



mackay area productivity services



ANNUAL REPORT AND FINANCIAL STATEMENT

**FOR THE PERIOD
1 APRIL 2021 TO 31 MARCH 2022**

MISSION STATEMENT

Maximise sustainable and profitable production of sugar cane in the Mackay Sugar area through the delivery of effective agronomic, economic and environmental advice, extension and tools to growers

Objectives

- 1. Minimise crop loss through advice and assistance about the prevention, control and eradication of pest and disease infestations of cane**
 - 1.1 Provision of high-quality pest and disease advisory service
 - 1.2 Provision of programs to monitor and control pest and diseases
 - 1.3 Provision of improved access to pest and disease information via the regional industry computer database
 - 1.4 Education of growers regarding pests and diseases
 - 1.5 Maintaining crop hygiene and quarantine standards
- 2. Maximise the sustainable value of cane production in Mackay Sugar district**
 - 2.1 Provide advice and assistance on maximising the value of cane production and harvesting
 - 2.2 Increase the uptake of approved seed
 - 2.3 Distribute new varieties
 - 2.4 Promote practices which enhance the long-term capacity of land and water resources to sustain viable sugar production, while minimising off-site impacts.
- 3. Managing human resources**
 - 3.1 Ensure that the human resources match current and foreseeable objectives
 - 3.2 Improve safety and productivity within work environment
- 4. Strengthen collaboration with research, development and extension providers working within the industry**
- 5. Ensure compliance with all legislation impacting on the Board's operations**
- 6. General**
 - 6.1 Maintain support of industry stakeholders
 - 6.2 Enhance performance in communicating with industry stakeholders through provision of effective, timely and efficient exchange.

Chairman's Report

Once again another season has finished with another difficult year for growers. What started out as an optimistic year fell into a bit of a lull with the difficulties of getting the crop off due to milling performance, in saying that the weather held for most growers to remove most of the crop. On the upside the price of sugar hit \$600/ tonne which helped top up the income of growers. Looking forward to this year we have a very good crop in the ground, due to some favorable weather condition and another good price forecast. Let's hope we have a better run with milling performance to take advantage of current price and crop. I am aware of difficulties of the year ahead with rising fuel and chemicals cost as well as fertilizer due to factors outside of our control.

Since this time last year, we like everyone else have had some staff change over. Firstly, I would like to congratulate Andy Humphreys on his retirement. For those who do not know Andy he has been here at MAPS for 10 years and filled various roles as well as being Company Secretary. Sad to see him go but I believe it is to be closer to family, good luck Andy. Replacing Andy as company secretary will be David Said who many of you already know, welcome David. On the ground Devraj Chalise will cover Andy's role. Dev comes to MAPS as an Agronomist with a PhD in Soil Science and be responsible for the GBRF water quality project. Also, Britney Adair (Gibbs) has moved on and we wish her well, she will be missed.

Once again we continue to be involved in major projects, such as

- Implementation of MAPS 5-year strategic plan
- Smartcane BMP with up to 35% of Mackay sugar area accredited
- Clean seed uptake – largest on record
- Development of N&P budgets
- GBRF Water Quality Project
- Sandy Creek Water Quality Project
- Agtrix Farming – Grower uptake, phone app and training workshops
- MAPS Observation Plots – Collaboration with SRA for early maturity testing and data collection.

We continue to concentrate on our core job of pest and disease. Staff have been out checking our new Billet plots, so they are ready to go for this season hopefully making it easier for growers to collect more clean seed and help to improve their productivity. Checking of seed source is of great importance as it helps to keep RSD under control allowing this district to have one of the lowest levels in the state.

Finally, I would like to thank the Board for their support and involvement for the year. We say goodbye to Marcus Reiners as he is to return to Germany, and Paul Manning from Mackay Sugar, also Ross Williams and Steven Fordyce have decided not to run again at this year's election, so there will be some new blood to take the business forward. Despite some of the clouds on the horizon there is a good price and crop out there so let us approach this season with some renewed optimism for the future and viability of this industry in this region.

Regards



Frank Perna

Chief Executive Officer's (CEO) Report

WORKPLACE HEALTH AND SAFETY (WH&S)

MAPS proactively maintains a strong WH&S environment. Some of the important measures taken include:

- Safety issues are the first agenda item at staff monthly meetings.
- The fire extinguishers, all electrical equipment and slings/chains were tested and tagged.
- Prior to hot water treating, the chains on one of the crates were identified as being unsafe and were replaced. Several slings were also deemed to be unsafe for use and were substituted with new ones.
- All staff attended the annual First Aid course.
- All staff attended the Mental Health First Aid workshop.
- Before the start of planting the MAPS farm and plots, all field staff participated in a job start safety meeting to identify risks and their mitigation.
- Snake awareness and hygiene for the handling of rat-damaged cane were discussed with staff.
- Staff First Aid kit supplies are regularly updated before expiry dates.
- The CEO attended SRA's Fire and Emergency Management training.
- Washouts at MAPS' Victoria Plains farm were repaired.
- Strict COVID-19 protocols were implemented to combat the risk of infection amongst staff and growers. Social distancing, increased hygiene practices (washing hands), reducing face to face meetings and working from home are some of the practices staff have followed.

WH&S reports over the year shows that a safe work ethic is foremost in the minds of MAPS' staff. Reportable incidents were mostly restricted to minor cuts, stings and bruises received while executing normal field duties. Near misses were dominated by encounters with snakes. Staff are equipped with appropriate knowledge, safety equipment (including snake-bite kits) and communication devices.

An external MAPS' farm safety audit was conducted on the 15th of March 2021. No serious issues were detected; however some minor recommendations were made and implemented.

SEASON

The 2021 crushing season started on the 3rd June and finished on the 29th December with 5.33 M tonnes crushed with an average CCS of 13.7. The average yield was 83.4t/ha which is 5t/ha more than in 2020, with an overall CCS of 13.7% compared to 14.1% in 2020. Favourable weather conditions between December to March have been very beneficial for the 2022 crop and the crop is estimated to pass the 5M tonnes again.

