptly, clearly and earnestly.

And here’s something to go on with!

The Red witchweed (Striga asiatica) outbreak in Mackay, which has been confirmed on a small number of properties in the area, is now almost two months down the track. While this exotic weed is not a fast mover it is a significant pest, a parasite of tropical grasses and should be taken seriously.

Biosecurity Queensland is undertaking a surveillance program to determine any spread of the weed and to put control measures in place.

Any properties placed under movement restrictions cannot move equipment, soil or plant material on or off an affected property without approval from Biosecurity Queensland.

I currently represent the ACFA on the Industry Control Group, which comprises Qld DAFF biosecurity officers and industry representatives; and is tasked with collaboratively managing the outbreak. In mid-August DAFF conducted a two-day workshop of technical contributors to develop a Harvesting and Planting Protocol.

Business continuity is a major priority for the affected properties and the protocol is designed to facilitate normal farming operations within the regulatory framework of dealing within a specified pest.

Red witchweed is a parasitic plant that grows attached to the roots of a ‘host’ plant. The weed then robs its host of water and nutrients, suppressing its growth. Hosts of red witchweed include commercially important grasses and summer cereals such as sorghum, corn (maize), rice and sugarcane. It can also be found growing on a wide range of tropical grasses common in headlands and in pastures.

There are also native species of Striga so if you suspect red witchweed on your property, report it immediately to Biosecurity Queensland on 13 25 23. Information and photos can be located at www.daff.qld.gov.au

Sources: SRA: www.sugarresearch.com.au or DAFF: www.daff.qld.gov.au

Close up of Red Witchweed.

Red Witchweed clump.

By Stephen Ryan – General Manager ACFA
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Effective and economical cane grub management

CANE farmers basing cane grub management on district knowledge, monitoring for grub presence, and understanding grub behaviour instead of guesswork have successfully reduced grub numbers and damage, plus saved money on treatment.

Using the integrated cane grub management Grub Plan, growers in north Queensland for example, reduced their estimated loss to grub damage from 700,000 tonnes to 100,000 tonnes in two seasons.

Developed in 2001 with a revised 2012 edition, Grub Plan is based on long-term work carried out in partnership between BSES Ltd, Burdekin Productivity Services, CSIRO Entomology, Sugar Research and Development Corporation and crop-protection companies including Crop Care.

Crop Care also worked closely with the BSES over 17 years to develop the effective long-term grub control suSCon Maxi – the only product in Australia registered to protect sugarcane against Greyback cane grub damage for two years; Negatoria and Southern one-year cane grub damage for three years; and Childers cane grub damage for four years – from a single-application to plant cane.

The net economic benefit of treating with suSCon Maxi is between $1,692 and $2,294 per hectare, depending on sugar price, with the product costing $6.85 per tonne for the additional cane grown.

Industry knowledge about cane grubs

Understanding what’s going on in their fields allows growers to manipulate treatment, planting and harvesting to their advantage.

BSES monitoring from Plane Creek to Mulgrave from 2003 to 2006 showed that grub damage did not suddenly descend on fields – the signs of build-up were there at least one year earlier, often not visible unless stools were dug.

Severely damaged blocks will produce beetles later in the year, so are a major risk to neighbouring blocks – which are likely to require protection.

In the severe grub-damage year 1993–94 in the Burdekin, blocks cut in the first round of harvest in a greyback cane grub-infected field had an 89 per cent chance of being grub damaged. Later-cut blocks were less likely to be damaged.

Egg-laying greyback cane grub beetles are attracted to early-harvested plant-cane strips that are significantly taller than surrounding cane. Early-cut plant cane is considered to be at greater risk in all districts during beetle flights.

Adult cane beetle flights – usually early October in the Burdekin and up to early December in other regions – begin around 7pm and usually last several hours as the beetles seek higher feeding foliage (including tall young cane, bananas, fig trees, palms)

Using this knowledge to your advantage

Knowing the behaviour of cane beetles, some growers have practiced ‘trap cropping’ – to draw beetles to certain parts of fields or the farm, and away from other parts. During beetle flights, the greater the height difference between trap block or strips and the remainder of crop, the more effective the trap is likely to be.

By protecting the trap blocks or strips with a treatment, beetles are attracted and grubs destroyed.
Yield and profit maximised

Secure greater protection of your investment by incorporating suSCon Maxi into your grub control program.

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- Protection 2 to 4 year grub control depending on the species
- Yield
- Return on investment

Minimise
- Environmental Impact
- Labour

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**Plant cane crops:** An early-plant crop rotation can focus grub pressure into early-planted fallow cane, protected with a grub treatment.

**Ratoon cane trap crops:** Plough-out crops or early-cut, young, vigorous ratoon blocks or strips protected with a treatment – in close proximity to sections known to suffer grub damage – can also act as traps. A minimum of eight rows is considered necessary for an effective trap.

**Protecting plant and ratoon cane**

Crop Care suSCon business manager Kerrie Mackay said that applying suSCon Maxi to plant cane was an economical and labour-saving long-term grub protection solution for growers – including those practising trap cropping.

“Growers have found it makes good economic sense to use a cane grub treatment that gives the longest control from one planting application – saving on annual application costs as well as suppressing the grub population.”

This year Crop Care has also released a high concentration and low use-rate imidacloprid granule Senator 700WG, which provides easy, effective top-up protection from cane grubs in later ratoon crops that are at medium to high risk of grub infestation.

“Senator 700WG is the ‘perfect partner’ to suSCon Maxi for growers wanting to extend the life of their crop beyond the two to four years’ protection that suSCon Maxi provides,” explains Kerrie. “Being aware of the likely timing of beetle flights in your region, apply Senator 700WG to susceptible ratoons before or very soon after beetle flights.

“Trials have shown Senator 700WG to be equally as effective as liquid-based products, while providing significant handling and storage benefits for growers.”

Even though Senator 700WG is registered for plant cane, Crop Care is recommending that canegrowers use suSCon Maxi in plant cane for up to four-year control of cane grubs, then to use annual follow-up applications of Senator 700WG in later ratoon crops if required.

**Concern about unnecessary imidacloprid application**

Kerrie also reminded growers that application of liquid imidacloprid products within the first year of application of suSCon Maxi to the plant crop was unnecessary and contrary to label directions.

“Using a liquid imidacloprid in blocks with low or non-existent grub risk actually increases the risk of failure due to accelerated biodegradation of the active ingredient in the soil, plus potential runoff into the environment. It also puts the valuable insecticide imidacloprid at risk of resistance development, and subsequent poorer grub control in the future.

“As well as these risks, growers are spending money unnecessarily.

“suSCon Maxi provides excellent grub control and yield increases for up to four years. A follow-up application of a liquid imidacloprid less than two years after suSCon Maxi is not likely to return any benefit in yield.”

She recommended that growers refer to GrubPlan 2012 for information on whole-farm management of cane grubs, and strategic, economical use of treatments.

**Contact:** Kerrie Mackay, Horticulture National Business Manager, Crop Care Australasia, 07 3909 2008, 0413 458 069, Kerrie.mackay@cropcare.com.au
From bad grubs to good bugs
producing diesel on demand

It sounds like science fiction but a team of scientists has developed a method to make bacteria produce diesel on demand.

While the technology still faces many significant commercialisation challenges, the diesel, produced by special strains of *E. coli* bacteria, is almost identical to conventional diesel fuel and so does not need to be blended with petroleum products as is often required by biodiesels derived from plant oils. This also means that the diesel can be used with current supplies in existing infrastructure because engines, pipelines and tankers do not need to be modified. Biofuels with these characteristics are being termed ‘drop-ins’.

Professor John Love from Biosciences at the University of Exeter said: “Producing a commercial biofuel that can be used without needing to modify vehicles has been the goal of this project from the outset. Replacing conventional diesel with a carbon neutral biofuel in commercial volumes would be a tremendous step towards meeting our target of an 80 per cent reduction in greenhouse gas emissions by 2050. Global demand for energy is rising and a fuel that is independent of both global oil price fluctuations and political instability is an increasingly attractive prospect.”

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E. coli bacteria naturally turn sugars into fat to build their cell membranes. Synthetic fuel oil molecules can be created by harnessing this natural oil production process. Large scale manufacturing using E. coli as the catalyst is already commonplace in the pharmaceutical industry and, although the biodiesel is currently produced in tiny quantities in the laboratory, work will continue to see if this may be a viable commercial pathway to ‘drop in’ fuels.

This work was supported by a grant from Shell Research Ltd and a Biotechnology and Biological Sciences Research Council (BBSRC) Industry Interchange Partnership Grant.

Rob Lee from Shell Projects & Technology said: “While the technology still faces several hurdles to commercialisation, by exploring this new method of creating biofuel, along with other intelligent technologies, we hope they could help us to meet the challenges of limiting the rise in carbon dioxide emissions while responding to the growing global requirement for transport fuel.”

