



ISSUE 18 – JULY 2015

Welcome to the July issue of our BPS newsletter. We hope you find the articles contained in this issue informative.

This issue contains:

BPS Activities

Update from the Plots

SmartCane BMP

New Variety Information

RSD Update

Canegrub Control in Plant Cane

Yellow Canopy Syndrome Updates

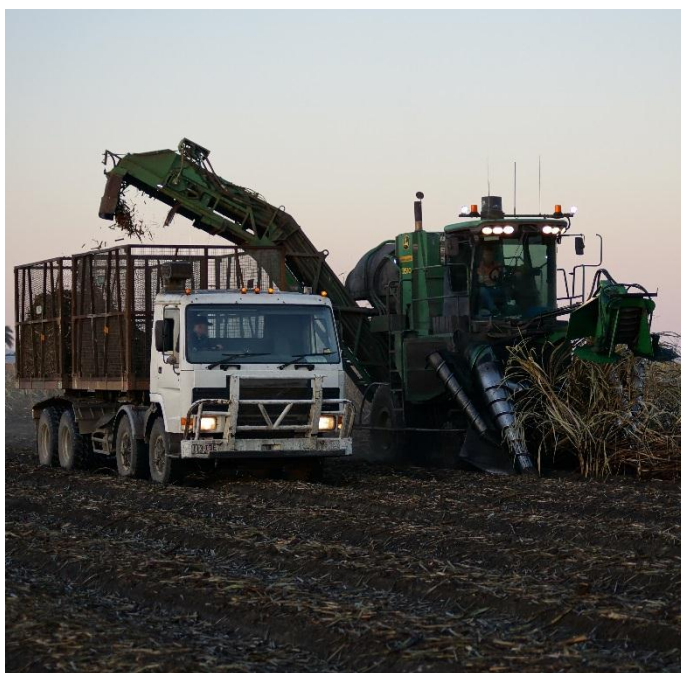
Burdekin Harvesting Forum

Crop Water Use Information

Tips and Tools for Reducing Your

Electricity Bills

Staff Contacts



DATE CLAIMER

BPS Annual General Meeting

2 pm August 25 at Ayr Showgrounds

Guest Speaker: James Underwood, University of Sydney - "Technology, robotics and precision in agriculture"

BPS Productivity awards for the 2014 season will be also presented at our AGM

BPS ACTIVITIES

Since the last newsletter, staff have conducted RSD sampling in the Inkerman and Kalamia mill areas where samples were taken from every farm. Presence of RSD was detected in some samples. Please refer to a later article in this edition for further details.

Plot sales have continued and planting of the Mother and Distribution plots at both Inkerman and Giru has been completed. All cane destined for these Mother plots had to undergo a cold soak - hot water treatment, so there was a lot of activity in the shed. This cane was sourced from Minuzzo's Mother plot where the quality of product has been exceptional. Thanks goes to Eddie and John for doing an excellent job.

Field staff have conducted close to 300 plant source inspections so far this year and will be happy to complete another 300 or so for the late plant. Growers are encouraged to use this service before planting.

Soil, leaf and water tests are important tools for growers and we have 3 agronomists on staff who have been trained in conducting tests, analysing results and producing nutrient recommendations.

UPDATE FROM THE PLOTS

After setting a record for approved and commercial cane sales from the plots last year, management set a sales target of 7000 tonnes for 2015. This will be hard to achieve as there have only been sales of 1900 tonnes to end of May 2015. This poor result is primarily due to the fact that many growers began planting in early March before the plots were open. We remain hopeful that late plant will see an influx of orders and staff will accommodate extra orders where possible. All members remain entitled to their pro rata apportionment and growers who wish to purchase extra are advised to contact their field officer.

Consideration will be given to opening some parts of the plots a little earlier next year, although plot opening times are largely dictated by prevailing weather conditions and the volume of cane available. Plot owners do not wish to open the plots too early because of the risk of plots being damaged by harvesting in damp conditions or taking too much cane before it has grown to its potential. There is also a risk attached if plots are planted too early. In the event of an extended wet season, cane may grow too much, fall over and become fully lodged prior to harvest.