GROWERS SERVICES

MAPS Productivity Officers perform a vital role in assisting growers to improve crop health, productivity and profitability as well as meeting record keeping and industry BMP requirements.

A list of Productivity Officer's major functions is as follows:

- One-on-one advice and extension with their growers.
- Propagation of approved SRA cane varieties.
- Plant source inspections (intensive RSD testing).
- Observation plot establishment/monitoring (advanced clones).
- On farm variety recommendation, selection and management.
- Calibration of fertiliser and chemical applicators.
- Soil test interpretation and nutrient recommendations.
- Chemical advice and recommendations.
- Machinery inspection (biosecurity).
- Surveys (pest, disease, farming practice).
- Data collection/entry for Agtrix Farming record keeping.
- Assisting growers with self-assessment for Smartcane BMP & supporting practice change.
- Organising and running of farm walks, shed meetings and field days.

Apart from these general duties, each Productivity Officer has a particular project to manage. A list of field staff, their geographic area and their special projects are as follows:

- **Andrew Dougan**, Senior Productivity Officer (110 Racecourse farms) & MAPS Farm Manager.
- **Ian Marais**, Productivity Officer (200 Upper Valley farms) & Soldier Fly Project.
- **Shane Hare**, Productivity Officer (180 Marian farms) & Agtrix Support.
- **Steve Garrad**, Productivity Officer (190 mainly Southern Farleigh farms). March 2022- BMP Officer.
- **Britney Gibbs**, Productivity Officer (201 mainly Racecourse farms) & Feral Pig Project. (Resigned January 2022)
- **Maryanne Volker**, Productivity Officer (205 mainly Pleystowe farms) & Sandy Creek Project.
- **Brendan Rae**, Productivity Officer. (215 North Coast farms)
- **Indiana Zarb**, Smartcane BMP Support Officer till March 2022, then moved into Productivity Officer role to replace Britney Gibbs.

- **Dave McCallum**, Senior Extension Agronomist/Grower Specialist, worked on a range of activities including: general extension, advisory work, projects/trials, industry liaison, trouble shooting and core MAPS business.
- **Andy Humphreys**, Reef Program Precision Planning Consultant (PPC) in the MAPS GBRF Water Quality Project. Andy provides one-on-one extension to growers developing nutrient and chemical management plans. The focus has been on nutrient and pesticide management with the offer of considerable agronomic extension assistance. Andy Humphreys has the added responsibility of MAPS Company Secretary.
- **Eric Kok**, Productivity Officer (160 farms – Racecourse & Marian)
- **Erin Headon**, QFF graduate – Trainee extension Officer.
- **Devraj Chalise**, Precision Planning Consultant- GBRF Water Quality Project. (Commenced February 2022)
- **Vicki Royal** works part-time as MAPS Corporate Services Officer. Vicki is the main point of contact for the company and ensures all the daily requests are sorted out effectively.

GROUP EXTENSION ACTIVITIES

MAPS prides itself on being able to offer all Mackay farmers the only one-on-one service, however we also run several other larger group extension activities including:

- **MAPS/SRA Field Day** - held on 7th May 2021. Approximately 180 growers attended to view displays and demonstrations including:
 - New SRA varieties and promising seedlings
 - Soil Pit
 - DAFF Nozzle Demonstration
 - Drone spraying contractor and demonstration
 - MAPS legume planter demonstration
 - Smartcane BMP and MAPS GBRF water quality projects
 - Mackay Sugar
- **Shed Meetings** - Excellent feedback has been received from growers who attended this years shed meetings after a year absence due to the initial Covid-19 outbreak. These more personalized meetings offer a platform for our growers, MAPS officers, Mackay Sugar staff and SRA researchers to discuss new information and any concerns before we enter the 2022 crushing season. These discussion items were largely specific to geographical areas such as pest damage, variety performance and disease observations but also included issues that face the wider Mackay Sugar District and industry, BMP accreditation, Reef Regulations (N&P Budgets), record keeping and loss of good cane growing land were also commonly discussed items across all shed meetings.
- **MAPS Newsletter** - This topical/awareness style document is posted or emailed to all growers with three editions circulated each year (July, December & March).

- **CANEGROWERS Mackay Newsletter (*The Billet*)** - MAPS supplies district relevant content on a regular basis to the publication.
- **Media** engagement occurs regularly and mostly it is used for awareness of important issues for the local industry via newsletters and newspapers.
- **MAPS website** – The updated website has proven to be popular with growers and other industry personnel. Traffic on the site has increased significantly since the Agtrix Farming tutorial clips and the MAPS legume planter demonstrates were added to the site. Information on the site includes:
 - Clean Seed Plots
 - Variety Information
 - Pest, Disease & Weeds
 - Nutrient & Chemical information
 - Agtrix Farming – tutorial clips
 - Fallow management – Breakcrops – legume planter clips
 - Smartcane BMP
 - Newsletters
 - Weather Stations