Published: Agricultural Genomics http://www.technologynetworks.com

... and Gribbles that breakdown woody biomass

Scientists have also discovered a new enzyme that could prove an important step in the quest to turn waste (such as paper, scrap wood and straw) into liquid fuel. To do this they turned to the destructive power of tiny marine wood-borers called ‘gribble’, which have been known to destroy seaside piers.

Using advanced biochemical analysis and X-ray imaging techniques, researchers from the University of York, University of Portsmouth and the National Renewable Energy Laboratory in the US have determined the structure and function of a key enzyme used by gribble to break down wood. The findings, published in PNAS, will help the researchers to reproduce the enzymes effects on an industrial scale in a bid to create sustainable liquid biofuels.

To create liquid fuel from woody biomass, such as wood and straw, the polysaccharides (sugar polymers) that make up the bulk of these materials have to be broken down into simple sugars. These are then fermented to produce liquid biofuels.

This is a difficult process and making biofuels in this way is currently too expensive.

To find more effective and cheaper ways of converting wood to liquid fuel, scientists are studying organisms that can break down wood in hope of developing industrial processes to do the same.

Gribble are of interest as they are voracious consumers of wood and have all the enzymes needed for its digestion. The enzymes attach to a long chain of complex sugars and chop off small soluble molecules that can be easily digested or fermented.

The researchers identified a cellulase (an enzyme that converts cellulose into glucose) from gribble that has some unusual properties and used the latest imaging technology to understand more about it.

The research team leader, Professor Simon McQueen-Mason, from the Centre for Novel Agricultural Products at the University of York, explains: “Enzymes are proteins that serve as catalysts, in this case one that degrades cellulose. Their function is determined by their three-dimensional shape, but these are tiny entities that cannot be seen with high power microscopes. Instead, we make crystals of the proteins, where millions of copies of the protein are arrayed in the same orientation.”

Dr John McGeehan, a structural biologist from the University of Portsmouth team, said: “Once we succeeded in the tricky task of making crystals of the enzyme, we transported them to the Diamond Light Source, the UK’s national synchrotron facility. Rather than magnify the enzyme with a lens as in a standard microscope, we fired an intense beam of X-rays at the crystals to generate a series of images that can be transformed into a 3D model. The Diamond synchrotron produced such good data that we could visualise the position of every single atom in the enzyme. Our US colleagues then used powerful supercomputers, called Kraken and Red Mesa, to model the enzyme in action. Together these results help to reveal how the cellulose chains are digested into glucose.”

This information will help the researchers to design more robust enzymes for industrial applications. While similar cellulases have been found in wood-degrading fungi, the enzyme from gribble shows some important differences. In particular, the gribble cellulase is extremely resistant to aggressive chemical environments and can work in conditions seven times saltier than sea water. Being robust in difficult environments means that the enzymes can last much longer when working under industrial conditions and so less enzyme will be needed.

Professor McQueen-Mason explained: “This is the first functionally characterised animal enzyme of this type and provides us with a previously undiscovered picture of how they work.

“While this enzyme looks superficially similar to equivalent ones from fungi, closer inspection highlights structural differences that give it special features, for example, the enzyme has an extremely acidic surface and we believe that this is one of the features that contribute to its robustness.”

The ultimate aim is to reproduce the effect of this enzyme on an industrial scale. Rather than trying to get the cellulase from gribble, the team have transferred the genetic blueprint of this enzyme to an industrial microbe that can produce it in large quantities, in the same way that enzymes for biological washing detergents are made. By doing this they hope to cut the costs of turning woody materials into biofuels.

The work is part of the BBSRC Sustainable Bioenergy Centre (BSBEC), a £24M investment that brings together six world-class research programmes to develop the UK’s bioenergy research capacity. Funding from a BBSRC US Partnering Award was instrumental in forming a highly synergistic collaboration with the US DOE funded research team at NREL.

The paper: ‘Structural characterization of the first marine animal Family 7 cellobiohydrolase suggests a mechanism of cellulase salt tolerance’ is available at: www.pnas.org/cgi/doi/10.1073/pnas.1301502110

For more information: www.bbsrc.ac.uk.
A three-year collaboration between farmers and researchers has revealed good news for both water quality and the sugarcane industry.

Dr Paul Nelson, Senior Lecturer in Soil Science at James Cook University said the research measured how much nitrogen leached out of sugarcane paddocks into groundwater and streams.

“Sugarcane is a major crop in the wet tropics, and it relies on nitrogen inputs to maintain productivity,” Paul said.

“As agriculture expands and intensifies across the globe, it’s increasingly important that nutrient inputs, including fertilisers, are used efficiently. Insufficient or excessive use can reduce profitability and harm the surrounding environment.”

Paul said leaching was the main way that nitrogen was lost from northern Queensland farms, so the study examined the movement of water and nutrients through the soil, using a Gordonvale farm as the main focus.

Working with Dr John Armour, Principal Scientist with the Queensland Department of Natural Resources and Mines (DNRM), Paul found that industry-standard rates of nitrogen fertiliser use for sugarcane crops in the wet tropics resulted in low leaching loss.

“As part of the research we measured leaching losses of nitrogen over three years in a commercial sugarcane crop in the Wet Tropics.

“The good news is that we found very low losses of fertiliser to ground water, which means there is minimal leaching from crop to creek, and potentially to the Great Barrier Reef lagoon.

“Fertiliser on our study sites was applied at recommended rates. This is the first time current, industry-standard rates have been tested in the wet tropics – and very little was lost from the root zone.

“This is great news for the environment, farmers, and the sugarcane industry in general.”

Paul said this work would not have been possible without the support of local sugarcane farmers, such as Bruce Corcoran.

“Local farmers like Bruce have been really supportive during this project, and are keen to take steps where possible to reduce run-off and further reduce any risk of leaching,” he said.

Bruce, who is also a coordinator for both the Mulgrave Landcare and Catchment Group, and Terrain Natural Resource Management, said it was rewarding to work with the research team.

“Our Landcare group members are keen to participate in any science project in our area that can help with managing our natural assets, and this was a particularly good one,” Bruce said.

“To our farmers’ credit, they were keen for us to be part of...”
They wanted a reliable and accurate picture of any nutrient loss, so they could do something about it if necessary.

“The research team kept us informed throughout the project, and they also gave the Landcare group updates as they went along,” he said.

“The bonus part of the project for me was that it was about more than just nutrient loss. The research data has also given me good information about the local groundwater system and its dynamics.

“I was really happy to be part of the research and the results are positive, showing low leaching losses under good farming practices.”

Paul said a challenge for the research team was the complicated task of measuring the amount of nitrogen leached out of the root zone. The DNRM’s Dr John Armour measured this loss.

“We installed 12 sampling devices called lysimeters, which collect water moving downwards through the soil,” John said.

“We installed them at one metre depth, because if water moves below this depth it is unlikely to be taken up by roots.

“The lysimeters consisted of porous cups connected to a vacuum line which sucked the drainage water into reservoirs at the edge of the paddock, for measurement and testing.”

The team also used a water balance model to provide an independent estimate of deep drainage.

“Basically, we looked at how much leaching should occur given the prevailing soil type, climate and crop stage,” Paul said.

“It was technically challenging to measure what we needed, and it required a lot of effort to keep it running, but we are very pleased with the accuracy of the results.”

Follow-on research is underway. On the same Gordonvale farm where they conducted the sugarcane work, the researchers are investigating the effects of riparian forest on nitrogen in groundwater.

On the Atherton Tableland they are trialling ways to slow down the formation of nitrate, the most easily leached form of nitrogen.

“We’re testing the effect of nitrification inhibitors on nitrogen leaching,” Paul said. “These inhibitors, added with the fertiliser, have been shown to reduce nitrate leaching in other parts of the world, but have not yet been fully tested in the wet tropics.”

Contact: Linden Woodward, JCU, E: linden.woodward@jcu.edu.au

Dr Paul Nelson and technical officer Tracy Whiting checking measurements of leaching on a Gordonvale farm.
Next Gen is progressing well with welcome funding from SRDC for two exciting new projects in 2013–2014.

The Business Planning & Cash Flow Management course and Future Industry Leaders project will present young farmers with a one-off opportunity for professional and personal development that will enhance Next Gen participants, by bringing them on line for future leadership positions.

I encourage all young farmers to take advantage of the heavily discounted rates as this is a great opportunity for you to further your career and assist your farm business.

Next Gen is also on the lookout for young enthusiastic farmers from the Herbert, Mareeba, Marybourgh, Mulgrave, Northern NSW, Proserpine and Tully areas to join our group of Next Gen Reps. If you are interested, more information can be found on page 5.

