

Productivity Starts with Clean Seed

There are many ways to address productivity, however the most cost effective and simplest way is the investment into clean seed. It's a message you have heard a thousand times before and yet the easiest solution to productivity improvements is often overlooked. Clean seed forms the foundation of your future crops, therefore it's vital you start with a healthy and vigorous plant source from a MAPS plot. All growers have the opportunity to access clean seed from MAPS plots situated throughout the Mackay Sugar district.

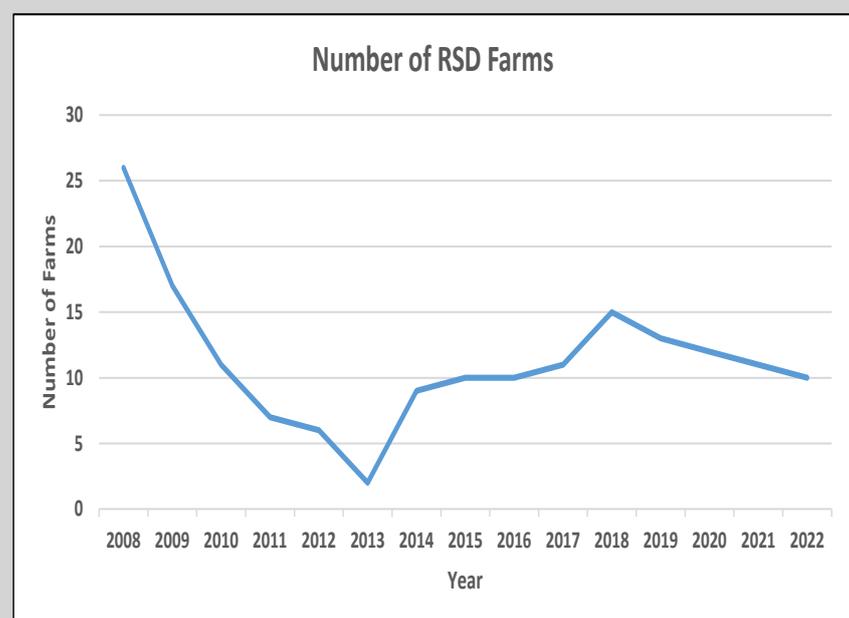
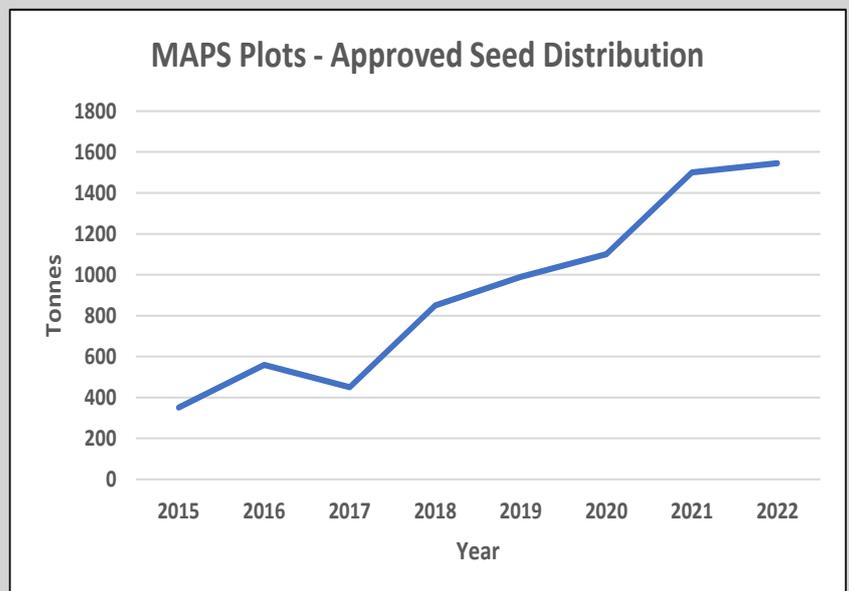
2022 has seen another increase in the uptake of clean seed cane taken from the MAPS plots, with over 1600 tonnes collected in whole stick or billet form. This is the largest uptake of clean seed the region has seen to date. A big thank you goes to Henry Barfield, John Simpson, Russell & Lachlan McLennan for the great work they did in cutting the plants for growers. It's encouraging to see growers utilising these plots to improve their clean seed program and establishing the best foundation of future productive crops.