Figure 1: Harvester loss trial



Figure 2: MAPS Billet plot planting

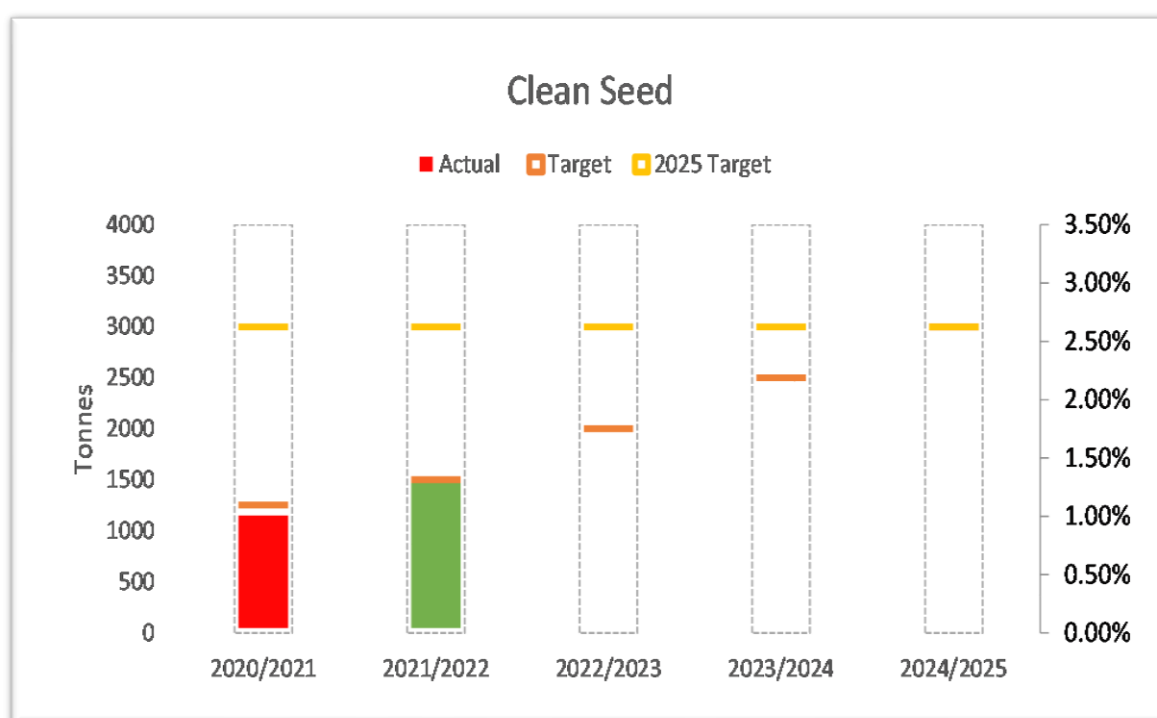


Figure 3: MAPS/SRA Field Day

MAPS 5-Year Strategic Plan

MAY 2020 MAPS implemented a 5 year strategic plan with the aim of increasing the focus on improving farm productivity. While core activities such as Clean Seed, Pest and Disease and Grower Extension are vital to productivity, other activities such as BMP, Agtrix Farming and Fallow Management were identified as opportunities to improve sustainability, productivity and profitability for Mackay Sugar growers.

Clean Seed



*2019 clean seed uptake – 0.9% (900t)

MAPS have a real focus on improving the uptake of clean seed from the approved plots. To facilitate greater use of approved seed, MAPS established an additional two billet distribution plots in the Mackay Sugar region located at Mount Pelion and Benholme. Each plot is approximately 2 hectares that consist of two varieties that are available to growers on selected dates throughout the year. Five approved billet plots will be operation throughout the Mackay Sugar region for the start of the 2023 planting season. These plots provide an opportunity for growers to conveniently collect a larger source of clean plants without the physical hassle and demands of hand cutting.

To ensure all plots are disease free, MAPS follows strict disease inspection protocols by walking and inspecting every row of all the approved plots. Ratoon Stunting Disease (RSD) sampling is conducted, which involves a juice sample taken every 20 metres of every row

and analysed at the Brisbane SRA Laboratory. Once the results have been received and no RSD is detected, the plots are free to be opened.

A total of 1500 tonnes of clean seed was distributed from the MAPS approved plots, which again is a notable increase from 2020 as seen in Figure 4.

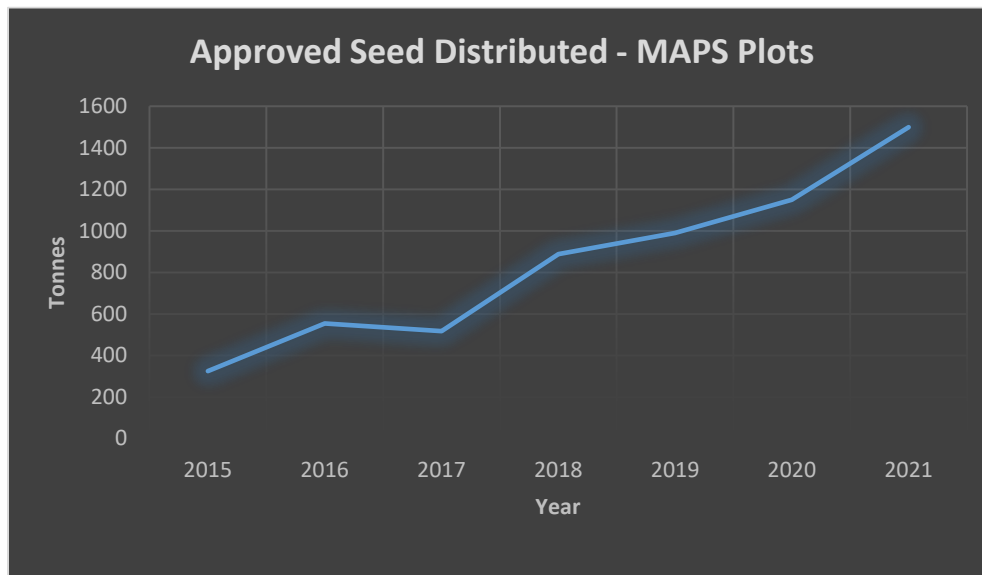
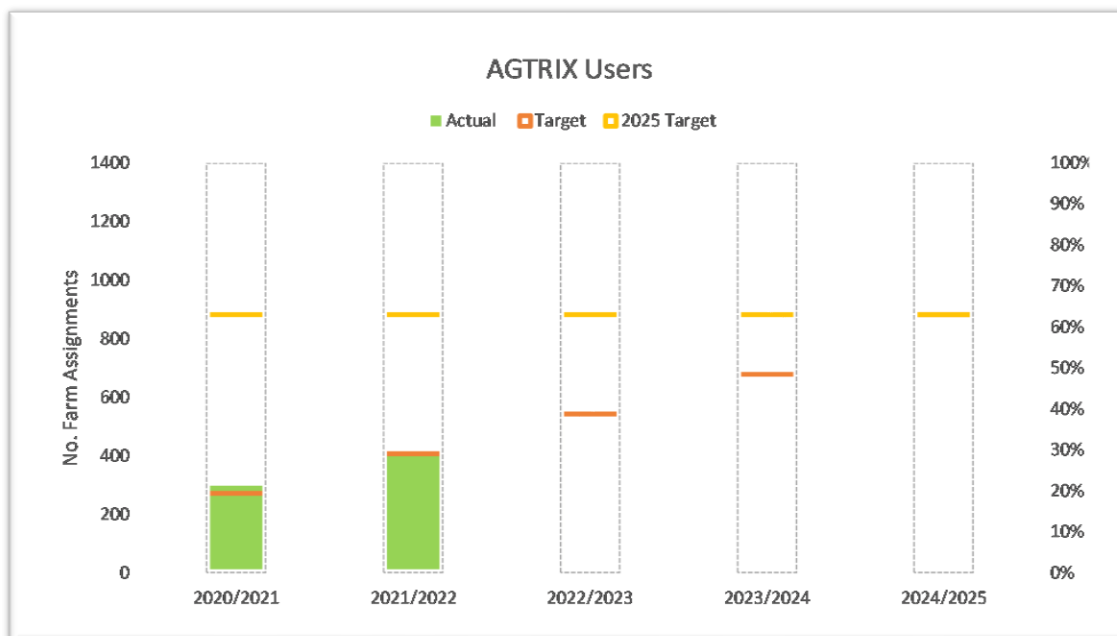