As always, remember to keep up to date with all that is going on via our website, nextgenfarmer.com, our Facebook page ‘Next Gen’ or follow us on Twitter; @nextgenfarmer. To receive the monthly Next Gen Farmer E-Newsletter, please email nextgenfarmers@gmail.com.
Next Gen farmers spotlight –
Gavin Lerch and Josh Buchbach

At the Case IH Step UP! Conference in March, eight Next Gen Reps were tasked with continuing to develop and promote the Next Gen program in their specific areas. Luckily for the program, two passionate young farmers, Gavin Lerch and Josh Buchbach, volunteered to tackle this role head-on in the Bundaberg/Isis region.

Gavin Lerch

Not only does Gavin work as a full time Grower Services Officer for Bundaberg Sugar, he is heavily involved with his community through the Bundaberg Orpheus Singers and his local church, and along with his wife Hayley, Gavin also runs a cane farm in the Bingera mill area.

Father of three (Byron 8, Chanel 7 and Ezra 4), Gavin’s enthusiasm for cane farming is infectious.

“I enjoy the challenge of working on the land, striving to grow the best crop possible with variable climatic and seasonal influences.

“I enjoy the sense of achievement when things go right, and seem to get more determined when things go wrong. As a farmer, I am always learning and trying new ideas.”

Gavin is a part of the Bundaberg Grain-In-Cane Co-op and has grown soybeans in rotation with sugarcane for a number of years with great success. Gavin has also trialled treated bio-solid waste from his local council waste treatment plant. After growing one crop of soybean on the treated ground he will plant cane on the block later this year.

Despite his naturally positive character, Gavin has concerns about the ever increasing cost of production and the difficulty for young farmers to get started in the industry.

“Electricity prices are out of control and the cost of farm inputs always seem to be on the rise.

“The increase in land value makes it very difficult for young growers to get into the industry, particularly if they start with nothing.”

After assuming responsibility for running the family farm with his mother Joy at any early age due to the tragic passing of his father Ross, Gavin says that he would have benefited from a program like Next Gen.

“As more pressure is put upon farmers by government, environmental groups and our ever increasing cost of production, we need to ‘farm smart’.

“Young people bring fresh ideas and enthusiasm and Next Gen is a great way to share these ideas. I’m confident that we [Next Gen] will be the ‘shining light’ for the future of our industry.”
Josh Buchbach

Although Josh’s family left cane farming some years ago, the desire Josh had to become a farmer himself, was undeniable.

Three years ago, despite working full time as a diesel mechanic in the mines, Josh decided to lease a farm.

“Being a farmer was always my childhood dream as that was what my father was.

“There are a lot of great people in the farming industries that are always full of good humour and character.”

Josh has bought his own farm with a combined area of 210 acres, with 180 acres under cane for the 2013 crush.

Like Gavin, Josh was announced as a Next Gen Rep in March and shares his thoughts on the Next Gen program.

“I think the program will provide young farmers with both social and professional contacts which will benefit them both now and in the future.

“The program will allow the next generation of cane farmers to build friendships and learn from each other – in this industry everyone has always got new ideas they are playing with, to make things quicker or more profitable.”

Regarding the future of the sugar industry, Josh hopes to see it remaining profitable and that other ways of adding value to the industry are utilised.

“We solely rely on sugar when there is so much more that could be done with the crop to provide sustainability in the years of sugar surplus.”

Both Gavin and Josh are extremely passionate about cane farming and the importance of the next generation of farmers to the Australian sugar industry.

If you are interested in joining Gavin and Josh at their next Bundaberg/Isis Next Gen meeting, please email nextgenbundy@gmail.com
Next Gen has two exciting new projects that they will be hosting in 2013–14 which offer a great opportunity for you to further your career and assist with your farm business.

As Next Gen has secured funding through Sugar Research and Development Corporation (SRDC) we will be able to offer these courses at a severely discounted one-off rate.

**Business Planning and Cash Flow Management Course**

This course is aimed at young farmers and will provide you with the knowledge about how to better understand and manage your business to help you make informed decisions about your farming future.

The course will be held over two days and will cover topics such as Business Structures, Government Regulations, Legal and Taxation Issues, Income and Cash Flow Projections, Profit and Loss and Break-Even Projections.

Elements from the course are taken from a nationally accredited training package and credits can be gained towards further studies.

The course will be delivered in six locations across Queensland and Northern New South Wales in late 2013 early 2014 at a cost of $150 per person.

**Building Future Industry Leaders Program**

The Building Future Industry Leaders program has been developed as it has been identified that there is a real need to encourage and support young sugar professionals to play an active role in their industry, both now and in the future.

The project seeks to ensure that the future leaders in sugar are prepared to become the new face of the industry by allowing you to complete a three day ‘Foundations of Directorship’ course, delivered by the Australian Institute of Company Directors.

The program will also give you the opportunity to take part in a mentoring program specifically designed to address the needs of the sugar industry and will be tailored to your individual interests and career goals. The program will commence in September 2013 and will run for approximately 10 months which will include a two day training course in Brisbane in December 2013 (in time for some last minute Christmas shopping!), followed by on-going communication with your mentor via phone, e-mail and/or Skype calls. The final cost of this program is subject to confirmation of further sponsorship.

Both of these projects offer a great opportunity for you to further your career and assist your farm business and are open to all young cane farmers to participate, subject to numbers.

If you would like to register your interest or require further information on either of the projects, please email nextgenfarmers@gmail.com or call (07) 3839 1900.
On the road with Gerard Puglisi

Gerard Puglisi about to hit the road in the Cane Captiva.

Bundaberg/Isis Meeting – July 25, 2013

On Thursday, July 25 the Bundaberg/Isis Next Gen Reps, Gavin Lerch and Josh Buchbach, hosted their second Next Gen meeting for the year.

The meeting was held at a fellow Next Gen farmer’s property where the dozen-strong group toured the farm and discussed current projects.

On the agenda was an update on the progress of the crushing at the local mills, variety performance and Yellow Canopy Syndrome, along with a discussion on preparing for spring planting. QSL’s Cathy Kelly was also in attendance to give an update.

Mackay and Isis Next Gen meeting – July 2013

In July, Mackay Next Gen Reps, Phil Deguara and Hayden Quabba, hosted a Next Gen meeting to discuss current industry issues. Around 20 farmers attended.

On the agenda were the top 10 issues that have been identified by young farmers as points of concern in their industry.

The group was grateful to Andrew Capello, Chairman of Mackay Sugar, for attending and discussing with the group QSL and Wilmar, the extra cane going through Mossman Mill, the Mackay Sugar diversification plan and other local issues.

Mossman Next Gen Group 2013 cane display

Next Gen proudly sponsored the Mossman Next Generation Group 2013 cane exhibition at this years’ Mossman Show in the Class 1 division in July.

Next Gen would like to congratulate the winners of this category:

- 1st – Puglisi Farming;
- 2nd – M. and K. Bruyn; and,
- 3rd – R. Scomazzon.

The exhibition had 53 entries from 10 growers, with all categories being well represented.
Advances Program
By Bryce Wenham, Finance Manager – Supplier Relations

One of the key value offerings Queensland Sugar Limited (QSL) is able to provide its members are cash advances throughout the year; in and out of the harvesting season. Payments are made to millers on receipt of raw sugar at the sugar terminals, who then pass it onto growers, in advance of QSL receiving payments from customers. QSL is able to do this through its $500 million cash advance agreement and commercial paper program, which are backed by QSL’s enviable credit rating. Standard & Poor’s outlook of ‘Stable’ and credit rating of ‘A long-term’, ‘A1 short-term’ also allows QSL to obtain financing at cost effective rates for members, currently about three percent.

The Advances Program payments are paid incrementally throughout the year and are based on expected earnings. The QSL Board regularly reviews and approves the monthly payment rate to determine whether scheduled payment increases still reflect expected earnings in light of actual market performance.

The initial advance percentage of 57.5 per cent was approved by the QSL Board at the April 2013 Board Meeting. At last month’s meeting the Board approved the scheduled advance payments of 60 percent and 62.5 percent for August and September 2013, respectively. While the Advances percentages are the same for all QSL suppliers, the actual dollar amounts paid will vary from supplier to supplier, based on their weighted average pool values as determined at the end of July and August.

The next review of the Advances program will take place at the September 2013 QSL Board meeting and will review the scheduled percentage increases for October and November payments. At this stage these are provisionally indicated at 65 per cent and 67.5 per cent respectively.

It is important to note that the Advances Program outlined below is indicative only and should not be taken as a commitment by QSL with regard to either the advance rate or the date of increase. The program may need to be adjusted during the season depending on movements in the marketing plan, sugar prices and currency movements, and the timing of cash flows. A miller’s positions in relation to any pricing elections may also impact the timing and size of advance payments.

