



Grower Update

ISSUE 48 – NOVEMBER 2023

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



This issue contains:

- BPS activities and staff updates
- Field trial opportunities
- Seed cane and tissue culture
- Wallaby permits
- Large moth borer
- Chemical training
- Factors affecting productivity
- BMP update
- Soil health
- Soil testing
- Staff contacts

BPS ACTIVITIES AND STAFF UPDATES

There have been some movements of staff within BPS. Firstly, we welcome Kristie Casalegno (right) to the team. Kristie has spent a number of years with the Wilmar cane supply and transport team organising logistics as well as driving locos. She is the Field Officer for the Kalamia area and can be contacted on the Kalamia Field Officer's number 0427 167 159.

John Nancarrow has resigned from BPS to pursue another opportunity outside the Burdekin region – we wish John all the best in the future. Kristine Patti will be taking on John's position and assisting growers across the region with Smartcane BMP accreditation and support, as well as soil testing and nutrient recommendations. Kristine can be contacted on John's old number 0447 069 887.



Maddy Molino has returned from maternity leave and is currently working a few days a week. Maddy is assisting Nina Laubscher with the Invicta Field Officer role. Any Invicta mill area enquiries can be made to either Nina (0427 372 124) or Maddy (0407 167 159).

All trials have now been completed for the year, and once all the data has been analysed, the results will be shared in future newsletters and shed meetings (likely Feb 2024). Field officers are busy collecting crop data now, so if you have some spare time, please contact them to arrange a time for a visit to record pest and disease damage, variety distribution and your seed cane orders for next year. There is also the opportunity for growers to have their proposed plant sources tested for RSD in December, assuming there is stalk on the cane. Contact your Field Officer to arrange an RSD test, remembering that we need at least 3 weeks lead time to conduct an RSD test, and during Jan/Feb 2024 staff will be prioritising RSD testing of all approved seed cane plots.

FIELD TRIAL OPPORTUNITIES

Often growers ask what trials BPS are conducting. Right now, we are looking for growers who would be willing to work with BPS to host a trial exploring improving soil health as well as phosphorus response. A summary of the proposed trials and preferred locations are below:

- Phosphorus response BRIA – one site is underway with 1 year's worth of data, we are looking at adding an additional BRIA site to explore the response of applied phosphorus on alkaline soils. We require a site that has pH greater than 7 and BSES and Colwell P readings below 15.
- Phosphorus response Delta – as above, searching for a Delta site for phosphorus response on alkaline soils. We require a site that has pH greater than 7 and BSES and Colwell P readings below 15.
- Variety trial BRIA – we have a Delta site planned, however it would be good to have a (ideally) March/April plant site in the BRIA comparing SRA32, SRA34, Q240 and potentially 1 or 2 other varieties.
- Biochar Delta – there is an opportunity to use council biosolids that have undergone a process called pyrolysis (burning without oxygen at high temperatures) that turns the biosolids into a product called biochar. The biochar should have soil health benefits (available carbon) as well as some nutrient value. We have one site in the BRIA but would like a Delta site to see the improvements in soil health.

Please contact Marian Davis or Rob Milla if you would like to be involved in any of these trials.

SEED CANE AND TISSUE CULTURE

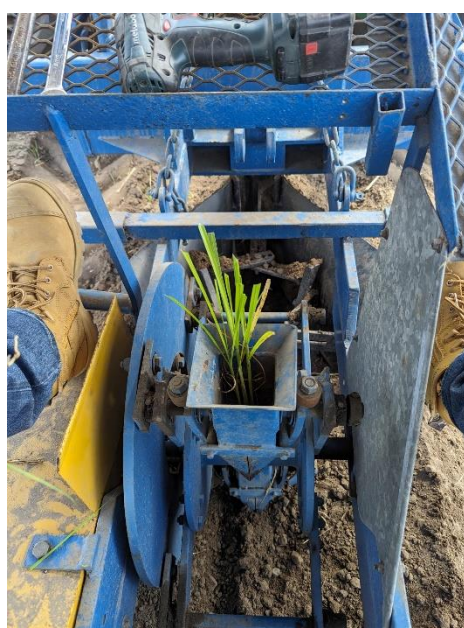
This year we have achieved a record level of approved seed cane sales, with 8278 tonnes being sold. This total is almost 1000 t more than our previous record year. This means that around 1.3% of the total cane area has been planted with approved seed cane. Thank you to all the growers, contractors, plot holders and staff who have made this possible. Planting approved seed cane and having a good seed source on your farm is critical to the prevention and control of diseases. If this volume of sales could be replicated each year, and all growers and contractors cleaned and sterilised machinery when moving blocks, RSD and other diseases would be kept to a bare minimum and productivity would certainly increase.