Figure 2: MAPS Clean Seed Distribution



Figure 3: Billet Distribution on MAPS farm

Agtrix Farming



*2019 Agtrix Farming registered growers – 14%

MAPS investment in the new recording/reporting program – Agtrix Farming developed by AGTRIX, is a platform for growers to record operations and generates reports to help make better business decisions and meet compliance needs. Agtrix Farming is a web based spatial program that displays a grower's farm details such as block number, block size, variety and soil type. The program is designed to be user friendly to provide growers a simple option to record farming activities such as chemical applications, fertiliser applications, fallow management, irrigation and a record of soil test.

The Agtrix Farming software is utilised by the MAPS staff for recording all daily activities such as plant inspections and collection of planting and fallow details. All field staff are equipped with a Microsoft Surface Pro tablet that is used to capture in-field data and allows staff to demonstrate the program to growers on a one-on-one basis.

30% of Mackay Sugar growers are registered and using Agtrix Farming as their recording program. Agtrix Farming workshops held throughout the year have been well attended by growers with very different levels of computer skills and technical knowledge. The workshops always have at least two MAPS staff to provide assistance to growers to fully explain the functionality of the program. The focus for growers was the chemical and nutrient recordings so that they



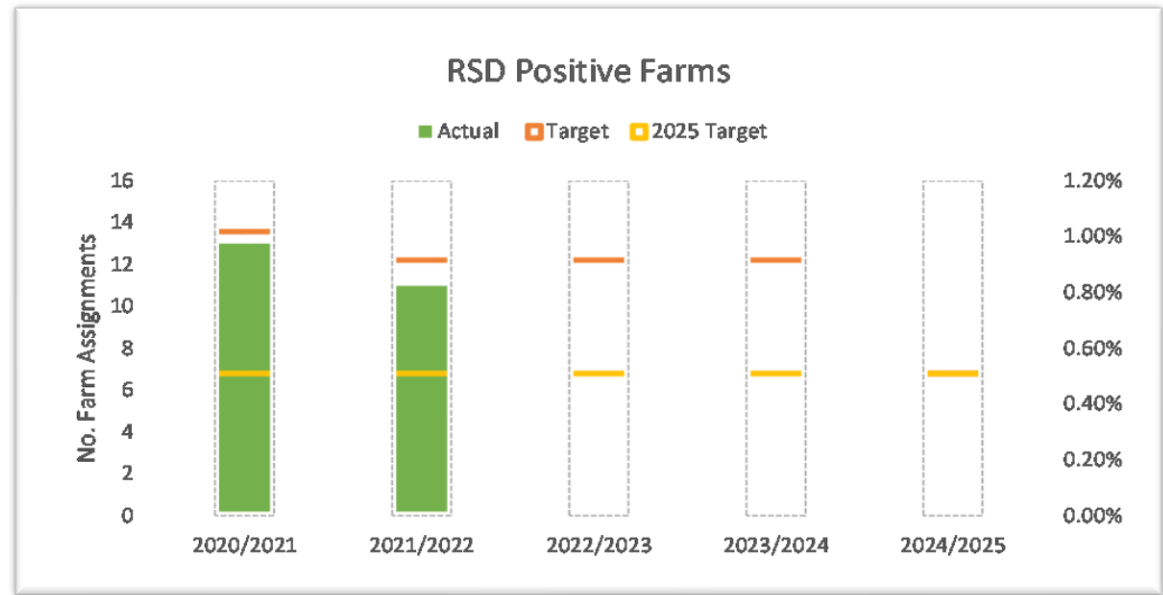
Figure 4: Agtrix Farming Phone App

are compliant with Government regulations. Grower feedback is very positive with regards to the Agtrix training with several growers relaying their own experience with the program to other growers at the recent shed meetings, resulting in an increase of registration to Agtrix Farming.



Figure 5: Agtrix Farming training

RSD



*2019 RSD positive farms – 1.1%

This disease is managed closely by the Productivity Officers who regularly check the majority of plant sources. Incidences of RSD are very low in the Mackay Sugar region compared to other cane growing districts. Regardless of the effort put in by MAPS, some growers still give little notice of planting intentions or have poor sterilisation practices. Some harvesting contractors could also do with more care and attention to clean down and sterilise machinery between farms. Eleven farms have been recorded as having RSD infection.