The falling Australian dollar
QSL’s Industry Relationship Managers, Cathy Kelly and Carla Keith, have received a number of questions from growers in recent times regarding the impact of the falling Australian dollar on the value of the sugar price. QSL’s Treasurer Stephen Stone has advised that, assuming sugar prices don’t move substantially, each one-cent drop in the value of the Australian dollar increases the Australia sugar price by approximately $4 per tonne. This is great news, but it should be remembered that while QSL locks in prices, it also locks in exchange rates, so the dollar value for much of the 2013 crop has already been determined. The Actively Managed Pool is the only QSL pool where QSL can lift the Foreign Exchange cover. At this stage, QSL has already managed much of the 2013 July and October exposures, meaning the production buffer in the Harvest Pool and the 2014 March and May contracts in the other QSL pools will benefit more from the lower Australian dollar and quite likely any consolidation in sugar futures.

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Pay Date (Wednesday) | % Rate
--- | ---
Initial | 57.5%
Wed 21-Aug-13 | 60.0%
Wed 25-Sep-13 | 62.5%
Wed 23-Oct-13 | 65.0%
Wed 20-Nov-13 | 67.5%
Wed 18-Dec-13 | 70.0%
Wed 22-Jan-14 | 72.5%
Wed 19-Feb-14 | 75.0%
Wed 19-Mar-14 | 80.0%
Wed 23-Apr-14 | 85.0%
Wed 21-May-14 | 90.0%
Wed 25-Jun-14 | 95.0%

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Next Gen Reps

Are you a young farmer passionate about all things cane? Are you concerned about the ageing population in the sugar industry? Are you from any of the below regions? If so, we want you!

Next Gen is currently seeking motivated young farmers to act as a representative in the following areas:

- Mareeba
- Maryborough
- Mulgrave
- Northern NSW
- Proserpine
- Tully

For more information, or an application form, please email admin@acfa.com.au or call (07) 3839 1900.
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GLOBAL equity markets recovered earlier losses as it became clear that central banks would not rapidly turn off their monetary easing, although we still expect the US Federal Reserve to start tapering in the coming few weeks.

The long awaited rotation of global growth towards a greater contribution from big advanced economies may finally be under way as business survey and industrial output data shows growth picking up.

The domestic sector weakened further in July, with business conditions unchanged at the lowest level in four years. The past few months have finally brought some early evidence that things could be getting better and a rotation of global economic expansion towards a greater contribution from the big advanced economies has begun.

The most marked evidence of improving economic conditions comes in the business surveys where the latest monthly purchasing manager surveys show a solid improvement across the US, UK and Euro-zone.

The Australian economy appeared to weaken further in July, with domestic demand possibly continuing to contract. Business conditions reported in the latest NAB survey remain unchanged at their lowest level in four years. Overall our GDP growth path remains broadly unchanged from a month ago but at the margin is a touch lower – especially in the out years. We see growth softening to 2.2 per cent in 2013, before rising to a still below-trend rate of 2.6 per cent in 2014.

**Currency movements**

AUD/USD has rallied from 0.8850 to above 0.9200 in the second week of August despite the latest RBA rate cut and evidence from the latest Statement on Monetary Policy that an easing bias persists. Yet the moves are consistent with a softer USD and a rise in AUD ‘fair value’ as US rates ease back, volatility indicators decline and metals prices lift off their recent floor. Stronger data from China is also helping.

We last revised our AUD forecasts in June, lowering our end-2013 estimate for the AUD/USD rate to 0.88 and to 0.83 for end 2014. While still in essence a US dollar call, back then our view was that the RBA easing cycle was likely to be complete with a move down in the cash rate to 2.5 per cent and with a tightening cycle potentially commencing late in 2014.

We now envisage at least one further rate cut in this cycle (to 2.25 per cent) with risk skewed to an even lower cycle end-point – a view supported by the economic projections contained in the new RBA Statement of Monetary Policy – and with no tightening expected before 2015 at the earliest. We now envisage an end-2013 rate at 0.86, and a move down to the 80 cent level by the end of 2014. But between now and then we see a higher upside risk, perhaps to the 93 cents area.

**NAB farm input indices**

Over the past month, the global fertiliser market was mixed but still remained at relatively low levels, with Diammonium Phosphate (DAP) and natural gas prices tracking lower to USD 457 per tonne and USD 3.8 per million Btu respectively, while urea prices have risen marginally to USD 327 per tonne but remained 16 per cent lower than the same time last year. China’s low export tax window for DAP and urea, which commenced on May 16 and July 1 respectively and will run through to mid to late October, portend a flood of nutrients supply into global markets, keeping prices low during this period. But as a result of the weakening of the AUD in the month, the overall NAB Fertiliser Index actually rose by three per cent in the month. Overall, the demand for fertilisers has been subdued as the previously expected acceleration in fertiliser usage intensity associated with spring planting programs in the Northern Hemisphere did not eventuate from the delayed arrival of warmer conditions.

Meanwhile, the fuel price index has ticked higher by five per cent in the month from escalated tensions in the Middle East.
TODD Boughner, manager of Judge Family Farms in Simcoe, Ontario, and Derek Hill, who oversees field operations, spend a fair amount of their time sharing ‘what if’ scenarios. Todd is quick to run a cost/benefit analysis, and if an idea passes that test, chances are they’ll adopt it. Judge Family Farms is a poultry, pork and grain business. Farming operations of 2600 acres include 1600 acres of corn, all of which is sent through a mill to feed the poultry and hogs.

About four years ago, several factors converged that set Todd on a path of looking for a new way to boost corn yields. That’s when they began irrigating some corn ground, using a travelling gun and drag hose system. With it, they saw yields approaching 300 on some sandy ground that typically produced corn yields in the low 100s.

**Trend towards dry spells**

That yield boost started their ‘thought wheels’ turning. They saw land prices escalating and the outlook for higher crop prices beginning to strengthen. And, their local weather patterns were tending toward dry spells at critical yield-determining times, if not all-out drought.

If reliable water is all it takes to assure higher yields, they reasoned, they should find a way to bring it. “We’re a progressive company,” Todd says. “We’re not going to be hampered by seasonal weather patterns.”

A fair portion of Judges Farms’ acreage lies on what’s known as the Norfolk Sand Plain. The coarse-textured soil has limited water-holding capacity. There’s ample groundwater for irrigation, but to Todd and Derek, the overhead water systems, either travelling guns or center pivots, have inherent shortcomings including high water and energy use, and lack of timeliness.

“We talked with people who did subsurface irrigation in Florida, but the tape is gathered up every year.” Todd and Derek wanted a longer lasting solution.

Based on the potential for efficient water use, low energy cost and minimal labour requirements compared to overhead systems, Todd and Derek decided to install subsurface irrigation tape on a 75 acre field with a nearby pond as the water source.

RTK guidance, with its sub-inch accuracy, is the technology that made this investment possible, Todd and Derek say, and they adopted it as part of the installation process. Their local Case IH dealer helped them during the installation by providing them with a Magnum tractor equipped with an AFS Pro 700 display receiving an RTK signal.

“We’re in a learning mode with RTK,” Todd says. “Our dealer helped us greatly in getting the maps set up and showing how the information can be transferred to our equipment.”

Using the resources of their farm’s shop, Todd and Derek designed and fabricated their own drip tape applicator that’s based on three Case IH ripper shanks.

They buried seven-eighths inch diameter irrigation tape 14 inches deep, and 44 inches apart.
Why 44 inches? “We tried a plot with tape buried 60 inches apart and it worked well. We figured we had one shot at this so we settled on 44 inches. We think this will work better. With more water going to it, we’ll run the system less,” Todd explains. Their tape is warranted for 15 years.

He says their goal is an “overall wetting of the field” rather than trying to place water under or beside rows.

**Clearance for subsoiling**

The 44-inch spacings also allow ample clearance for subsoiling, if needed. “Based on the map of the irrigation tape, we just move over 22 inches and go. A 15 hp electric motor pumps water into the system at 16 psi. A sand filtration system protects the tape from sediment, and a flow meter is in place to monitor and measure water flow. They also have the ability to add nutrients into the water flow for fertigation.

The system is set up into six zones of approximately 12.5 acres each. “I can water two zones at one time, and put one-quarter inch of water into the root zone in six hours. So in 18 hours, I can water the whole field with one-quarter inch of water, which is huge,” Derek says.

Todd and Derek see the benefits of this new irrigation system going far beyond simply having higher yields. For example, not only was last year’s drought-affected crop short, the corn test weight and quality was reduced which in turn affected their feed quality and the productivity of their poultry and hogs.

With predictable water, they will get full benefit from the fertilizers they apply and significantly increase yield from a fixed amount of ground.

And, with water removed as a variable, they can work with other agronomic factors toward Todd’s goal of more than doubling the yield on land that has averaged 100 bushels. “I know we can gain way over 100 bushels,” he says. “I want to see 250 or I won’t be satisfied.

As an overall farm mission, Todd and Derek apply new technologies whenever possible. They use wireless cameras to monitor their multiple livestock locations, which they can view on their iPads wherever they have Internet access. They’re planning to add a camera focused on their newly irrigated field to view “real time” corn and anticipate adding wireless subsoil moisture monitors.