Every year our field staff plan the planting of plots and the distribution of varieties to best match the orders, and predicted orders, for the years to come. Every effort is made to ensure that adequate amounts of the popular varieties are available to supply all required orders. However, if there is an unprecedented demand for a variety, an allocation (percentage of area) is applied.

There is a new variety – SRA34 - that is showing a lot of promise. As a result of the encouraging data from trials, BPS decided to purchase tissue culture in this variety to ‘bulk up’ the plant material available to plant into distribution plots next year. This will increase the amount that growers can purchase in 2025, hopefully reducing the need to enact an allocation.

All approved seed cane is first treated and planted into Mother Plots, then cut and planted into Distribution Plots. It is the distribution plot cane that is available for grower purchase. Cane MUST be hot-water treated and planted into mother plots for two consecutive years before it can be planted into distribution plots. Tissue culture has the advantage that after it’s planted, it can go straight into distribution plots the following year since it is already an extremely clean source (it is produced in a lab in a sterile environment).

Our field officers have started their crop data collection. As part of this collection, growers will be asked to place a seed cane order if they are intending to collect approved seed cane from our plots. This is very important since it allows our field officers to make accurate calculations regarding the allocation of seed cane. However, there is also the option for growers to order tissue culture in any of the approved varieties. Below are the cut-off dates supplied by SRA if you wish to place an order.



SRA34 Tissue culture seedlings being planted

Stage	Deadline for autumn planting	Deadline for spring planting
Grower finalises order. Productivity Service places order with SRA	1 July	15 November
Grower/Productivity Service receives established plantlets from nursery and distributes to growers	Delivery on agreed date between grower, productivity service and nursery. Available in March	Delivery on agreed date between grower, productivity service and nursery. Available in August

Once again, approved seed cane is pivotal to controlling diseases. We have an amazing seed cane program in the Burdekin, so please continue to place your orders and collect your approved seed cane.

WALLABY PERMITS

Wallabies are a significant pest to some farms in the region and are also a native species. Therefore a permit is required to shoot wallabies if they are causing damage to your crop. These permits are not difficult to acquire, and BPS staff can assist members with completing a permit. It is very important for growers to get permits to ensure that DES (the government agency that administers permits) are aware of the extent of the issue. Rob Milla approached DES to explain the damage that wallabies are causing to many farms in the region, however the department's view was that since very few permits had been applied for the problem may have been overstated. Before BPS can further any action, individual growers need to apply for a permit. The increased number of permits will then allow BPS to have a stronger voice and impact with DES in relation to wallaby control options.

The application form can be picked up from the BPS office, or your Field Officer can drop one off to you. The form itself is also online <https://environment.des.qld.gov.au/licences-permits/plants-animals/damage-mitigation-permits#forms> and is named *Damage Mitigation Permit (take of protected animals including harvest macropod species)*. You then need to include your contact details, gun licence and the following:

- Tick "culling to prevent damage or loss"
- Farm location
- Wildlife details - agile wallaby (*Notamacropus agilis*), and number you wish to control (we have not had any applications denied, so put what you think is a reasonable number to control in your situation)
- Detail why you require a permit – for example "Wallabies continually chew and eat my sugarcane plants resulting in significant crop loss, as well the reduced crop means increased weed pressure"
- Detail the economic loss – provide an estimate of the hectares of cane damaged, and/or tonnes of cane loss and multiply this by the current cane price. You can also consider the cost of extra weed control if that is an issue.
- Detail what other non-lethal methods of control have been attempted. E.g.: scare guns, horn beeping, driving around to scare off, fertiliser bags flapping, fencing.
- Then sign and submit the form to the email or postal address supplied on the form

Please note that you are required to report every 3 months (you will be sent a reminder email) the number you have controlled. As previously mentioned, the more growers that obtain permits and report on numbers controlled, the greater the message this will send to DES that wallabies can be a real pest to crop production.

LARGE MOTH BORER

In the last few months there has been a noticeable amount of large moth borer damage in the Burdekin. Large moth borer is a species of moth that affects sugarcane when in its larval form. The caterpillar bores into the cane plant and eats the young leaves resulting in dead hearts where the central growing point of the cane is, see image 1. They prefer to live in younger cane that has soft tissue since it is easier for them to get into, compared to older cane with hard stalks.