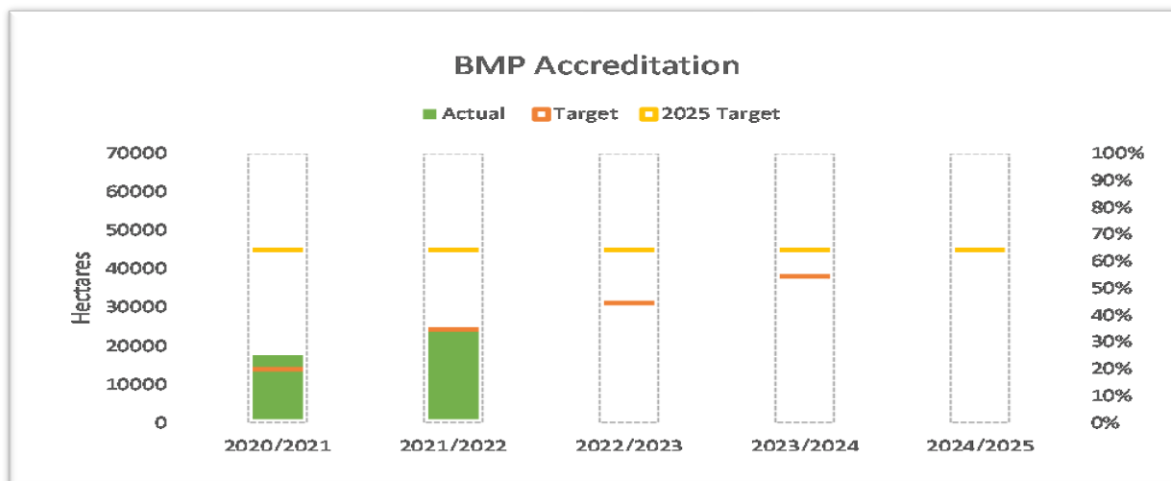
Figure 6: RSD sampling Calen billet plot

Staff have completed the RSD survey of the Mackay Sugar region, which targeted inspecting older blocks of ratoons. Each Productivity Officer surveyed approximately 25% of their farms and the older ratoon blocks were selected because if RSD is present, it is more likely to be found in these blocks. One new detections of RSD was found in the 300 farms inspected. These results reinforces the good work MAPS does to keep the RSD levels at the current low levels throughout the Mackay sugar region. Currently RSD is recorded in less than 1% of Mackay Sugar farms. The survey will be conducted again in 2022.



Figure 7: RSD sampling on MAPS farm

BMP



*2019 area accredited – 14%

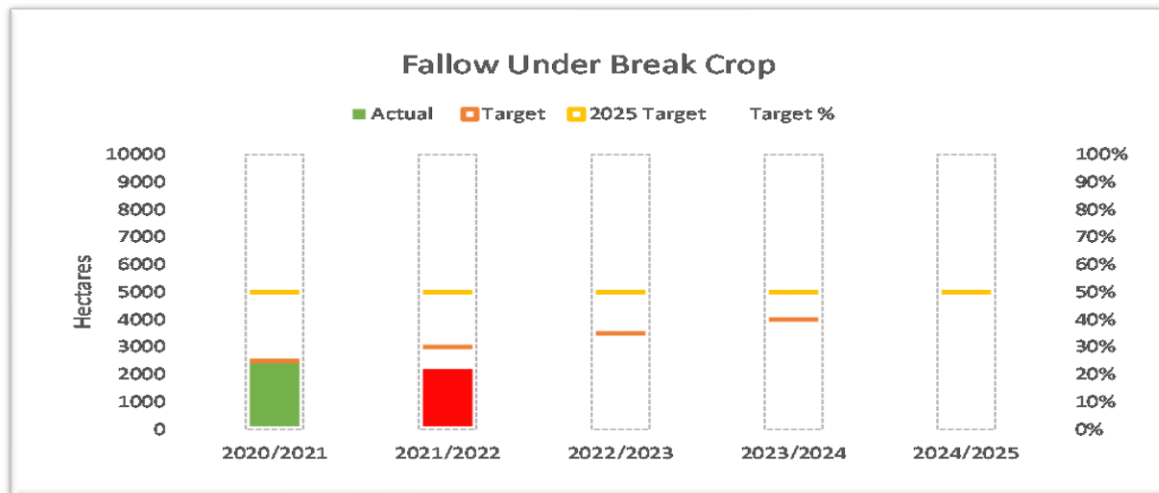
Indiana Zarb achieved excellent results throughout 2021 with the Smartcane BMP program and provided growers an opportunity to work their way through the program with support and assistance.

With Audra Allan's resignation in November 2020, Indiana was promoted into the BMP Officers role and has continued the good work in achieving BMP accreditation for growers. A total of 151 Businesses (24 900 ha) have been accredited to the end of March 2022, which is approximately 35% of the Mackay Sugar area.



Figure 8: Townley family BMP Accreditation

Fallow Management



*2019 breakcrop area – 14%

MAPS has been assisting and advising growers on the benefits of growing legume break crops in the sugarcane fallow for many years. Although there are many reasons why growers are not able to plant a legume crop every year, one of the main drawbacks is the availability of adequate equipment when there is an opportunity to plant. MAPS legume planter was designed and manufactured as an extension tool to demonstrate the practical options of planting soybean to growers over a range of different farming practices. Unfortunately, due to the late finish of the 2021 crushing, the overall legume plantings was well down from previous years.

The purpose of the planter is to demonstrate to growers that planting through cane trash on the existing mound is achievable, as well as planting into worked ground. The planter has been a success in showing growers first-hand that improving soil health is a positive step to improving productivity.