Planting is one of the most expensive farming operations when growing cane and has a large impact on the long-term productivity of a block. MAPS recommend that a clean seed source of a variety should be collected from an approved clean seed plot every three years. Now with the additional approved plots, growers can collect clean seed in billets on a yearly basis. Using approved seed cane is the best way to minimise major diseases such as chlorotic streak, leaf scald and ratoon stunting disease. Good-quality seed cane is critical to successful crop establishment.

Mackay has one of the lowest RSD levels in the State's sugar industry with less than 1% of the farms recording RSD. This is an excellent result, considering a number of our northern neighbours have RSD levels up to 30-50% of farms infected. The low levels in our district is not due to luck, but the result of the hard work growers do maintaining their clean seed program and installing a regular sterilisation and hygiene program with the planting and harvester equipment. The important role of plant inspections carried out by MAPS ensures growers start with the best possible plant source available to deliver a productive and profitable crop.

For the 2023 planting season, clean seed can be sourced from five MAPS approved plots throughout the Mackay Sugar region, located at Victoria Plains, Calen, Bakers Creek, Benholme and Marian-Hampden.

For further details of the plots please contact your MAPS Productivity Officer.

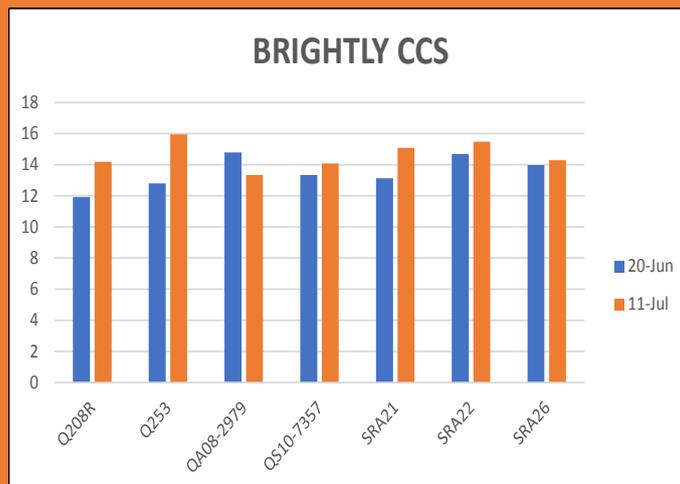
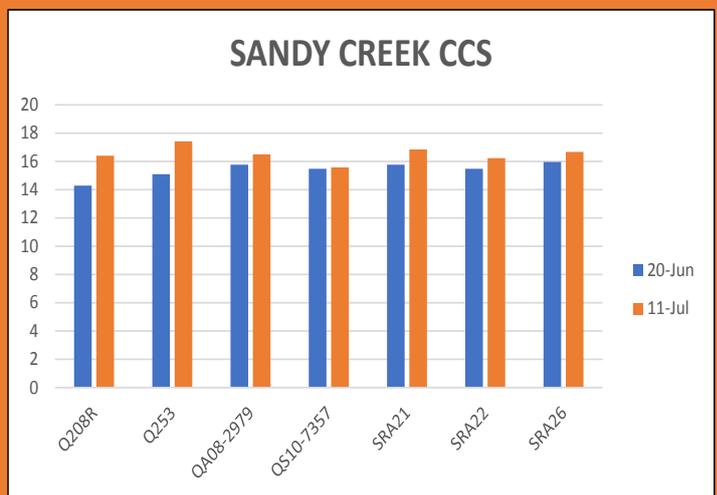
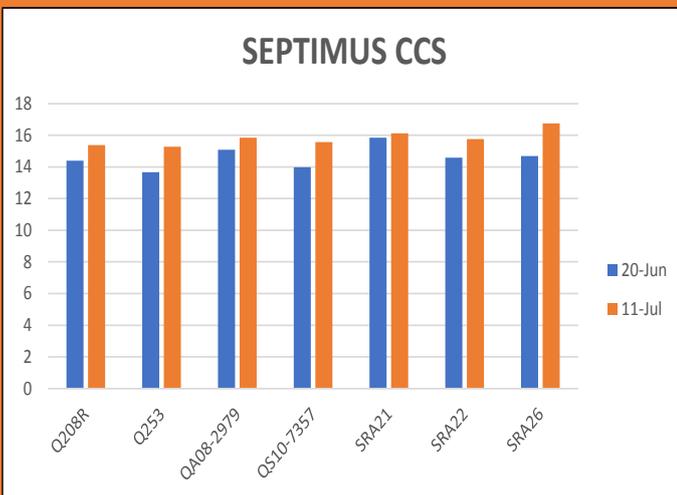
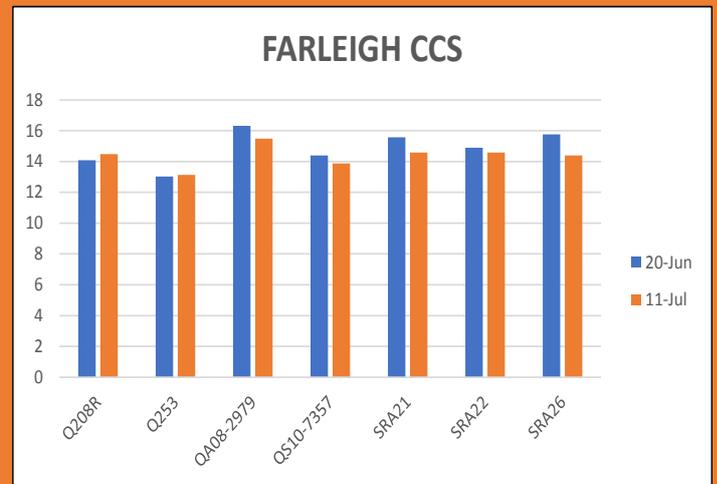
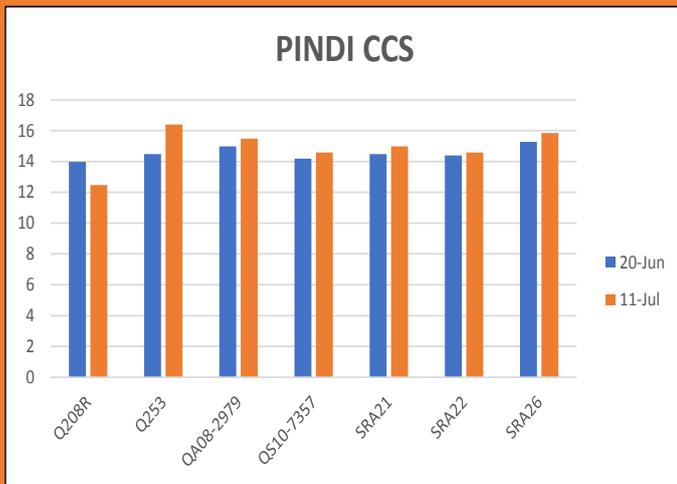


MAPS Observation Plots Maturity Testing Results

In 2019 MAPS introduced early maturity testing on the observation plots planted throughout the Mackay Sugar region. Grower feedback from shed meetings and the field day highlighted the need for an early testing variety that is also pachymetra resistant to start the crush with. Currently earlier maturing varieties such as KQ228 and Q240 are not pachymetra resistant. They are now more than 10 years old and we need to find productive varieties that can eventually replace them.

The purpose of the maturity testing of these five plots is to help measure a pre-released variety against current commercial varieties. SRA conducted the testing at the plots using their maturity trailer, which provides valuable data and information to growers as to which variety is more likely to have a higher sugar content on the different soil types of the plots.