Case IH AFS Precision Farming systems fit well into their technology vision. “Most everything is red on this farm, and we’re using AFS and the AFS Pro 700 display on our new Magnum tractors,” Derek says. “We get more new technology every time we get new equipment. AFS is definitely a system we can grow with.”

From *Canadian Farm Forum – Summer Edition.*
CSIRO scientists have written software that could guide spacecraft to Alpha Centauri, show that the planet Nibiru doesn’t exist… and prove that the Earth goes around the Sun.

Dr George Hobbs (CSIRO) and his colleagues study pulsars — small spinning stars that deliver regular ‘blips’ or ‘pulses’ of radio waves and, sometimes, X-rays.

Usually the astronomers are interested in measuring, very precisely, when the pulsar pulses arrive in the solar system. Slight deviations from the expected arrival times can give clues about the behaviour of a pulsar itself, or show whether it is orbiting another star, for instance.

Work backwards

“But we can also work backwards,” said George. “We can use information from pulsars to very precisely determine the position of our telescopes.”

“If the telescopes were on board a spacecraft, then we could get the position of the spacecraft.”

Observations of at least four pulsars, every seven days, would be required. “Each pulsar would have to be observed for about an hour,” George said. “Whether you can do them all at the same time or have to do them one after the other depends on where they are and exactly what kind of detector you use.”

A paper describing in detail how the system would work has been accepted for publication by the journal Advances in Space Research.

Spacecraft within the solar system are usually tracked and guided from the ground: this is the role of CSIRO’s Canberra Deep Space Communication Complex, for instance. But the further out the craft go, the less accurately we can measure their locations.

For voyages beyond the solar system, spacecraft would need an on-board (‘autonomous’) system for navigation. Gyroscopes and accelerometers are useful tools, but the position information they give becomes less accurate over time.

“Navigating with pulsars avoids these problems,” said Deng Xinping, a PhD student at the National Space Science Center in Beijing who is the first author on the paper describing the system.

Scientists proposed pulsar navigation as early as 1974. Putting it into practice has recently come closer, with the development of fairly small, lightweight X-ray detectors that could receive the X-ray pulses that certain pulsars emit. NASA is exploring the technique.

“For deep-space navigation, we would use pulsars that had been observed for many years with radio telescopes such as Parkes, so that the timing of their pulses is very well measured,” said CSIRO’s Dr Dick Manchester, a member of the research team. “Then on board the spacecraft you’d use an X-ray telescope, which is much smaller and lighter.”

George and his colleagues have made a very detailed simulation of a spacecraft navigating autonomously to Mars using this combination of technologies and their TEMPO2 software.

“The spacecraft can determine its position to within about 20 km, and its velocity to within 10 cm per second,” said George. “To our knowledge, this is the best accuracy anyone has ever been able to demonstrate.”

“Unlike previous work, we’ve taken into account that real pulsars are not quite perfect, they have timing glitches and so on. We’ve allowed for that.”

Weighing worlds

The same pulsar software can be used to work out the masses of objects in the solar system.

In 2010 George and his colleagues used an earlier version of the software to ‘weigh’ the planets out as far as Saturn — to six decimal places.

The Earth is travelling around the Sun, and this movement affects exactly when pulsar signals arrive here. To remove this effect, astronomers calculate when the pulses would have arrived at the Solar System’s centre of mass, around which all the planets orbit.

“If the pulsar signals appear to be coming in at the wrong time, we know that the masses of the planets that we are using in the equations must be wrong, and we can correct for this,” George explained.

The new version of the software lets the astronomers rule out unseen masses, including any supposedly undiscovered planets, such as the notorious Nibiru.

“Even if a planet is hard to see, there’s no way to disguise its gravitational pull,” George said. “If we don’t detect the gravitational pull, then there’s no planet there. Full stop.”

And what about showing that the Earth goes around the Sun? Yes, they can do that too.

“This was nailed a couple of hundred years ago,” said George. “But if you still need proof, we’ve got it.”

Contact: Ms Helen Sim, E: Helen.Sim@csiro.au
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The journey by night

The night was black as pitch and the lashing rain continued to bucket down. The driver of the old Albion rubbed his tired eyes as he strained to penetrate the feeble glow from the headlamps and endeavoured to avoid the worst of the potholes. His co-driver sitting alongside had dozed off into an uneasy sleep, miraculously, considering the continual jolting of the cabin.

The year was 1928, and it was four hours since the lorry, with its furtive load well hidden beneath a black tarpaulin, had been disembarked off the cross Channel ferry at Dover. And 14 hours since the journey had begun at Düsseldorf.

To stop for a cuppa was out of the question! The instructions were emphatically clear. The Albion with its cargo had to arrive at its destination under the cover of darkness. Then be securely locked away, well before the workers arrived at the plant and turned curious eyes in the direction of the laden factory transporter, wondering why the company logo had been crudely obliterated with black paint.

The first streaks of pink announced the dawn sky, as the Albion was finally navigated into the innards of the custom-built windowless construction, located deep in the interior of the factory complex. With the lorry safely inside, the single steel door was secured with a massive padlock. The drivers were weary and anxious to arrive home to a hearty breakfast and a warm fireside. A 50 pound note was handed to each and a reminder that the continuation of their employment with the Company was totally dependent upon their keeping their mouths tightly shut with regard to the clandestine operation.

In fact, their silence and loyalty were assured. The Great Depression was just getting into its vicious stride in 1928 and jobs were scarce. Further, at a time when two pounds ten shillings per week was considered a generous wage, neither of the men had even sighted a fifty pound note, far less received one. The dark secret would remain secure!

The Marshall Colonials

In 1928 the distinguished Lincolnshire firm of William Marshall Sons & Company, the world’s largest producer of steam engines and allied machinery, was in serious financial difficulties. The fact that a respected English organisation, able to trace its origins back to 1848 and with voluminous exports radiating to the four corners of the globe, was now teetering on the edge of bankruptcy, was indeed indicative of the perilous state of British heavy industry!

Marshall had made an effort to diversify from its steam heritage when in 1906 it unveiled a prototype farm tractor, powered by an internal combustion engine. The power unit was a two cylinder petrol engine designed by Herbert Bamber – a highly regarded engineer better known for his association with The Vauxhall Car Company. Bamber’s tractor engine featured a hefty 7x7 inch bore and stroke.

By 1910 the Marshall factory (The Britannia Iron Works), had developed two tractor engines based on the Bamber prototype. A two cylinder version developed 35 brake hp and a four cylinder unit produced 70 brake hp.

Known as Colonials, the tractors were massive, indeed the Type G, the largest, weighed 13.25 tonnes. Even the two cylinder ‘lightweights’ weighed in at eight tonnes. Accordingly, British farmers were not enchanted with the Marshall Colonials as they were simply too heavy for the soft moist thilty arable soils. A bogged Colonial presented a daunting problem as it could take a team of around 20 heavy draught horses to extricate the stricken machine.

As a consequence the majority of Colonials were sold overseas where they worked on shallow and often hard baked soils.

But there was a further problem! They were besieged by
mechanical faults and the volume of sales required to establish an economy of scale did not eventuate.

By the mid 1920s, Marshall's fortunes declined alarmingly. The Colonials had been discontinued with only around 300 produced. The era of steam power was rapidly coming to an end. Farmers around the world were becoming attracted to more efficient lightweight tractors. Fordson, John Deere, International, Saunderson and other relatively inexpensive makes were enjoying rapidly expanding sales.

In Europe an odd-ball tractor known as the Bulldog with a horizontal single cylinder engine, was being manufactured at the giant Mannheim plant of Heinrich Lanz AG. Its low cost and simplicity of design encouraged non-mechanically inclined farmers, most of whom had grown up in the horse or mule era, to embrace the new tractor technology and purchase one of these somewhat idiosyncratic Lanz tractors. By 1930 the Lanz Bulldog had become Europe's top selling tractor, plus a thriving export market had flourished.

The clandestine plan

In 1927 the chairman of William Marshall Sons & Company, Herman Marshall, grandson of the founder, established a Committee of Investigation, the purpose of which was to produce an innovative plan, guaranteed to reverse the decline in revenue and return the firm to a position of profitability.

Several ideas were advanced by the Committee, but the one most favoured by Herman Marshall and his board was the concept of producing a copy of a Lanz Bulldog. It was considered the two stroke single cylinder Lanz would be easy to reproduce, with minor variations thus avoiding breaches of patents. Such a tractor it was believed would attract volume sales in Britain and in traditional Marshall export markets.

A plan was drawn up whereby a Lanz Bulldog would be acquired surreptitiously in Germany and stealthily transported to Gainsborough, where it could be dismantled and examined. The Committee stressed that absolute secrecy was essential in order to avoid alerting opposition manufacturers of the project.