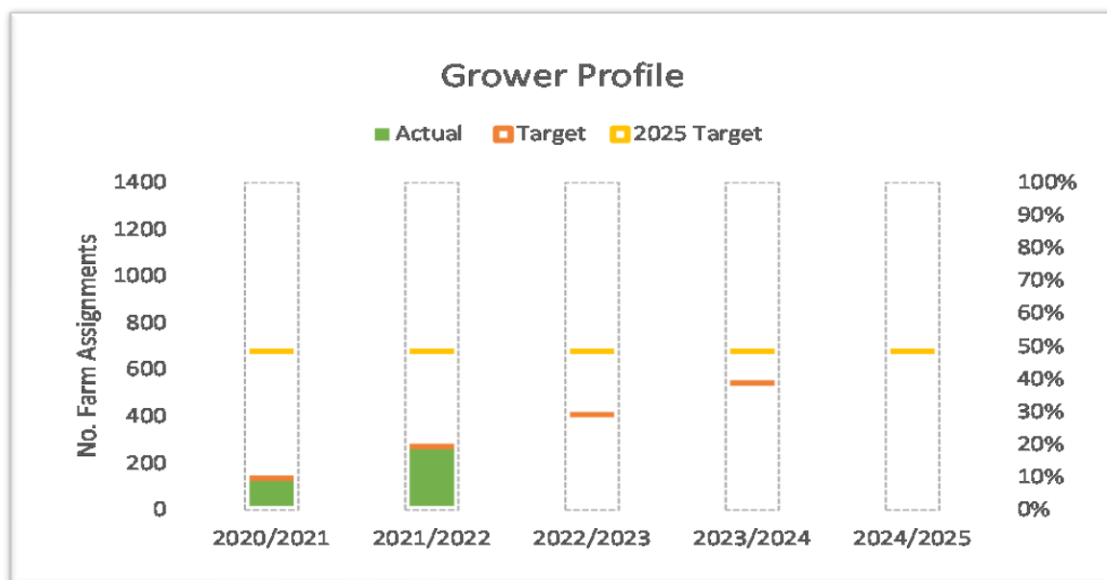


Figure 9: MAPS legume planter

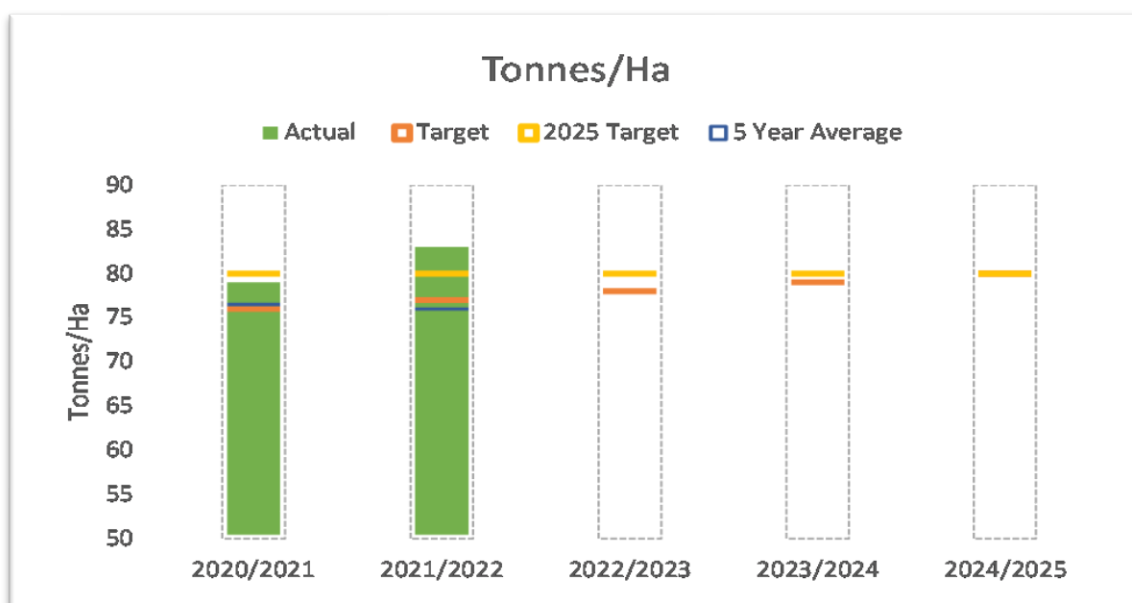


Figure 10: Soybean germination

Grower Extension



* 2019 – NA



* 5 Year Average – 76t/ha

To achieve a productivity improvement in the Mackay Sugar district, there needs to be an improvement in the grower extension at the ground level. With the implementation of the MAPS Strategic Plan, dedicated Grower Specialist and the introduction of the SRA training, MAPS has a real focus and direction on improving the productivity, profitability and sustainability of our growers.

With Dave McCallum as the MAPS grower Specialist working with the Productivity Officers through their grower profiling, MAPS can identify growers that require extra agronomic extension to address their needs and implement practical solutions towards productivity improvements. Incorporating growers into MAPS water quality projects provides growers

with an opportunity to source government grants for equipment to implement practice change for productivity and water quality improvements.

All aspects of the MAPS Strategic Plan are aimed at improving productivity within Mackay Sugar and working towards a viable industry that is profitable and sustainable into the future.



Figure 11: MAPS Shed Meeting



Figure 14: MAPS Observation Plot



Figure 15: Working towards soil health improvements

IMPORTANT BENCHMARKS

The benefits of having a spatial record keeping system means MAPS can produce information which can be used to evaluate our various activities and report on a collective basis to industry and government. The following information was extracted from Agtrix Farming.

Row spacing

Compaction of the stool by heavy harvesting equipment will continue unless row spacing is changed to match machinery track widths. It is encouraging to see that “conventional” row widths around 1.5m mark only accounted for 4% of all cane planted in 2021. Approximately 33% of all plantings were at acceptable row widths, being 1.8 m or greater (Figure 16). The combination of wider row spacing and GPS allows growers to protect the cane row and reduce the risk of compaction. The true crop health benefits of wider row spacing are difficult to achieve because haul outs still wander and it is not yet economic to fit them with GPS.