Growers are reminded that plant source is at its optimum if it is less than 12 months old, so often delaying planting your seed source to later in the season makes more sense.

SMARTCANE BMP

The BMP process is a tool to not only check your own farming systems progression, but also to show the wider community that cane farmers in general are actively farming in a positive sustainable manner. There are three steps to become accredited in a particular module.

Step 1: Complete the online SmartCane self-assessment questionnaire.

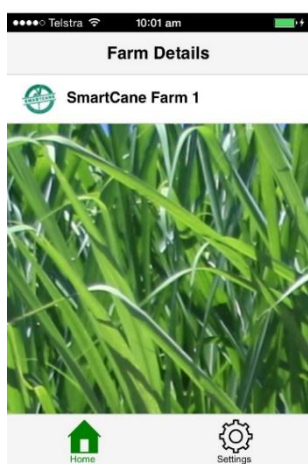
Step 2: Contact your local BMP officer (Terry Granshaw) for an on-farm visit and start collecting evidence so that the officer can upload it.

Step 3: The BMP officer completes a pre-audit assessment and sends it to be audited.

As of last month the Burdekin has two farming entities through to the auditing stage in the three key modules: soil health and nutrient management; irrigation and drainage; and weed, pest and disease management. There are 13 growers currently going through the accreditation process who have completed all three self-assessment modules. In the past two weeks there has been a gradual increase in the adoption of the Smartcane BMP process with six new online self-assessments being completed. Three growers are on track to complete all seven of the Smartcane BMP modules.

It has been recognised that there is a need for improvement in both record keeping and chemical storage across the region. Records can be easily kept, either in block record keeping booklets, a pocket diary, drawn on maps or even scribbled in an exercise book. For the tech savvy, on-board tractor GPS units and farm recording software are available. eg. (Farmworks, PAM, SMS). Recently both CANEGROWERS and Agdat have created web based data recording sites. Both of these websites work well and are now also available as free apps on a smartphone. Contact BPS staff for more information on how to obtain and use these apps.

In relation to chemical storage, local grower Gary Spotswood has created a low cost, portable chemical storage unit - that has passed the horticulture industry's Freshcare accreditation standard - from an old IBC 1000 litre shuttle. BPS has a prototype shuttle that growers can view at the office. Please contact Terry Granshaw on mobile 0437 553 149 to view the unit or enquire about any other BMP issues.



Left: Examples of the Smartcane and Agdat apps; Right: Low cost portable chemical storage unit



NEW VARIETY INFORMATION

Two new varieties (QA01-5267 and QA04-1448) that will potentially be released later this year have been planted in the Inkerman Mother plot, and will be planted to fill Duncan's Mother plot. A small amount will also go to the Brock Road Mother plot. If released commercially, these varieties will be available for distribution in 2017.

These varieties were also planted into 3 replicated strip trials in the Airville, Mulgrave and Osborne areas in 2014. We will provide yield and CCS results at upcoming shed meetings and future newsletters once they have been harvested. Data from the SRA plot trials shows that one of the varieties is a moderate to low tonnes with above average CCS, while the other is low CCS and high tonnes.

BPS is also receiving two other varieties from SRA that have potential to be released in future years. These will be cold soak, hot water treated before being planted on our isolation plot. BPS hopes to propagate enough material of these varieties to plant out into strip trials next year.

Varieties released from now on instead of being named 'Q', will be 'SRA'. This means that we will be back down to low numbers. Eg SRA1, SRA2.

RSD UPDATE

Each year, field staff from Burdekin Productivity Services conduct juice sampling of older ratoon crops to check for evidence of Ratoon Stunting Disease (RSD). The samples are sent to the RSD laboratory at Sugar Research Australia (SRA) in Brisbane.

After taking approximately 1000 individual samples from ratoon crops in the Inkerman and Kalamia mill areas, BPS have been advised of 20 positive results for RSD. BPS wishes to advise all growers and contractors that the small number of positive results indicate the disease is in no way widespread, but protocols must be adopted to control it and to prevent it from being spread further. Field staff will survey all mill areas in 2016 using a new sampling and analysis protocol.