Last year two new seedlings were introduced into the plots – QA08-2979 & QS10-7357, with QA08-2979 consistently recording a higher CCS during the first round of sampling (20 June). SRA26 will be available from MAPS in 2023 and has also shown some promise as a variety that potentially can be harvested earlier.



Managing The End of Crush

This crushing season is estimated to finish mid-January, however Mackay Sugar has committed to crushing the full crop if it's able to be delivered to the factories. To prepare for the potential of harvesting late this season with the risk of wet weather, consider which paddocks are accessible and able to be harvested following wet weather. Harvesting of the full crop should remain the priority over standover. To assist in preparations for potential standover, consider the following factors:

Crop condition

- Select an erect, healthy crop that has the potential to grow on to produce more cane in the following year. Generally any blocks that were harvested late last year and ratooned are suitable.
- An erect crop without pest damage will also have a better chance of producing a better-quality standover crop than a heavily lodged crop.
- Heavily lodged crops generally tend to deteriorate over the wet season, resulting in reduced tonnage and poor cane quality the following year.
- If possible, avoid standing over plant cane. However, for plant cane blocks you may also have to consider the impact of harvester damage on ratooning especially if the block is very wet at harvest time.

Variety selection

- A variety that has not arrowed heavily is generally more suited for standover. Some heavily arrowing varieties tend to lose mature stalk populations, and the harvestable crop the following season will have predominantly arisen from sucker growth. Fortunately, we have not had a year where the crop has heavily arrowed, which may work in our favour with standover.
- Varieties prone to snapping, such as SP80 are at higher risk of wind damage in the event of a storm or cyclone.
- It is unknown how the newer varieties such as Q253, SRA9, SRA12 SRA13, SRA21 and SRA22 will perform as standover crops. However if the crop is heavily lodged it needs to be targeted for harvest this crush.
- Q208 and Q183 were the better performing varieties from the 2016/17 standover crop, with Q138, Q242 and KQ228 suffering yield losses due to crop deterioration. While Q240 didn't suffer from crop deterioration, the variety recorded very low CCS levels due to the heavy suckering.

Pests and diseases

- Try to avoid blocks with moderate to severe canegrub, pig or rat damage as cane quality will deteriorate over the wet season and pest numbers may explode.



Block conditions

- If possible, avoid blocks adjacent to bad rat harbourage areas.
- Consider in-crop baiting with registered products.
- Remember you must record your baiting program on the MAPS website or contact your MAPS adviser with your details.
- Poorly drained blocks are generally inferior for standover. Very wet and waterlogged conditions cause deterioration of the old stalks and restrict sucker growth.
- Vine control is important to prevent crop degradation.

Fallow Management

- Maintaining a fallow program is difficult when dealing with the prospect of standover, however a fallow program is vital for your crop/variety rotation, break crop establishment and addressing soil health to improve productivity.
- With every grower's situation different, please discuss your options with your MAPS officer.

Forward Pricing

- Consider how much of the crop you have forward priced in comparison to what you have already harvested.
- Your representative at QSL and/or QCS will be able to assist you in understanding your forward pricing commitments for this season and next.

Rat Baiting MUST be recorded

With the amount of rat damage increasing throughout the region, rat baiting is vital to reducing the impact of the pest and limit the yield losses. If you have already baited for rats or plan to bait, please let your Productivity Officer know the details straight away! If you are going to bait, you can record your baiting on the MAPS website by following the links.

MAPS must have this information, so we can report to government every three months in line with our Permit. MAPS has secured a Damage Mitigation Permit from the Department of Environment and Science till November 2024.

Only use Ratoff, ZP Rat or Racumen for baiting of rats on farm.

Failure to report your baiting and the use of non-registered baits will spell the end of our Mackay Sugar wide Permit. It will then be up to each and every Mackay grower to deal with government when they want to bait for rats.

Good in-crop weed/grass control and keeping non-crop grass/weed patches around the farm mowed or grazed will reduce rat breeding and rat damage. Standover is the perfect harbourage for rats, so baiting now will help to limit further crop losses.