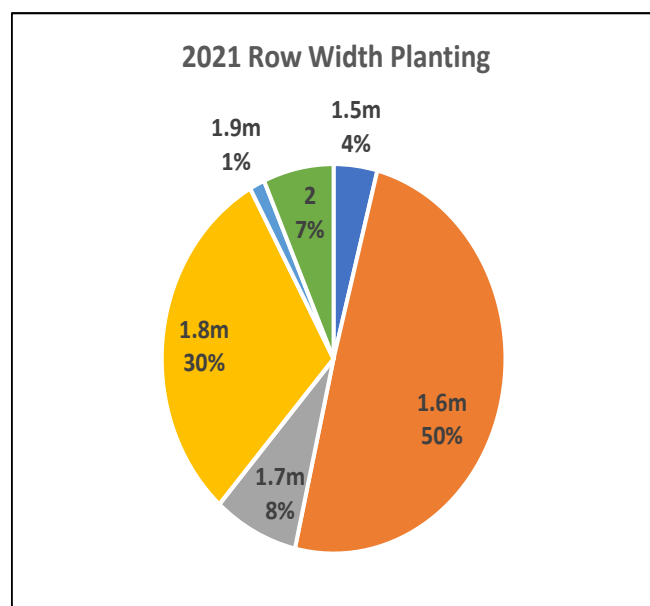


Figure 16: 2021 Row Spacing planting

Variety profile

SRA9 and Q253 have continued to increase with the two varieties representing 46% of the planting throughout Mackay Sugar. Both varieties are pachymetra resistant and are proving to be popular amongst growers because they are high yielding and can be grown in a variety of soil types. Q208R at 20% again is a popular variety amongst grower as the variety is versatile and productive and can be harvested all season. SRA 21 and SRA22 have been released in the last two years and early commercial data collected by MAPS of the two varieties is very promising.

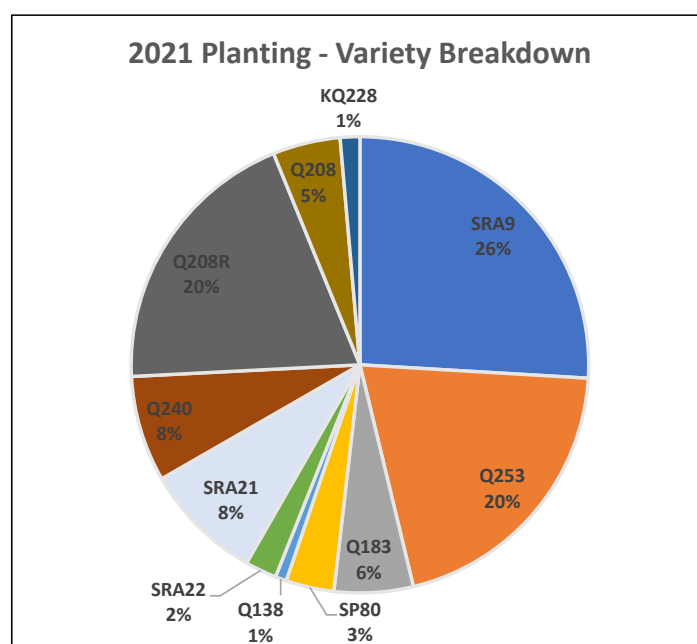


Figure 17: 2021 - Variety breakdown

Pachymetra Root Rot

With Pachymetra still considering one of our most serious disease issue, growers have addressed the issue with 57% of the area planted now with resistant varieties (Fig.18).

Resistant varieties such as SRA9, Q253 and Q183 are producing good yield data and suit a variety of soil types. The recently released variety SRA22 which is also pachymetra resistant will be planted more significantly over the next few years as it has potential as an early testing variety. It is encouraging to see growers continue to request for pachymetra testing on their farm to determine if there is a disease issue present. The continued release of pachymetra resistant varieties is extremely important for the management of the disease and improving productivity within the Mackay Sugar region.

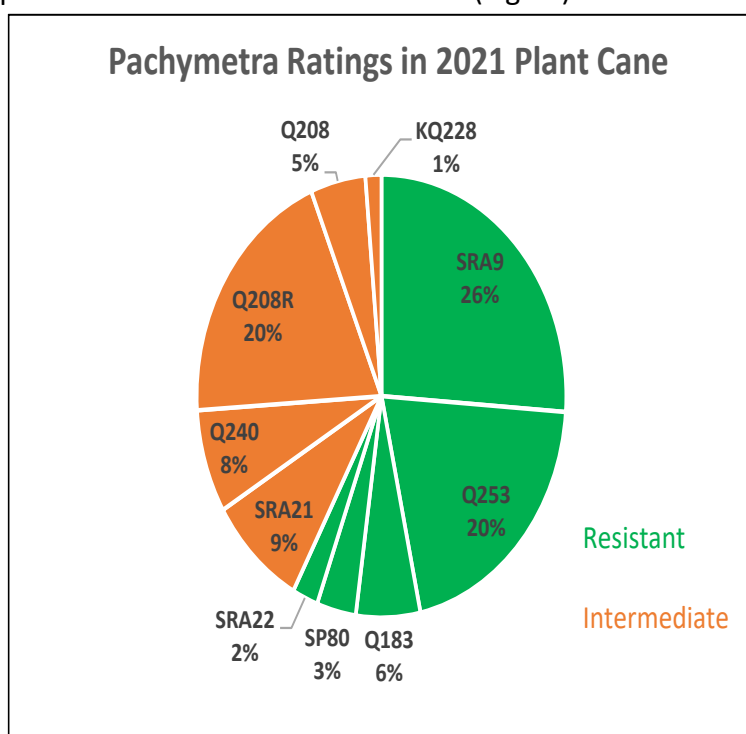


Figure 18: 2021 Pachymetra ratings in plant cane

Chlorotic Streak

Chlorotic Streak is a disease which is more prevalent in the extremely wet years and can be easily spread through planting material. Yield loss from this prevalent disease would be much greater if not for the efforts put in by MAPS staff giving advice during plant inspections. Unfortunately, newly released varieties are not screened for chlorotic streak, therefore they have no rating, which makes it extremely difficult to give a recommendation on where to plant a variety. The MAPS Observation Plots play an important and vital role in identifying which new varieties are prone to chlorotic streak in the paddock, providing the industry more information of newly released varieties.



Figure 19: Chlorotic streak leaf symptoms

Plant Inspections

98% of the plant inspections conducted in 2020 have resulted in no disease detected (Fig 20). With over 4000 plant inspections conducted by the MAPS staff, it is very encouraging to see the major diseases such as RSD, smut and chlorotic streak are being recorded at the lower levels. Where diseases are found, an alternative plant source is found, to ensure the best possible crop is achieved. While plant inspections are vital to combat a disease outbreak, the task provides an ideal opportunity for staff to assist growers in developing a variety management plan for the upcoming planting season.