The bacterium that causes RSD is found in the xylem (water transport vessels) of the plant where it affects the transport of nutrients from the roots to the rest of the plant. In extreme cases, RSD can cause crop yield decline of more than 50%. Infection can be spread by any type of machinery that comes in contact with the juice of the plant, but in particular, harvesters, planters and stool splitters.

Although a serious disease, ratoon stunting disease can be quite easily prevented. The keys to controlling the disease are sterilisation of equipment before moving from paddock to paddock and between farms, planting approved disease-free cane, and using resistant varieties where possible.

Sterilisation of equipment is achieved by firstly removing all soil and plant material with water and detergent under high pressure. Then knives and other parts of the machine that have come in contact with cane juice should be treated with a registered sterilising agent available at your chemical reseller. The sterilising solution should be left in contact with the implement for at least 5 minutes before use.

When sterilising harvesters, the base-cutter, butt-lifter roller, chopper-box and extractor fans should be disinfected before cutting cane to be sent to the mill. If cutting billets for planting, the whole feed-chain should be disinfected, as well as the base-cutter, chopper-box and extractor fans.

BPS staff are available to all growers and contractors to further explain RSD, machinery sterilisation techniques, or to conduct inspections. However, ultimately growers and contractors must understand there is a problem and cooperate in reducing the risk of spreading this disease.

CANEGRUB CONTROL IN PLANT CANE

Canegrubs are a major pest and can cause serious yield losses if they aren't effectively controlled. Current control methods rely heavily on imidacloprid based products, applied as either a liquid or via a controlled release granule. The liquid products provide control of canegrubs for one season, while the controlled release granules can provide up to 3 years control. In recent years the use of liquid formulations has been favoured over the granule because of the more competitive price.

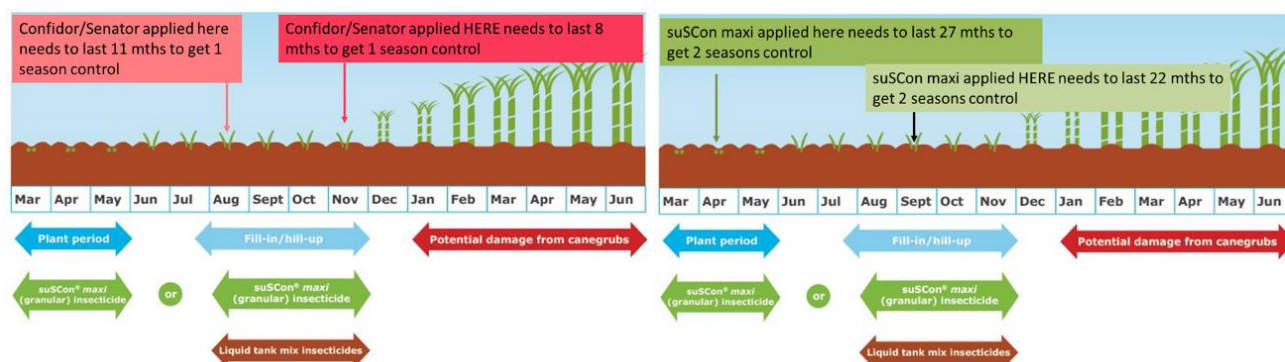
When choosing a grub control product the time of application and the pest's life-cycle should be taken into account. Greyback canegrubs have a one year life-cycle and in the Burdekin beetles will start emerging from the soil in October. After feeding they will lay eggs which will hatch in about 2 weeks. The larvae live under the stools where they feed on roots and continue to grow, with most damage being done between February and May. To effectively control these larvae there needs to be sufficient imidacloprid present in the soil during this critical time. For example suSCon maxi applied in April will need to last 27 months to provide effective control for 2 seasons (see diagram below). Compare this to applying the same product in September, when it will only have to last 22 months to provide 2 seasons control. The same is true for liquid formulations. Applying these products at the start of the application window in August means they will need to last 11 months to control grubs for one season. If application can be delayed until November, then they only need to last 8 months.

The ideal planting conditions this year saw most of the fallow planted cane planted by the end of April. These crops will be hilled up by mid-July, making it impossible to apply liquid imidacloprid within the label requirements which restrict application to between August and November. For these early planted crops, suSCon maxi and suSCon maxi intel will be the only option for effective grub control. The liquid formulations can still be applied to the late plant as these crops will be hilled up within the application window.