1: Dead hearts are the most noticeable symptom of large moth borer

Another common, and very noticeable, symptom is the pungent smell of the central growing point. To test this you can gently pull out the dead or dying leaf from its central point which breaks away from the rest of the cane quite easily. What you will notice is that the bottom end is hollowed out containing wet frass (caterpillar poop) and maybe even the caterpillar itself. The tip of this stick can be quite unpleasant smelling, kind of like rotting fish, see image 2.



2: Hollowed out shoot

A fully grown caterpillar can be between 35-40 mm long with creamy colouration and slight purple tinge along its back. It has small black spots along its body and a red tan head, see image 3.



3: Close up of the caterpillar

The moth lays 500-800 eggs in early spring under the leaf sheaths of cane or grasses. In 8 days these will hatch into caterpillars. It takes 9 weeks to go from egg to moth and moths will continue laying eggs until about February.

Weeds such as wild sorghum, guinea grass, crowsfoot grass and Rhodes grass tend to attract the moths to lay, so reducing your weed presence can help lower the likelihood of moth borer moving into your cane crop.

The damage to cane by large moth borer is generally not a big concern and can be managed quite easily through good weed control in paddock and on headlands. There are also natural predators such as wasps and flies that parasitise on the caterpillar and ants that will attack them. There are chemical control options, however it can be very difficult to get good contact of these chemicals on the caterpillar since they are hidden within the plant. Encouraging other insects and managing weeds are the best ways to prevent these critters getting into your cane.

If you suspect you have moth borer damage and are concerned, please contact your field officer for assistance.

CHEMICAL TRAINING

We are currently planning on holding a chemical training course in early December. If you are applying, or supervising the application of, any products containing ametryn, atrazine, diuron, hexazinone or tebuthiuron then you must have the following competencies:

- AHCPMG301 – Control weeds
- AHCCHM304 – Transport and store chemicals
- AHCCHM307 – Prepare and apply chemicals to control pest, weeds, and diseases.

The planned course will cover all three competencies. Any growers who are interested in attending should contact Kristine Patti (0447 069 887) or Jasmine Girgenti (0438 934 601).



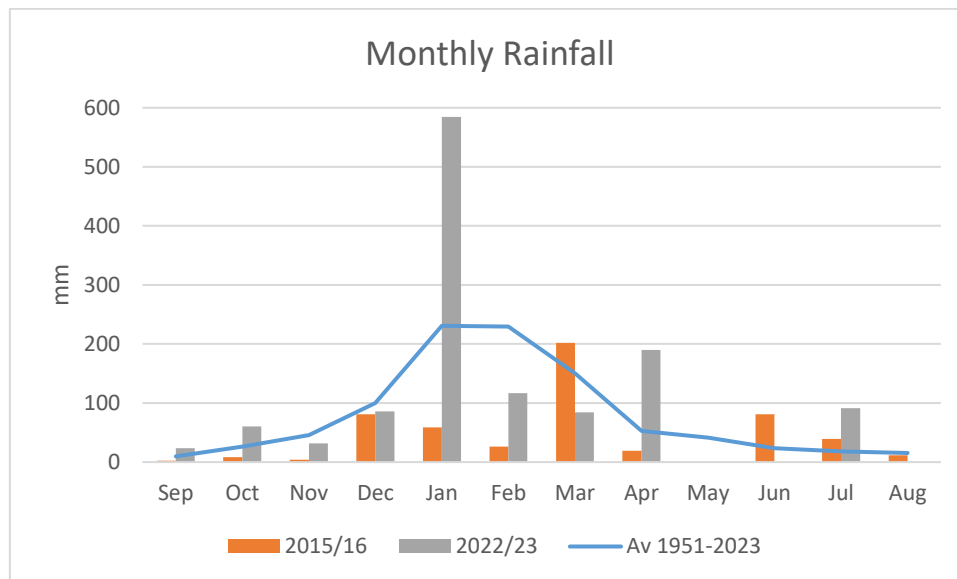
FACTORS AFFECTING PRODUCTIVITY

There has been a lot of discussion this year about cane yields with a number of growers expressing their disappointment with their yields. When we are thinking about yield it is important to remember that there are many factors that affect it. Some of these are within our control e.g. varietal choice, weed control, nutrition and irrigation. Others are outside of our control e.g. climatic conditions or season length.