Soldier Fly Damage

Increasing new soldier fly infestations have been recorded by MAPS staff throughout all of the Mackay Sugar region. Growers are urged to keep a look out for weak patches and to determine if soldier fly larvae are present. Soldier fly damage can often be confused for grub damage and therefore can be mistreated and missed. When soldier fly larvae are the cause, infected stools die or ratoon poorly, leaving bare patches that ultimately requiring replanting to maintain production. There is no chemical treatment for soldier fly and it can only be treated by the recommended best practice management.

Recommendations for soldier fly management are:

1. Harvest plough out blocks early in the harvest season. This will lengthen the period that the young larvae are starved during the fallow.
2. Have a long fallow (grass & volunteer free) or a legume fallow.
3. Plant after the flight period (see life cycle - Figure 1).
4. Grow varieties with strong ratoonability and vigorous root systems. Both Q240 & SP80 have displayed better tolerance to soldier fly damage.
5. Harvest areas prone to soldier fly when conditions are most favourable for ratooning.

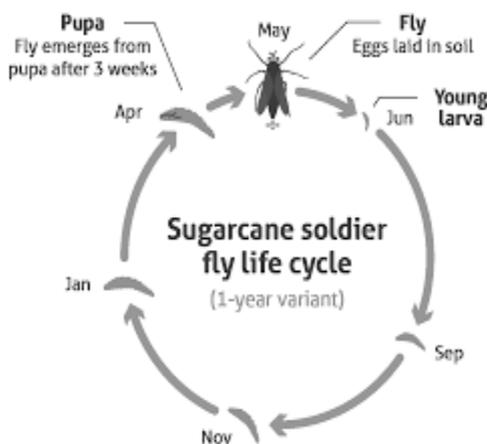


Figure 1 - Soldier Fly cycle

Cultivating the fallow paddock during autumn and light working soon after the flight period have proved to be successful, as pupae, eggs & young larvae are exposed to direct sunlight. In areas where soldierfly are widespread and reinfestation of young ratoons is the biggest problem, the management practices mentioned may not cure the problem, but are the best options available. Measures to control new outbreaks could prevent them from becoming widespread and building into a major problem. SRA is conducting a review of soldier fly research to determine what has been done, what potential management options are available and recommend priorities for future R&D. To assist with the search for a solution, MAPS will continue monitoring the pest and record the damage and occurrence in Agtrix Farming to demonstrate the risk of the pest to our industry.

N&P Budget Planning being built into Agtrix GIS recording software for growers

At Mackay Area Productivity Services our core focus is farm productivity and sustainability. We view N&P Budget Plans not just as a legislative requirement to farm sugarcane but as an opportunity to improve nutrient recommendations for your specific soils, varieties and crop conditions. In this way we can maximise crop yield and improve cost efficiency.

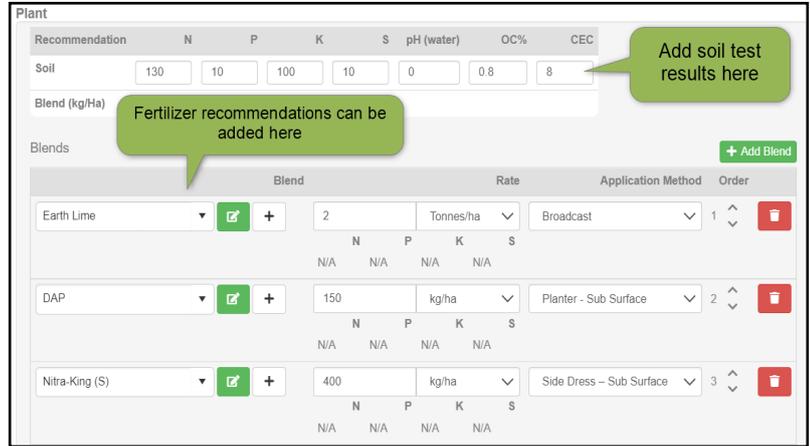
With this goal in mind MAPS have been working with the Agtrix team on a project through the Great Barrier Reef Foundation (GBRF) to build upon our current GIS recording system to include some smart functionality that does a lot of the heavy lifting for you when it comes to farm record keeping and nutrient budgeting for your farm. This ultimately means less time writing notes and more time out in the paddock farming.