Whichever product is used, follow the label directions carefully with regard to rate and placement. When changing from suSCon maxi to suSCon maxi intel it is necessary to recalibrate the applicator to ensure the correct rate is being applied. At the same settings, less of the maxi intel is applied than the old formulation of suSCon maxi.

Incorrect placement in the last few years has resulted in poor grub control, and in some instances imidacloprid being detected in waterways.

It is also important to note that only Confidor Guard, Senator 700 WG, Nuprid (350 SC and 700 WG) and Kohinor 350 and 350SC are registered for use in plant cane. All other formulations of liquid imidacloprid are only registered for use in ratoons.



YELLOW CANOPY SYNDROME UPDATES

SRA - YCS Grower Update

Davey Olsen, SRA Brandon



1. How would you describe the focus of the project you lead?

The current focus of our project, Solving Yellow Canopy Syndrome (YCS), is searching for what is causing the physiological problems we see going on in the plant. We have measured the problems, we understand what is happening in YCS cane when compared to healthy green cane and now we need to understand what is causing YCS. We are focusing our research and looking into key problems we have observed in YCS affected plants. The symptoms we see are downstream issues, but they are important in directing us to find the cause. This current work is really about plant pathology and physiology. Our project is also looking into identifying remedial management measures that growers can implement. This aspect of our work is now very timely as we have a better understanding of what is happening in the plant; we know what problems we need to manage.

2. How many trials are underway as part of your project?

At the moment we are in a transition phase. Every July 1st we reassess our work plan from scratch, looking to improve and refine the research. As part of this process we will discontinue trials that have reached a logical conclusion and trials that are not proving beneficial. At the same time we will begin new work to further specific lines of enquiry. Officially we now have nine field and pot trials. There is also a significant amount of laboratory trial work within this project, such as dye uptake studies that are helping us to understand what is happening inside the plant and to focus in on what is causing the symptoms we are seeing in the field.

3. With all of SRA's research in mind, how would you describe the symptoms of YCS?

The symptoms are both what we can see and what we cannot see. When we look at YCS plants there is the striking yellow colour extending across the leaf blade, as opposed to from the tip or the leaf margins, which we are all familiar with. Coupled with the yellowing symptoms there are some cases of stunted growth, depending on what stage the plant is affected with YCS. The unseen symptoms include depressed photosynthesis, a hyper-accumulation of starch and sugars in the leaf tissue and an inability of the young green leaves to compensate for the yellow leaves lower in the canopy. These green leaves should be working harder keep the whole plant in healthy equilibrium. Our work has also found that the senescing leaves are full of metabolites even when they are dead.

4. What is the most interesting thing your research has uncovered?

The most interesting thing we have found is that, even in green leaves high in the canopy, photosynthesis is depressed and stress levels are elevated in all YCS affected plants.

5. We keep hearing that YCS is related to stress. Do you think this is the case?

Yes.

6. Are we closer to solving YCS now than we were this time last year? If yes, in what areas has our understanding improved?

Yes, we are definitely closer. We now have tools that clearly distinguish YCS plants from healthy plants that we are able to use in our research, this is invaluable. Significantly our previous work has brought us to a point that we are now ready, and prepared, to focus research in key areas in the hunt for a cause. We are able to do this because we now understand what symptoms define YCS and how to separate out the noise.

7. *We're just getting into the busy time of the year for cane farmers, is there anything your work has uncovered that we should keep in mind for farm management?*

1. Over the last two harvests, we have seen low CCS in some early cut YCS blocks. If this year progresses the same as the previous years CCS levels will increase as the harvest continues.
2. Badly affected blocks in one year do not necessarily guarantee badly impacted ratoons.
3. Pay particular attention to minimising stress on your cane. This may mean addressing different issues on different farms, and even across different blocks. Identify possible causes of stress for your situation; this may mean getting clean seed from BPS, treating cane grubs, doing soil tests and identifying and treating any deficiencies present, or it could be reviewing and improving your irrigation schedule and addressing areas with soakage problems.