Assuming that most people haven't made big changes to their management, it is likely that climatic factors have played some part in the lower than anticipated yields. To see if this is a fair assumption we have looked at the climate data for 12 months from September 2022 to August 2023 and compared those numbers to the long-term averages and to a high yielding season (2015/16). All of the climate data is for the Ayr DPI weather station and has been downloaded from the Bureau of Meteorology website.

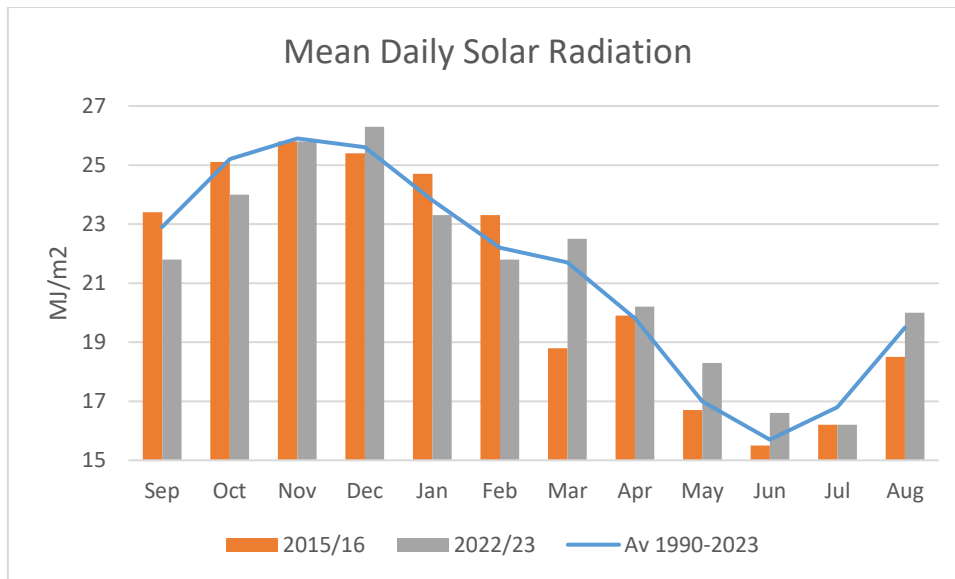
What did we find?

The first thing we looked at was rainfall. The 2015/16 season was quite dry with rainfall well below average from September to March. This compares to 2022/23 which was wetter than average in September and October and substantially wetter in January and April. In almost all months from September to February 2022/23 was wetter than 2015/16. In total the rainfall in 2022/23 (1269 mm) was more than double that of 2015/16 (534 mm) and about 30% more than the long term average (944 mm). what this means for crop growth is that it is likely that there was more cloud cover over the last season than normal. More cloud means reduced solar radiation because sunlight is reflected back to the atmosphere rather than down to the ground.



Solar radiation is a key driver of plant growth. Plants use the sunlight captured by their leaves as the energy source for photosynthesis which converts carbon dioxide and water into carbohydrates and oxygen. The carbohydrates are then used for crop growth and the oxygen is released to the atmosphere.

Solar radiation in 2015/16 was at or above the long-term average for most of the peak growth phase from September to February; the only exception was December. In contrast radiation was below average in September and October 2022 and again in January and February 2023. So for large periods of the peak growth stage the rate of crop growth would have been less than normal. Radiation for 2022/23 was above average from March onwards but this also coincides with crops maturing and storing more of the carbohydrate produced as sugar, rather than continuing to grow. The amount of radiation also drops off rapidly from March to June as the days get shorter.



Overall it is likely that at least some of the lower yields being seen can be attributed to climate factors, particularly reduced solar radiation during the main growth phase. There may also have been flow on effects that are not directly related to the climate, but may have been caused by climate factors. These could include less timely weed control because of rain, delayed irrigation following rainfall and extended dry down times, and potentially some waterlogging, especially in January.

BMP UPDATE

Michael Quirk (Canegrowers Environment and Sustainability Manager) and Kate Reardon (Smartcane BMP Project Manager) recently visited the Burdekin to meet with local BMP facilitators, Jasmine Girgenti and John Nancarrow. This was Kate's first visit since taking up the BMP role and it gave her the opportunity to understand how the uptake of BMP is going and if there are any issues or constraints to grower participation. BMP is an industry-led program that works with growers to demonstrate they are following or exceeding industry standards.