Development of the N&P Budgeting software is currently underway and scheduled for completion in late December 2022 and will be free to all growers in the Mackay Region to use in early 2023. Coinciding with its release MAPS staff are planning to host group training and demo sessions with growers that show interest in using it. MAPS officers use the program to record pest, disease and plant inspections and are also there to help you along the way.

The Agtrix N&P Budget Plan will do a few things better than a spreadsheet to make the job of building an N&P farm budget quicker and easier:

- ✓ The software already has your farm paddock and crop shape files built into it (so no need to manually enter each block and area that you fertilize).
- ✓ Your farm maps are updated in Agtrix each year with new fallow and plant cane blocks by your MAPS officers.
- ✓ Soil test results can be uploaded and stored to paddocks which will auto generate the Soil N&P budget for you.
- ✓ Paddocks will be automatically assigned with the dominant soil type from the DRM Mackay Soils layer.
- ✓ Soil test results that are loaded to one soil type can be copied automatically to all paddocks of the same soil type.
- ✓ Tailored fertilizer recommendations can be made to each paddock to match the soil test requirements using a drop down list that has every fertilizer product available. Custom blends can be added.
- ✓ Once recommendations are made, the program will display the total required amount of each fertilizer product in tonnes that you would need to order for the season.
- ✓ These fertilizer recommendations can then be turned into actual fertilizer records by simply giving them an application date.

If you are a grower in the Mackay Region looking to try the Agtrix Recording Software, please contact Shane Hare at Mackay Area Productivity Services on 0417 326 668.



Crop Type: Sugar Season: 2022 (QLD)

The running farm total of soil, recommended and actual applied NPKS will be displayed here in kg

	N	P	K	S	HA
Soil Test Budget	8837	2145	6690	773	59.93
Recommended	5412	617	3042	633	38.7
Actual Applied	6199	698	3489	725	44.3
Budget Status	-2637	-1447	-3200	-47	59.93

Soil Tests and fertilizer recommendations are added to each paddock

Apply all as Actual

Paddock-Crop	Ha	Class	Variety	Soil	N	P	Last	Status
3-2 - 4	5.91	Plant	Q253	Podzolic	160	30	2022	Actual
3-3 - 1	4.21	2nd Ratoon	Q208	Solodic	160	30	2022	Actual
3-3 - 2	4.19	2nd Ratoon	Q183	Solodic	160	30	2022	Actual
3-3 - 3	4.22	2nd Ratoon	SP80	Solodic	160	30	2022	Actual
3-4 - 2	3.05	2nd Ratoon	SP80	Grey Clay	130	50	2022	Soil Test

New Soil Moisture Monitors demonstrated

MAPS have recently engaged with AgriFutures Australia in a project to assist growers in making irrigation decisions using new technology. The "Producer Technology Uptake Program" has enabled MAPS to demonstrate a simple, low cost (\$250), device that monitors soil moisture at three different crop depths, as well as a temperature sensor. This "Chameleon Water Sensor" array is connected to a Wi-Fi reader which can be visually read or uploaded to a web site via your mobile phone.

MAPS approached Ray Abela at Eton to demonstrate some of these devices in a mung bean crop he planted in late July 2022. Four moisture arrays were installed in August 2022 and remained there until the crop was harvested in November 2022. The sensors were placed at 20 cm, 40 cm and 60 cm; for comparison, two arrays were placed in adjacent fallow areas.

Ray found the moisture data invaluable during this crop's short growing period and irrigated twice when the sensors indicated the soil was drying out. The timing of the irrigation was especially important in order to maximise his yield. Ray will soon be planting a soybean grain crop in the same paddock and the sensors will be reinstalled to help him with his irrigation decisions.