A special windowless warehouse was constructed to house the Lanz, enabling design engineer Samuel Dawson to proceed with his measurements and drawings unobserved.

Dawson was by nature an innovator and not entirely happy with the concept of merely creating a virtual copy of the Bulldog. He believed he could considerably improve the design of the single cylinder two stroke engine by increasing the compression ratio from 5 to 1 to 15.5 to 1. Thus instead of being a semi-diesel it would become a full compression diesel engine.

From one major aspect, this was a mistake. In actual fact a significant factor relating to the success of the Bulldog was its low compression ratio engine. Being a semi-diesel enabled it to be fuelled with a variety of cheap low cost products, including crude naphtha oil, sump oil drained from other vehicles, peanut oil, indeed just about any combustible fluid with a low octane rating.

An additional important factor of the Bulldog low compression engine was its inability to burn the total volume of fuel injected into the combustion chamber. Accordingly, there was always a degree of unburnt oil washing the inside of the cylinder wall, thus reducing the friction and therefore wear of the piston, rings and cylinder wall.

But even if some wear did take place, there would be virtually no noticeable fall-off in engine performance.

There was one other major advantage of the Lanz engine, when compared to the full compression ignition design proposed by Dawson. As the fuel was detonated within the combustion chamber of the Bulldog, owing to the low compression, the detonation explosion was not instantaneous. Instead, it ‘leisurely’ chased the piston to the bottom of its stroke in the manner of a steam engine, thus providing the Bulldog with a substantially higher torque characteristic than tractors with conventional either diesel or petrol engines. In other words – a farmer got a lot more pulling power per horse power with his Lanz Bulldog.

No doubt Dawson considered these factors, but contumaciously pushed ahead with his alternative design. Perhaps being persuaded by the fact that with the full diesel the tedious business of having to first pre-heat the cylinder prior to starting, as in the case of the semi-diesel, was eliminated.

The Marshall diesel tractors

Samuel Dawson worked secretly and diligently, pushing ahead with the design of his single cylinder diesel engined tractor.

In 1930, the tractor industry and farming community were taken by surprise, when Marshall announced, with considerable fanfare, the introduction of the Marshall 15-30 tractor. But sadly for the manufacturer, field tests were to prove the new Marshall...
in terms of performance was no match for its Lanz equivalent. Additionally the fuel injection equipment was unacceptably troublesome.

In 1931, the 15-30 was re-equipped with a German Bosch fuel pump and injector, but still its reliability and performance were considered unsatisfactory. Few were sold and those that had been exported to overseas dealers were returned to the factory at Marshall’s expense!

A replacement model, the 18-30, was introduced in 1932. But despite the company outlaying capital (which it could ill afford) on the development of the new model, there was only a slight improvement with its reliability.

Astonishingly, there were only 72 Marshall single cylinder tractors sold between 1930 and 1934!

The Marshall 12-20 arrived on the scene in 1935, with a reduced nine inch cylinder bore and a new cooling system, with Lanz style radiator cells mounted crossways above the cylinder block.

The Marshall Board must have given a collective sigh of relief, for finally Samuel Dawson had got it right! The 12-20 was a creditable tractor, easily started by a hand crank, once the cigarette-like starting igniter had been inserted into the combustion chamber.

But alas the 12-20 had arrived too late to make a worthwhile impression on the British tractor market. A mere 212 were produced.

At the commencement of World War 2, in 1939 tractor manufacturing at the Britannia Iron Works was switched to the production of war materials. That is apart from a small number of Marshall Model M tractors, ordered by the Ministry of Supply, aimed at assisting farmers to increase their yield of desperately needed farm produce. The Model M was a stop-gap, basically a 12-20 with increased engine revs.

At the cessation of hostilities in 1945, Marshall announced a much improved new range of tractors, bearing the name of Field Marshall. But that is another story!

Appendix

The special secret warehouse, into which the Albion lorry transported the Lanz Bulldog that dark night in 1929, was considered so secure and impenetrable from prying eyes, that the British War Department acquisitioned it in 1940 for the purpose of developing the top secret midget submarines, designated X Craft.

German Intelligence remained unaware of the existence these 60 feet long undersea stealth vessels until in 1943 the pride of the Germany navy, the 43,000 ton Tirpitz, was blown apart at her moorings in a heavily defended Norwegian Fiord. The crew of an X Craft had attached limpet mines to the underside of the battleship!

Ian’s Mystery Tractor Quiz

Question: This tractor can be identified by its patented rear wheels. Can you name the tractor?

Clue: It is a British tractor, made under licence to an American firm, but has an Aussie name.

Degree of difficulty: A real challenge! You will have to know your onions (and tractors) to work out the answer.

Answer: Page 32.
How plant roots use water and nutrients

A team of researchers has uncovered a protein that plays a vital role in how plant roots use water and nutrients, a key step in improving the production and quality of crops and biofuels.

The findings appeared in the journal Proceedings of the National Academy of Sciences (PNAS). The team included researchers from Dartmouth College New Hampshire, the University of Aberdeen and the University of Lausanne.

Plant roots use their endodermis, or inner skin, as a cellular gatekeeper to control the efficient use and movement of water and nutrients from the soil to the above-ground parts of the plant. A key part of that cellular barrier is the Casparian strip, which also helps plants to tolerate stresses such as salinity, drought and flooding.

Until recently, little was known about the genes that drive the formation of the Casparian strip, which is composed of a fine band of lignin, the polymer that gives wood its strength.

In their study, the researchers identified a protein, ESB1, involved in the deposition of lignin patches early in the development of the Casparian strip and the fusion of these patches into a continuous band of lignin as the Casparian strip matures.

Plants use lignin deposition in many different cell types and in response to various environmental stresses. A better understanding of lignin deposition may eventually help scientists to manipulate lignin content in plants and boost crop and biofuels production, including in locations where growth conditions are not ideal.

For more information: http://www.seedquest.com

Improving efficiencies and yields

The sugarcane industry in Australia has been steadily working at improving efficiencies and yields. Efficiencies include being able to grow good crops with lower fertiliser inputs for economic and environmental reasons. To achieve good profits it is important to increase yields and the number of vigorous ratoon crops a farmer can harvest.

Innovative farmers in Australia have been using microbial technologies such as TwinN from Mapleton Agri Biotec (MAB) for several years. TwinN is also used in sugar estates in Africa and Ecuador.

One of the benefits of working with overseas agronomists on big sugar estates is that they do trials very well – the results of their multiple trials are a robust commercial recommendation.

The field work in Australia and abroad suggests that a single application of TwinN into the roots at 10–30 cm shoot height enables a decrease of 25 per cent in N rates. Larger N cuts are sometimes used but MAB recommends targeting small cuts in N and high yields. The ability to make cuts to N without yield penalty is useful in areas where farmers need to cut N to comply with environmental legislation.

Mode of action: The microbes in TwinN fix nitrogen from the atmosphere into crop available form. This occurs at lower levels than for legumes but it occurs steadily through the season. The second effect of the microbes is to increase the mass of secondary roots and root hairs which increases the capacity of the cane plant to capture applied N (and other) fertilisers before they are leached away. Both these effects are important to increase N efficiency and yields.

The species of microbes in TwinN achieve better root development by production of plant growth regulators – in particular they produce a uxins that work to drive root growth. There is a significant symbiotic relationship between the crop and the microbes. But the microbes also produce other plant growth factors and farmers are reporting improved vigour of ratoon growth in TwinN treated crops.

Application: The microbial product can be applied in a variety of ways – by centre pivot, boom spray, stool splitter or any rigs used to deliver products to the roots.

For more information – Ph: 07 5445 7151; Email: TwinN@mabiotec.com
With the Federal election campaign in full swing, farmer organisations are communicating the needs of their industries and regions to the major parties. We ask that whoever wins government will engage with ‘the bush’ in a genuine effort to improve the viability of our agricultural industries and regional Australia.

In its recent scorecard, the National Farmer’s Federation (NFF) scored the major parties in five key areas relative to agriculture:

- Growing Australian Agriculture;
- Investing In Research, Development and Extension (RD&E);
- Increasing Competitiveness And Profitability;
- Building A Stronger Workforce; and,
- Balancing Agriculture And The Environment.

The results were telling and none of the major parties scored highly in all five areas. Clearly there is much work to be done!

**Bundaberg Port**

The announcement by the Federal and State Government that funding will be made available under the Natural Disaster Relief and Recovery Arrangements to further dredge the Bundaberg Port was a timely relief. This will allow QSL to recommence exporting raw sugar from the Bundaberg Sugar Terminal directly to overseas customers.

The shipping channel in the port of Bundaberg was built-up earlier this year with silt from the floods and this has prevented ships from entering. Emergency dredging work was undertaken by the Gladstone Ports Corporation, which allowed ships to enter the port and take sugar to Mackay where it is being loaded onto larger ships for export to customers.