8. *Your project involves collaboration with productivity boards. Can you describe this work and how it connects with SRAs YCS program?*

Productivity boards are the eyes and the ears for this project and as such are vitally important. We work closely with them to keep track of any new developments and get feedback on how growers are going in the industry.

BPS plays a key role in collecting data for the YCS project. Every two weeks BPS staff monitor and numerically rate 50 identified YCS impacted blocks in the Burdekin. This helps us to understand the impact of YCS on yield and sugar. Through BPS we will have a full block history for these sites and the final sugar and yield will be recorded. BPS has strong relationships with growers and is in a good position to understand the farm management and how this will impact the results on these blocks.

Productivity boards help to identify cases where we should meet with them and look at specific YCS blocks. Being out, on the ground, year round they are able to play an important role in feeding back information into the research program.

BPS and SRA are equally invested in finding the cause and management tools for YCS and we are working together on the problem. If you are a grower and you speak with the productivity board about your YCS problems, they will ensure the information gets back to the research team.



BPS Update

Since early December, Burdekin Productivity Services has been helping SRA with the “Solving the Sugarcane Yellow Canopy Syndrome research project”. Fifty sites were visually monitored every fortnight from early December 2014 until late June, 2015.

Mainly KQ228 was targeted in all classes. We looked at the top canopy (Top Visible Dewlap), the middle canopy (Leaves 1-5) and also the lower canopy (Leaf 6+) then rated each section separately for prevalence of YCS as well as severity of the syndrome.

Prevalence was given a rating from 0-4 whereby:

- 0 = No YCS
- 1 = 25% Stalks with YCS
- 2 = 50% Stalks with YCS
- 3 = 75% Stalks with YCS
- 4 = 100% Stalks with YCS

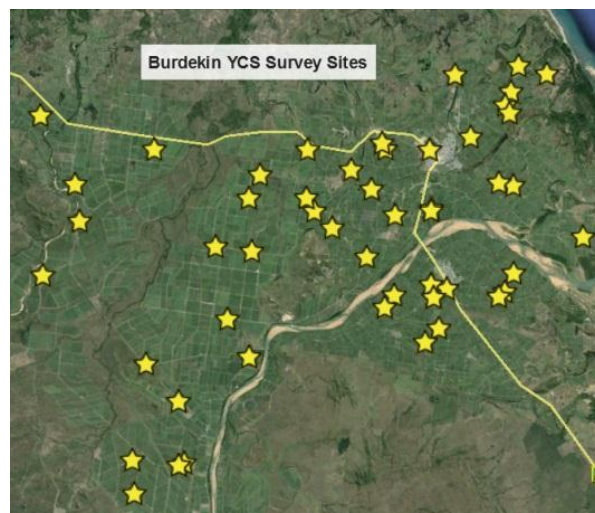
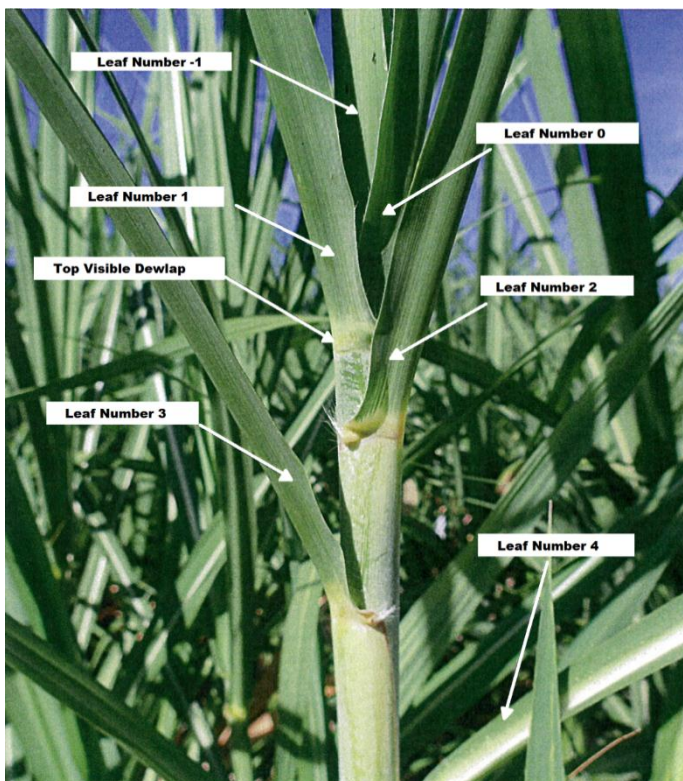
Severity was rated from 0-3 whereby:

- 0 = No YCS
- 1 = Mild YCS
- 2 = Moderate YCS
- 3 = Severe YCS

The very first round of monitoring on the 9th of December showed no YCS in Invicta or Inkerman mill areas and only a few blocks with slight symptoms in Pioneer and Kalamia. By the start of 2015 this distribution had changed to Kalamia and Inkerman having widespread YCS, albeit with slight symptoms only, whilst Pioneer and Invicta had only a few blocks with slight symptoms. By the middle of February, Kalamia and Inkerman had widespread, moderate YCS. Kalamia visually appeared to be the worst affected and this observation continued throughout the monitoring period. In contrast, Pioneer and Invicta mill areas remained with slight symptoms in a few blocks only.

YCS appeared to be at its worst from the start of January through to end of March after which the symptoms abated somewhat. By end of June, it was only slightly visible.

Staff also conducted 1st leaf samples where 30 leaves from each of the sites were collected. These samples were sent to SRA for further examination.



BURDEKIN 2015 HARVESTING FORUM KEY FINDINGS

Belinda Billing, SRA

The SRA Burdekin Harvesting Forum was held at the Burdekin Show Grounds on June 2 and attracted over 100 participants who heard speakers present on a range of opportunities to reduce losses during the cane harvest. Presenters included Cam Whiteing, Phil Patane and Dr Frikkie Botha from SRA, Marian Davis from BPS and Doug Sockhill from Wilmar.

SRA researcher Cam Whiteing estimates sugar to the value of approximately \$45 million is lost each year in the Burdekin. This estimate takes into account combined chopper losses, extractor losses and yield losses from basecutter damage to stools impacting on ratooning. While we cannot recoup all of the losses, research presented showed that improvements across farm management and harvesting practice, supported by the milling sector has the potential to significantly improve the situation.

Key learnings from the Forum include:

- Everyone has a role to play in reducing harvester losses, growers, millers and harvesting contractors; we can only recoup lost profits by working together.
- Reduced billet length is a major cause of sugar loss in the Burdekin sugar industry.
- Harvester operators are encouraged not to overfill bins.
- Basecutter damage to cane stools is a big but relatively unknown source of losses.
- Row profile across farm should match the basecutter set-up of the harvester to reduce stool damage.
- If the RPM of the basecutter was matched to ground speed there would be less sugar loss and reduced stool damage.
- Keep basecutter blades long and square so that cane is cut by the blades, not the disc.
- Reducing pour rate will reduce stool damage and chopper losses; but this comes at an extra cost.
- Growers and millers play an important role in creating an environment conducive to reducing pour rates.
- High levels of dirt, trash and tops in the cane supply cost millers and growers dollars.

There was a lot of discussion following the presentations with calls for information and further discussion on topics such as: Blakey's disc trials; EHS chopper drum trials; development of a ready reckoner for growers and harvest contractors to assess each other's performance; alternative payment schemes; and tracking the performance of harvester groups.

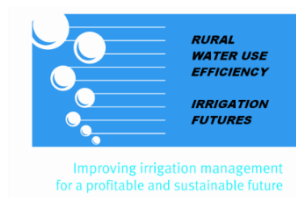
Participants also suggested further investigation and research into:

- A full value chain evaluation of the real cost to the entire system of cutting longer billets
- Investigating the potential of offering incentives to new harvesting operators to enter the market
- Supporting contractors to investigate matching basecutter RPM to groundspeed
- Looking into alternatives to tungsten basecutter blades
- Investigating whether stool splitting results in surface roots and weakening of the stool
- Identifying the optimal time to start the harvest

Some participants took the opportunity to speak with SRA and get involved in future trial work.

SRA, BPS and Wilmar will continue working together on this complex issue, including bringing representatives together to work on solutions, sourcing and sharing new information and undertaking trial work.