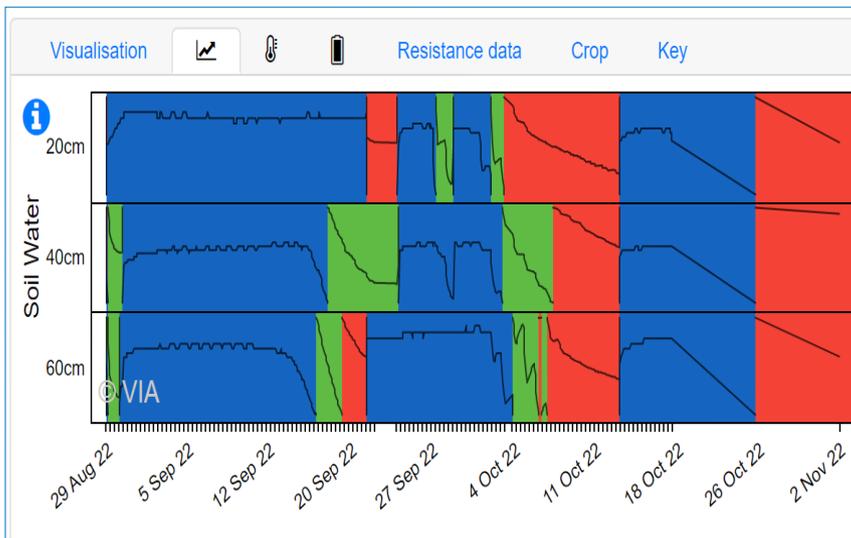
Sensor array with Wi-Fi reader



Sensors installed in newly planted mung beans

MAPS believes these devices could be very useful for dry land growers who are reluctant to grow break crops during the fallow period for fear of not having enough moisture to plant their following cane crop. The technology will enable them to manage their soil moisture levels and spray out the crop in good time, thereby conserving their moisture as well as getting the benefit of a legume crop.

Please contact your MAPS officer if you want more information or would like to visit a demonstration site.



Mung bean moisture sensor graph



Wi-Fi reader indicating moisture levels

Assessing farm practices to improve productivity and water quality in the 2022/2023 growing season

Sugar Research Australia Project Officers in the Cane to Creek Mackay Whitsunday Project have set up two trial sites for the 2022/2023 growing season, with a third trial site to be installed later this year. The project aims to build the knowledge of farming practices and their effects on the quality of water leaving the paddock and on farm productivity.

Flumes, flow meters and automatic samples have been installed in the trial paddocks. After every run-off event, water samples are collected to assess nutrient, herbicide and imidacloprid concentrations. These samples are filtered, refrigerated or frozen before sending to SRA's Indooroopilly laboratory for analysis. Flow meters record the run-off volumes and are used to calculate nutrient, pesticide and herbicide loads leaving the paddock. Productivity data is also collected from all trials at harvest and used to compare practices.

Trial #1: Banded Mill Mud

Building off results from the 2021/2022 growing season trial, the effect mill mud has on chemicals in the field will be more closely looked into. As previously reported (e.g., *The Billet*, June 2022) banded mill mud strips produced higher nutrient and herbicide losses than where no soil conditioner had been applied. In the 2021/2022 trials residual herbicides were applied after the banded mill mud was in place. Data from small scale trials previously conducted by SRA indicated that herbicide loss via run-off was minimised where the herbicides were applied before (under) the banded mill mud. This finding is being considered at a paddock scale in the mill mud trial in the 2022/2023 growing season.

Trial #2 – Enhanced Efficiency Fertiliser

The second trial site was set up to gather more data on the impact of Enhanced Efficiency Fertiliser (EEF) on productivity and water quality. Strips were set up with Urea at the SIX EASY STEPS® (6ES) recommended rate, EEF at the 6ES recommended rate, and EEF at 80% of the 6ES recommended Urea rate (as per one of the findings of the EEF60 project). Also in this trial, difference in run-off between liquid imidacloprid applied with a stool splitter to that applied with a side dresser will be measured.

Trial #3 – Imidacloprid at hill-up

The final trial site for the 2022/2023 growing season will compare liquid and granular Imidacloprid when applied at hill-up on plant cane as per label. To date there is limited run-off data available for comparison of granular v liquid imidacloprid applied at fill-in in plant cane.