During Mick and Kate's visit we took the opportunity to catch up with Ryan Matthews, Iain Price-Wilson, and Jamie Shand from Australian Cane Farms (ACF) to congratulate them on their reaccreditation of the 3 core modules in BMP. ACF have also made progress in the remaining 5 modules that delve into sustainable pathways, business management and workplace health and safety. These modules, particularly sustainable pathways, are being further developed by the BMP team which could potentially allow access to sustainable global markets in the future.

If you are interested in learning more about Smartcane BMP, please contact Jasmine (0438 934 601) or Kristine (0447 069 887) to find out more about the program and what is involved.



(L-R) Jasmine Girgenti (BPS), Ryan Matthews, Jamie Shand, and Iain Price-Wilson (all ACF), John Nancarrow (BPS), and Kate Reardon (Smartcane BMP)

SOIL HEALTH

NQ Dry Tropics held a workshop at Heath Salter's shed in September with a focus on optimising soil health. David Hardwick from Soil Land Food was the guest speaker and talked about nutrients and the complex food web involving organisms within the soil. His interactive way of explaining the complex process was entertaining as he labelled everyone a different soil organism and handed out lollies to signify how they interact with each other to access food and resources. David's presentation lead into Terry Granshaw and Jasmine Girgenti presenting data from SRA's Burdekin Soil Health Project. This project has been running for 5 years with a focus on optimising soil health based on principles from the Sugarcane Yield Decline Joint Venture. The project was supported by both QDAF and SRA with extension provided by BPS.

For the soil health project key indicators were used to assess soil biological, chemical and physical properties to provide a holistic understanding of the key functions below ground. All sites had consistent sampling locations and were EM mapped to assess possible variability within the block.

The key findings from these sites are:

- A row spacing that matches haulouts and harvesters showed there was less compaction beneath the cane row, resulting in improved root health in older ratoons and possibly increased ratoonability.
- The benefits of a fallow crop to the soil biological community was highest during the establishment of the sugarcane plant crop but this reduced back to typical levels after 12 months, especially in regard to the soil fungal and microbial biomass.
- Shallow sub surface applied mill mud performed consistently better than the control (no mill mud).
- A permanent bed system that has been on controlled traffic for 2 crop cycles performed the best in tonnes of cane/hectare and tonnes of sugar/hectare (1 light cultivation prior to planting legume crop).

BPS plan to hold more workshops in partnership with SRA during the slack to discuss the project results and findings.



SOIL TESTING

With the end of the season fast approaching, now is the time to be planning your soil testing program. Getting your soil tests now, rather than just before planting, gives you time to apply any ameliorants (gypsum or lime) that are required and to order fertiliser. We recommend applying ameliorants before the wet season as this gives them time to dissolve and spread through the profile before planting occurs.

Soil testing is the basis for developing your nutrient management plan and is also important for diagnosing chemical issues such as sodicity or salinity that may affect productivity. It is also a good way to monitor

your soil fertility over time to ensure that you are supplying what the crop requires and not mining the natural fertility of the soil.

Ideally all blocks that will be planted next year should be tested. Where there are a number of blocks with the same soil type and management history a single sample can be taken to represent those blocks. This is a reasonable approach if they are all small blocks, but for larger blocks we recommend sampling each block separately.

For nutrient planning a shallow test (0-20 cm) is all that is required. BPS also has the ability to take deep core samples to 1 m depth. When diagnosing soil constraints a deeper sample is often more useful as salinity and sodicity often come in at depth. A deep soil sample can also identify changes in soil type with depth that may be affecting productivity. For example in this core (pictured) the top soil is a loam which has good drainage, but it changes rapidly at around 25 cm to a clay that is prone to waterlogging.

To arrange soil testing please contact any of the BPS staff.



STAFF CONTACTS

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Marian Davis	Extension Agronomist	0428 927 079	mdavis@bps.net.au
Jasmine Girgenti	Extension Agronomist	0438 934 601	jgirgenti@bps.net.au
Wayne Johnstone	Field Officer – Inkerman	0407 960 057	wjohnstone@bps.net.au
Maddy Molino	Field Officer – Invicta	0407 167 159	mmolino@bps.net.au
Jack Edwards	Field Officer - Pioneer	0439 375 411	jedwards@bps.net.au
Nina Laubscher	Field Officer – Invicta	0427 372 124	nlaubscher@bps.net.au
Kristie Casalegno	Field Officer – Kalamia	0427 167 159	kcasalegno@bps.net.au
Kristine Patti	Extension Agronomist/BMP	0447 069 887	kpatti@bps.net.au