**Visiting delegation**

ACFA Northern and Burdekin Directors recently hosted a group of KSL Group delegates from the Thai, Laos and Cambodian sugar industries who visited on a cultural exchange. The delegates arrived in Cairns on Sunday August 4 and immediately began their tour, travelling to Mossman to tour the Puglisi family's cane and cocoa farms, followed by a welcome function at ACFA Chairman Don Murday's farm where Don and I gave a talk on the Australian industry.

The following morning the delegation and hosts set-off for Mareeba on the Atherton tablelands for a tour of the Singh farm. Rajinder Singh and family produce around 70,000 tonnes of cane on the Tableland and in the Mulgrave region. Rajinder kindly explained his farming system to the visitors who were amazed that 70,000 tonnes of sugarcane could be produced by just three people – a great example of the technology and efficiency of the Australian industry.

The visitors were also amazed to learn that the hourly cost of
hiring an Australian sugarcane field worker is equivalent to the cost of hiring a worker for three days in Thailand.

Later that week and further down the road David Cox treated the tourists to a thorough presentation of his farming system employed on his Burdekin farms, which produce several hundred thousand tonnes of sugarcane. The delegation also visited other Burdekin farmers before heading home.

**Harvest**

After a shaky start in some regions, the season to date has enjoyed reasonable weather in most areas. The chance of finishing the season with dry feet is less than ideal with climate forecasts predicting the chance of receiving above the median rainfall ranging from 60 per cent in north Qld to 80 per cent in NSW. We certainly hope that we finish the season before any significant rain sets in and we wish you a successful harvest for the remainder of the season.

Stephen Ryan
General Manager
ACFA
MOSSMAN

At the end of July it was again show time in the Cairns and Mossman regions. Both shows were well supported from the local farmers and the Mossman Next Generation Group would like to congratulate the winners of this year’s Mossman Show cane exhibition.

- **Puglisi Farming, M and K Bruyn and R. Scomazzon for taking the three prizes in Class 1** – Three sticks of an approved variety. (Next Gen Sponsored).
- **Puglisi Farming, M and K Bruyn, and R. Scomazzon for taking the prizes for Class 2** – Collection of three sticks of three varieties.
- **M and K Bruyn, R, Porta and Brie Brie Estate for taking the three prizes for Class 3** – Six heavy sticks of any one variety.
- **Puglisi Farming for taking Champion Exhibit.**
- **M and K Bruyn for winning the Most Successful Exhibiter.**

The 2013 Mossman Next Generation Groups show cane exhibition was a well-organised display with a high level of entries. The display had 53 entries from 10 different growers with each class being well represented. The growers from the region should be commended for their effort, especially after the difficult year they had last year.

The Mossman Next Generation Group would also like to thank the sponsors, everyone who entered and also the people who helped setup on the day.

Let’s hope that the worst of the weather is behind us and we all have a safe crush.

Gerard Puglisi
Northern Region Director
August 27, 2013

Cane Production Development Manager
Tully Sugar Limited
April 15, 2013

HERBERT

Over the past month we have had patchy rain, with some areas missing out and others having a deluge dumped on their farms; in some places as much as 48 mm.

Some Harvester operators have started their 50 per cent round and planting is powering ahead. Some of the ground is still too wet to plant and we need dry conditions in most of the district to finish planting. Stone River and the Bambaroo area are experiencing extremely dry conditions. Farmers have a tough job when it comes to finding ideal weather.

I attended a meeting over the Halifax flooding and removal of sand. Let’s hope common sense prevails and the sand is removed from the mouth of the Herbert River. This would mean that the major flooding which has been occurring around the Halifax area doesn’t include the flooding of houses. There is a real threat of loss of life if something isn’t done immediately.

Carol Mackee
ACFA Herbert Director
August 27, 2013

BURDEKIN

An excellent result was achieved with crushing figures through our district mills last week at 402,441 tonnes and with the harvest now well past the half way mark, credit is due to all who are working to achieve the best result in all areas of production, harvest, transport and milling. The season estimate stands at 7.531 million tonnes, with a possible end date at around the middle of October for the Burdekin mills.

During the month, a group of millers and farm managers from Thailand (sponsored by KSL), were hosted by Warren Martin, Tate and Lyle, in various areas of the industry, including the Burdekin district. The group compared a range of farming, irrigation and management practices as well as enjoying the spectacle of a Burdekin cane fire.

Discussions continue with Wilmar representatives over the proposal for cane pricing and further meetings will be held in the week of 9th September while senior representatives of Wilmar are in the country.

Most of the district’s planting is well in hand and weather conditions have been favourable in completing the harvest and ensuring the 2014 crops get off to an early start.

Gerard Puglisi
Northern Region Director
August 27, 2013

Cane Production Development Manager
Tully Sugar Limited
April 15, 2013
Local councils

Rates, water and electricity prices and increasing government charges and impositions, continue to cause undue concern in the district and all efforts to voice those concerns appear to fall on deaf ears at every level of government. With local producers hit with an additional 8 per cent on their rate bills over the past two years alone, questions have been raised with the relevant state minister. There is a serious anomaly in the system, when the district’s cane producers are responsible for under 25 per cent of the rateable area in the Burdekin, yet are forced to pay over 50 per cent of the shire rates – it is clear that the council has a great deal of explaining to do and the minister is on notice to address the issue, as a matter of urgency.

Federal election

With the federal election imminent, it is pertinent to reflect on how little (if any) effort has been expended by most parties, in formulating any detailed primary industry policies or direction, or in addressing the very real concerns faced by this and other primary industries in this nation.

The local industry has been hammered by increases in rates, government charges on every level, irrigation water charges and escalating fuel and electricity prices, wages and other input costs – yet we are still forced to accept a corrupted world sugar price for our product, with no cost of living or local cost impacts factored in.

In contrast with every other competitor nation our farmers receive no consideration for the whole product or the by-products produced, such as ethanol (fuel and pharmaceutical), co-generation and bio-dunder and the potential for all manner of other goods.

Industry representation needs to speak up to all levels of government with one voice on this issue, or growers will never receive their entitlements or due consideration for their considerable investments and inputs. Commercially sound rural policies need to be adopted by government, or the triple bottom line may as well be written off for rural Australians, who have endured the cost of a nation’s excesses for far too long.

In formulating any detailed primary industry policies or direction, or in addressing the very real concerns faced by this and other primary industries in this nation, or in addressing the very real concerns faced by this and other primary industries in this nation, policies need to be adopted by government, or the triple bottom line may as well be written off for rural Australians, who have endured the cost of a nation’s excesses for far too long.

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SOUTHERN REGION

Harvest

Dry weather; passable CCS; warm weather giving fast ratoons; no industrial strife at Mills; and no workplace accidents – seems all’s pretty good. Perhaps with the Australia day floods, our region has had a whole year’s drama in one weekend. The crushing will be shorter than hoped, that is, not much is making estimate and some growers are at 50 per cent by the first week of August. The hazardous nature of cutting in blocks that were submerged by 80 km per hour floodwaters is becoming all too obvious.

Apparently some folks usually retained at her majesty’s pleasure are in there cleaning up. LP gas bottles – must be a worry and there are thousands of them. Power lines by the mile that were stripped from poles appear to be another booby trap. Anyone who has swallowed an old irrigator will know the terrible smell of burning trash inside a machine when in frustration, the oxy torch is used to cut away cable wrapped oh so tightly around the rollers. And you can’t afford the time to take the machine apart to do it nicely. Mills seem to be running well. Isis is holding 60,000 tonnes plus per week consistently.

Irrigation

Have you called your LWMB directors yet? Well? Hmm, why not? They’re asking for it. Go on, give them a call. It’s your money that’ll be paying them to do the best for us. Initially I was 100 per cent behind it but now it is happening I wonder how replacing the public servants – who were employed to administer the distribution system – with a Board and all the paraphernalia required to run it, could be cheaper or better. I guess it is up to the board to sell itself as a long-term better prospect.

I believe that removing any sort of shop front from the Bundaberg area was a strange thing for Sunwater to do. I could never see that helping customer relations. I realise that the ‘poor’ girls at the counter received the full vehemence of disaffected Sunwater customers. I guess the answer to that is employing someone like Petero Civonicia at the front counter. Farmers must realise that the local receptionists did not set Sunwater

Margaret Menzel
ACFA Burdekin Director
August 27, 2013

CENTRAL REGION

As at July 28, over 20 per cent of the estimated five million tonne crop had been processed in Mackay and 25 per cent of the estimated 574,000 tonne crop crushed in Mossman. Factories have encountered above budget stoppages in the first month of the crushing, however are now crushing at target weekly tonnages. Current cut to estimate trends of 98 per cent in Mackay and 103 per cent in Mossman are indicating we are likely to achieve our forecast crop estimates.

Planting is underway with particular interest in the new varieties available Q242, Q249 and Q240. A major concern is pachymytra root rot. Varieties with resistance need to be selected when replanting into fields with high spore counts so as not to impede productivity.