If you would like more information please contact SRA Development Officer Belinda Billing on phone 4783 8602 or mobile 0475 954 437.



CROP WATER USE INFORMATION NOW AVAILABLE

BPS now has access to a new sugarcane irrigation scheduling tool called IrrigWeb. This access has been made possible thanks to funding by the RWUE-IF program. IrrigWeb has a range of outputs, one of which is crop water use information. This information is now available on the BPS website for representative farms in the delta and BRIA.

These are hypothetical farms that aim to simulate typical delta and BRIA farms with regard to soil type and climate. The delta farm has delta clay loam soils and uses weather data from the Ayr DPI site. The BRIA farm has a cracking clay soil type and uses the Clare weather station data.

On each farm a number of crops will be 'grown', starting with March planted cane and continuing through the planting and ratooning cycle. As these are 'generic' paddocks, each crop will commence on the 15th of the month regardless of weather conditions.

The water use data will be updated each Friday and for each crop will show:

- Crop water use for the previous 7 days**
- The soil water deficit
- Total irrigation
- Total rainfall

**Under the terms of our licensing agreement with SQR Software we aren't able to make this information current, therefore the crop water use will always be a couple of weeks old. BPS is considering seeking extra funding to allow all growers access to the program for their own blocks in real time if there is sufficient interest.

While the information provided can't be used directly for irrigation scheduling - the time lag and differences in district rainfall and time of planting will affect when individual crops will require water - it will provide a general guide to crop water use at different times of year and growth stages.

For example, Figure 1 shows the daily crop water use for a crop planted in mid-March and irrigated immediately after planting. Crop water use spikes at planting because water is evaporating from the wet soil surface; as the surface dries, the daily water use drops back to less than 1 mm per day. The other peaks on the graph during April show small rainfall events, again wetting the soil surface and increasing evaporation. As the crop canopy begins to grow, the daily water use increases and the effect of irrigation on evapotranspiration is less obvious.

For more information on IrrigWeb, the RWUE program or irrigation scheduling, contact Marian Davis at BPS on 0428 927 079.