The Cane to Creek Mackay Whitsunday project is funded by the partnership between the Australian Government's Reef Trust and the Great Barrier Reef Foundation with support from Sugar Research Australia, Mackay Area Productivity Services and Plane Creek Productivity Services.



The EEF60 project is a collaborative partnership between sugarcane growers, CANEGROWERS, Sugar Research Australia, regional productivity services and agricultural economists from the Department of Agriculture and Fisheries.



Great Barrier
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Major Grants Incentives Available For Growers

NOVEMBER 2022

Reef Catchments, as the delivery provider of the Major Grants Project, have available Major Grants Incentives that support growers within the Plane Creek, Pioneer, Proserpine and O'Connell catchments to adopt practice change that will benefit both grower farming operations and provide water quality outcomes.

Access to the major grant funds is available for growers engaged with Mackay Whitsunday Water Quality Program (MWWQP) delivery providers, and also those who are not yet engaged in the program but are Best Management Practice (BMP) accredited.

Funded equipment

The following equipment is commonly purchased under water quality grant schemes:

- Sub surface nutrient applicators
- Legume planters
- Equipment for improved placement of grub control
- Variable rate and boom section controllers
- Stool splitter

Other types of equipment may still be eligible, and growers are encouraged to contact Reef Catchments to discuss their options.

Eligibility

Applicants applying for funding are required to meet the following criteria:

- The grower project must be within the Plane Creek, Pioneer, Proserpine or O'Connell catchments.
- The applicant must be an accredited BMP grower or engaged with a Delivery Provider under the MWWQP project.
- The growers project must demonstrate a water quality improvement outcome at end of catchment in Dissolved Inorganic Nitrogen (DIN) loads and/or pesticide risk toxicity, calculated by the delivery provider or productivity service provider.
- Grant applications must include a minimum in-kind 50% cash co-contribution.
- Grower project activities must be completed within 12 months or the program completion date (whichever comes first).
- Must be a legal entity with an ABN.

Background

The Mackay Whitsunday Water Quality Program is funded by the partnership between the Australian Government's Reef Trust and the Great Barrier Reef Foundation. With two years remaining on this project, the Program is on track to achieve an enduring reduction in pesticides risk toxicity and DIN loads from the Plane and Pioneer River catchment.

Project contact: Reef Catchments reception 4968 4200
Email - grants@reefcatchments.com

Mackay Whitsunday Water Quality Program

The Mackay Whitsunday project is funded by the partnership between the Australian Government's Reef Trust and the Great Barrier Reef Foundation (GBRF). The MAPS project works one-on-one with growers developing property specific Nutrient Management Plans/N&P Budgets and implementing Agtrix Farming program to manage the nutrient applications on-farm with a real focus on improving the regional water quality.

Lindsay Neilsen used the grower grant available as part of his participation in the Reef project to purchase a PTO pump to apply liquid fertilisers to his sugarcane. Mounted on the back of the tractor the pump applies liquid fertiliser in his plant and ratoon blocks. The benefit of applying liquids over granular fertilisers is that liquids provide readily available nutrients to the plants compared to the granules so that better growth response can be achieved. It is also easier to distribute a liquid evenly and uniformly and expect less nitrogen loss as compared to the solids. With the increased price of fertilisers this year, Lindsay will be able to save some money on fertiliser application as the liquids are comparatively cheaper than the granular fertilisers.

The project is continuing in 2023. Growers who get involved are eligible for:

- A \$2000 grant towards upgrading nutrient application equipment and/or soil testing
- Tailored advice and recommendations on your fertilizer program
- Help with N&P Budgeting
- Access to the major grant project

To find out more, talk to your local Productivity Officer or contact:

Dev Chalise

0417 326 667

dchalise@maps.org.au



Great Barrier
Reef Foundation

As the year draws to a close, on behalf of staff and the Board, MAPS wishes you a Merry Christmas and a safe and happy New Year.

Our office will be closed from 4pm Friday, 23th December and will re-open Tuesday 3rd January.