MAPS have been promoting the optimising of harvesting to maximise profitability. In a SRDC funded project, researchers have developed a mobile system to measure cane and sugar losses. Cam Whiting has been checking losses from individual machines. The harvester losses are much higher than farmers and operators are aware of.

The annual MAPS field day was held at Victoria Plains farm and proved a success attracting a very large crowd of over 400 growers. A harvesting seminar was presented by Steve Hegerty (Vanderfield), Chris Norris (Post harvest cleaning technology) and Neville Toft from John Deere. Field demonstrations included BSES varieties, Fallow herbicide and spray technology, Tillage equipment and cane grub control tips from Bayer Crop Science.

Red Witchweed

Biosecurity Queensland has placed movement restrictions on four out of the five properties in the Mackay area that originally reported red witchweed. Biosecurity Queensland is now extending the surveillance area. Surveillance further afield has been based on potential high-risk pathways for weed spread, such as the movement of machinery.

To date the weed has not been found outside of these properties but this work is continuing. Biosecurity Queensland will continue to work with the owners and industry to ensure there is some business continuity.

Properties placed under movement restrictions cannot move equipment, soil or plant material on or off an affected property without approval from Biosecurity Queensland.

Steve Fordyce
Southern Qld
August 27, 2013
policy or prices and it’s no good taking out frustration on them. What you need to do is let someone like myself know and then it can be taken along to whoever made the call from on high.

If LWMB becomes a reality, it will be much easier to get to where the real decisions are made. So if you want to get some group together you are going to have to come out in the open and we will go along to the appropriate meetings.

Irrigation is one of our major costs. Unless ACFA gets a bit of rubber on the road in this debate you will get what other people decide you want. I will say again, make a pie chart of expenses and see what size the water, power and operating cost of irrigation slice is out of your farm income and then decide if you want to sit down and let all those good men decide your future without your input.

Without support, one person is a winger; with backup you become a great leader of a good cause. If this appears to be getting wound up, go back to the 1980s and look through the productivity figures for the drought years and see how you would be travelling with a 60 per cent per cent income drop.

Other business

On health and coping with the increased area of your farm. I feel that this year has seen a jump in farm size per actual person working units. In the same way there are worker units harvest 80,000 tonnes of cane now; many single operators are around the 150 hectares farmed per labour unit. When I first started I was a ‘big’ farmer in the group with 7000 tonnes of cane. Now around 15,000 tonnes seems to be what individuals are expected to produce. Capital involved and resultant stress levels can be getting high. Please make stress level management part of your farm planning. Reef-Regs and other policy areas are important, but YOU are the most important thing to us. If you don’t believe me ask your kids.

Mike Hetherington
ACFA Southern Region Director
August 27, 2013

NEW SOUTH WALES

All my board reports start with the weather – I guess this is because it is the one thing that influences sugar cane farmers the most.

All of the NSW mills had another horror harvest start weather-wise, giving both farmers and the mills major problems. For the mills it was mud in the cane making it very difficult to process and for the farmers it was the damage to fields.

We are implementing an education process to show farmers the costs to them of having mud/ash in the cane they deliver. Most growers have little idea of the effects of mud on their sugar. My feeling is that this will be one of the most beneficial projects ever undertaken in the NSW industry. Some figures done by the co-op are that if we can reduce our mud/ash levels by 0.8 per cent there is at least another $1 million dollars to be made by the industry.

Agricultural service

The NSW industry has moved from a Productivity Board at each mill to one for the NSW industry, this has streamlined the delivery of Ag Services to the growers and has reduced the overall costs to the industry.

Varieties

What can I say; Q208 has continued to be the stand-out variety this year. It was clearly the one that survived the flood the best. The photo below shows one row of Q240 on the outside of a Q208 block. While the stool is still present in the Q240, the millable cane will be about 30tph and the Q208 will cut about 90-100tph.

We have had three years of floods in early January so it will be a very brave person who plants much else but Q208, at least for this year. This will still keep the industry below the risk margin of 50 per cent of one variety.

Flooding

The NSW industry will link with the NSW department of Agriculture in a flood resilience project to look at ways to reduce the impacts of flooding and to review the present infrastructure, most of which has been in place since 1970 and before. The problem we face across the three rivers is, as local governments raise roads and levy walls, the openings through them continue to remain the same. This needs to be reviewed to improve the hydrology of these systems.

Planting loans

The Co-op continues to make loans for replanting available to growers who wish to take advantage of them. We do hope that we can establish good plantings this year through out NSW and continue to return to full production.

Robert Quirk
ACFA New South Wales Director
August 27, 2013

Following the floods the Q240 (nearest camera) is clearly outperformed by Q208 behind.
Phil’s rocky road to fishing heaven

By Phil Jackson — Fly, Tye and Tackle

Over the past few issues we’ve looked at specifically locating and identifying fish holding structures, namely reefs and rocks. Our broad areas of interest were rocky headlands, rock bars that form where hills and spur lines run directly into the sea and the rocky reefs formed when a rocky ridge re-emerge out in the bay.

I’ve been pushing the ‘local knowledge’ barrow for as long as I can remember so it will come as no surprise that the travelling fisho is going to have their work cut out to fish these features effectively. Having said that, Google Earth is an excellent way to do an ‘arm chair’ reconnaissance!

Being a firm believer in the old “picture worth a thousand words” adage I’m using images so you won’t have to suffer through my waffling to help you visually conceptualise.

My rules of thumb for the eastern seaboard are:

- The sheltered water is always on the northern side of the headland.
- If it’s blowing a northerly and it’s strong enough to stop you fishing, you’re in for more than just rough weather.

When to fish? There are ‘good times’ and ‘best times’ but there are no bad times to fish rock reefs. Success will depend on technique and how well you adapt to the conditions. Obviously there are millions of options so I’ll outline my SOP – standard operational procedure.

I rarely, if ever anchor over a reef. I prefer to drift through an area and bottom bounce with baits or jigs, this way I use the wind and current to take the bait to the fish – we’ve talked about this recently.

Remember fish always feed into the elements. If you anchor up you’ll have to drop the pick well up current and drop back over the area you want to work. If you miss calculate the current

A classic exposed rock reef between headlands. Close proximity to the beach and complex current flow make the bio-diversity of a location like this a paradise for the travelling fisho.

Rocky headlands split by deep gutters will keep you occupied at any time of the tide. The bait fish you harvest at low water will produce significant table fish in both quantity and quality when the tide turns.

Fly fish New Zealand with Phil Jackson

Make your next holiday a fly fishing adventure in the most beautiful country on earth. Catering for the experienced fly fisherman and novice alike, my New Zealand fly fishing holidays will give you a lifetime of memories.

If you’d like to mix in a little golf and sight seeing, I can do that too. Come with me for the eight days of relaxation you’ve promised yourself all year.

For more information just give me a call on 0411 576 793 or drop me a line at flytye@smartchat.net.au
or the wind changes you'll have to pick it up and do it all again. Not only do you take a risk of not finding fish but after you've pulled a few the rest often pack up and ping off and so you have to start all over again.

Anchors are also very noisy and the sudden metallic sound of an anchor banging on rocks will spook fish very easily. If I'm bottom bouncing between 10am and 2pm on a sunny day I use lots of flash on my rig.

I like flesh baits like a fillet of oxeye herring (aka tarpon) because they are tough and flash like a chrome bar, and gathering Tarpon for bait is excellent sport on light fly gear.

**ANSWER TO IAN’S MYSTERY TRACTOR QUIZ**

The British tractor is a 1930 Vickers Aussie, made under a licencing arrangement with International Harvester Co. The patented 3 section rear wheels were designed to be self cleaning of mud, and so on.

Speaking of bars of chrome – one of my best pelagic attracters is a 25 cm x 10 cm piece hack sawed off the front bumper bar of an old FJ Holden.

I love bottom fishing with jigs. If things are quiet I’ll sweeten the jig with flesh bait but jigs will usually do the trick. I really like to daisy chain between four to six pink plastic squid on 10 to 15 kg mono and fish them like a bait jig. You’ll lose jigs but you’ll take a lot of good fish. One of the reasons I like jigs is they eliminate the ‘pickers’, anything that hits a flashy jig means business.

The default options are a standard Paternoster rig with either flesh bait or reasonably large plastic. Pink squid are my first choice in plastics for reef fishing but plastic fish patterns and big Vibrotails are cheap to lose and very productive.

These rigs will explore the bottom for you but don’t neglect the top third of the water column. Pelagics will cruise above the thermo cline, which will coincide with the depth that light in the visual spectrum will penetrate into water. Big pelagics travel alone and school numbers increase as the size of the individual fish gets smaller so not all of your school fish will be legal.

Burley can be very productive and concentrating the bait species in your burley trail will guarantee hot action but be prepared to lose fish to sharks and barracuda.