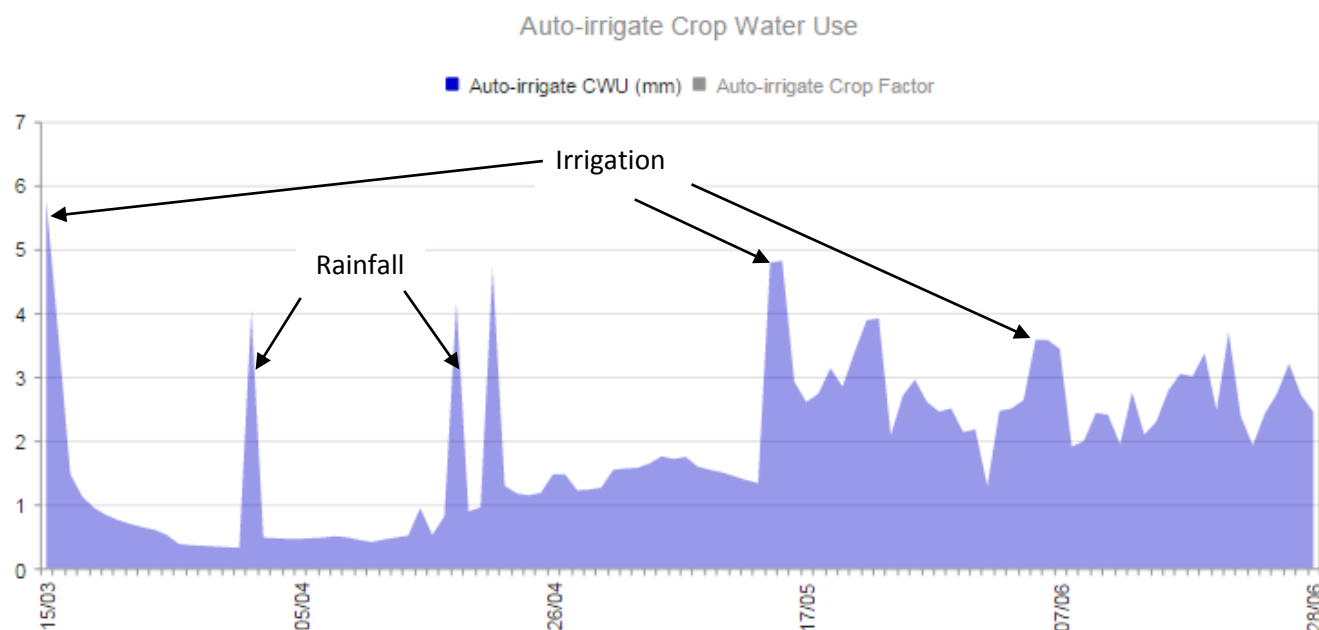


Figure 1. Daily crop water use (left axis, mm/day) for a crop planted on March 15, 2015

TIPS AND TOOLS FOR REDUCING YOUR ELECTRICITY BILLS AVAILABLE NOW!

BBIFMAC's popular project Energy Efficiency Gains for Australian Irrigators has now finished but the many tools and resources developed throughout the project are available on the project website for irrigators to continue to access.

These include Fact Sheets, Case Studies from local farms and videos highlighting where savings have been made in the local area. The very popular tariff calculator is also available on the website as is the benchmarking tool.

Key findings from local farms in the Burdekin who participated in the project include:

- Removing Iron Oxide Bacteria residue from the inside of pipes and spears led to a **39% reduction in pumping costs (\$/ML)** for a grower. He now plans to regularly monitor the efficiency of his spear and pump to ensure he gets on top of the problem quickly in the future.
- Another **local grower reduced his pumping costs by 38% (\$/ML)** once he realised that using his butterfly valve to regulate his pump flow was costing him a lot of extra cash. He now uses a smaller pump when he needs a lower flow rate and a larger pump for a higher flow rate.
- A Burdekin grower discovered he could **save \$5,600 a year** on his energy bill by changing tariffs and his irrigation scheduling to take advantage of the lower 'off-peak' tariff rates.
- Another Burdekin grower found through the project that he had a collapsed underground pipe that was costing him a lot of extra cash in pumping costs. He was unaware of the problem until a pump efficiency consultant tested the total dynamic head and power consumption of his pump. He was able to make a **saving of \$2,860 per year** by repairing the pipe.
- A **54% reduction in pumping costs (\$/ha/irrigation)** was identified by a participating irrigator when a project consultant assisted him to enhance his irrigation efficiency.



The Fact Sheets and Case Study reports are available from the BBIFMAC office. A DVD from the 'technical information sessions for growers' held at the PCYC on the 9th and 10th April is also available from BBIFMAC (20 Queen Street, Ayr).

To access the resources you can follow the links to the Energy Efficiency project website from the BBIFMAC website at www.bbifmac.org.au or you can access the resources directly via

<http://eegai.nceastg.usq.edu.au/eegai/>

Anyone wishing to have their pump or irrigation efficiency assessed or a comprehensive tariff review undertaken, should contact Steve Attard from Agritech Solutions on 0418155844 or email steveagritech@bigpond.com

Staff Contacts

Contact	Title	Contact Number	Email
Office		(07) 4783 1101	reception@bps.net.au
Fax		(07) 4783 5327	
210 Old Clare Road, Ayr QLD, 4807 PO Box 237, Ayr QLD, 4807			
Rob Milla	Manager	0490 036 329	rmilla@bps.net.au
Mark Rickards	Commercial Manager	0427 834 800	mricksards@bps.net.au
Marian Davis	Extension Agronomist	0428 927 079	mdavis@bps.net.au
Tiffany Hunt	Extension Agronomist	0447 069 887	thunt@bps.net.au
Raymond Hildebrandt	Field Officer – Inkerman	0409 831 863	rhildebrandt@bps.net.au
David Paine	Field Officer – Kalamia/Pioneer	0427 167 159	dpaine@bps.net.au
Wayne Squires	Field Officer – Invicta	0427 372 124	wsquires@bps.net.au
Brendan Montafia	Trainee Agronomist	0407 167 159	bmontafia@bps.net.au
Ashley Wheeler	Field Officer	0407 960 057	awheeler@bps.net.au
Terry Granshaw	Extension Officer	0437 553 149	tgranshaw@bps.net.au