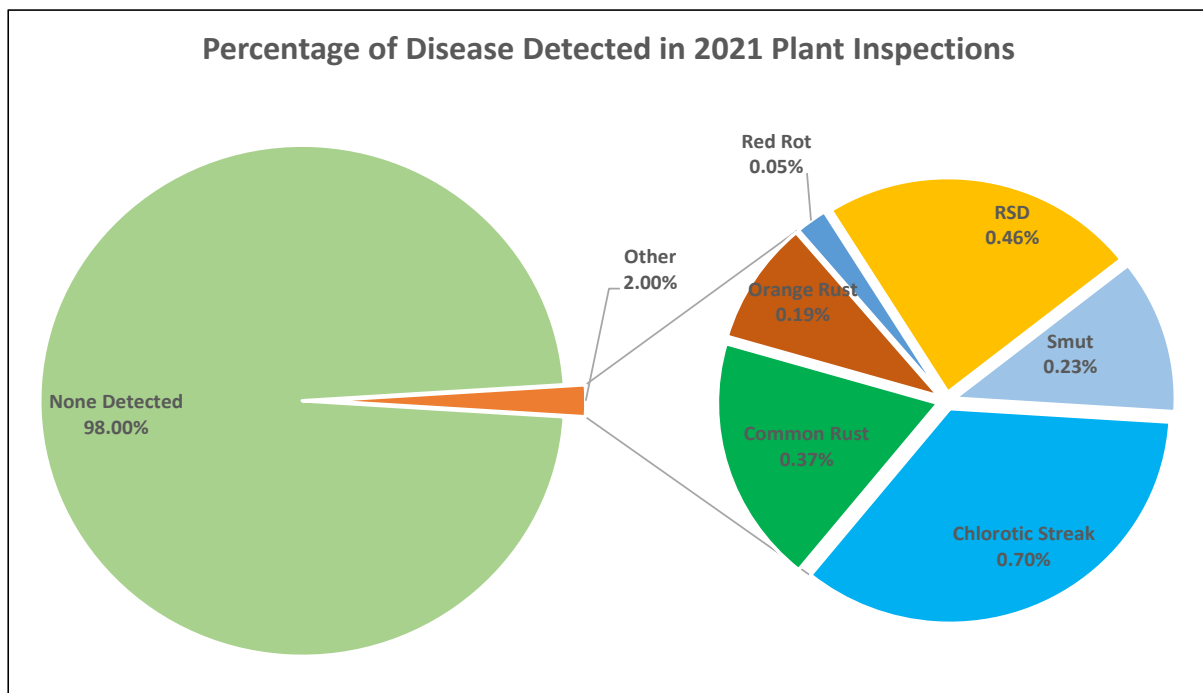


Figure 20: Percentage of disease detected in 2021 plant inspections



Figure 21: In-field data recording

Approved Seed Use

One of MAPS' most important, yet time consuming and expensive activities is the provision of Approved Seed sources. MAPS maintains its Victoria Plains farm as the main distribution plot for clean seed, however now have billet plots at Calen and Benholme. Once a seed source gets GREATER than 4 years away from hot water treatment (HWT) it is deemed to be high risk in terms of potential disease infection. About 80% of cane planted in 2021 came from a seed source LESS than 4 years away from HWT. A major focus from MAPS is to encourage growers to regularly collect a clean source of a variety on a yearly basis. Clean seed collection is the foundation to building and improving productivity.

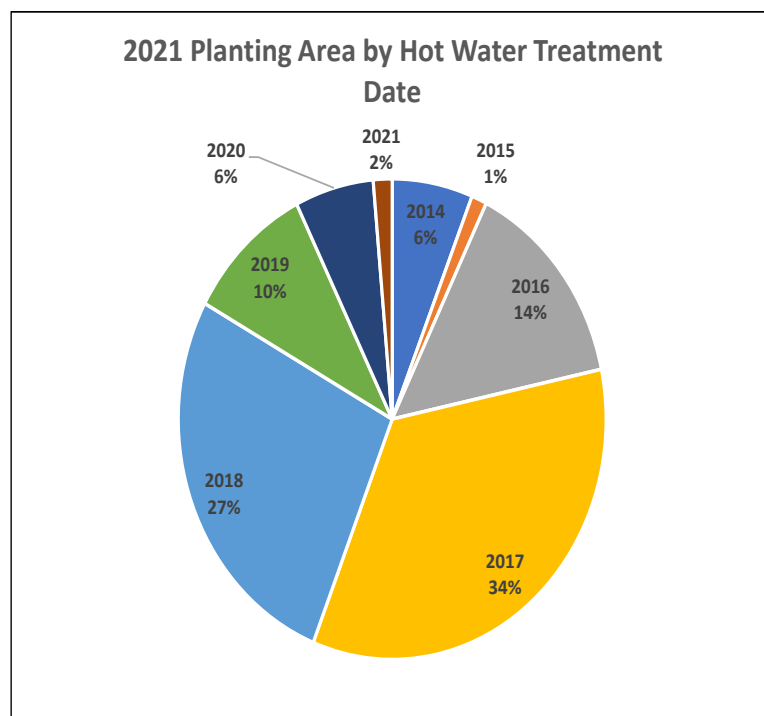


Figure 22: 2021 plant area HWT dates

Sugarcane Smut

This disease is largely under control because most of our recommended varieties are smut resistant. Resistant and intermediate varieties will show the occasional smut whip, which does not cause any yield losses. While SRA9 has a relatively high smut rating, very little or no smut is being found in the field, which is very encouraging, now with it becoming a prominent variety. Although medium levels of smut were recorded in blocks of intermediate and susceptible varieties, such as Q138, Q242, Q252, Q208 and SRA 13, no major yield losses were recorded. MAPS observation plots provide an ideal opportunity to observe how the promising SRA seedlings react to smut under field conditions and compare the SRA smut ratings to what is recorded in the field.

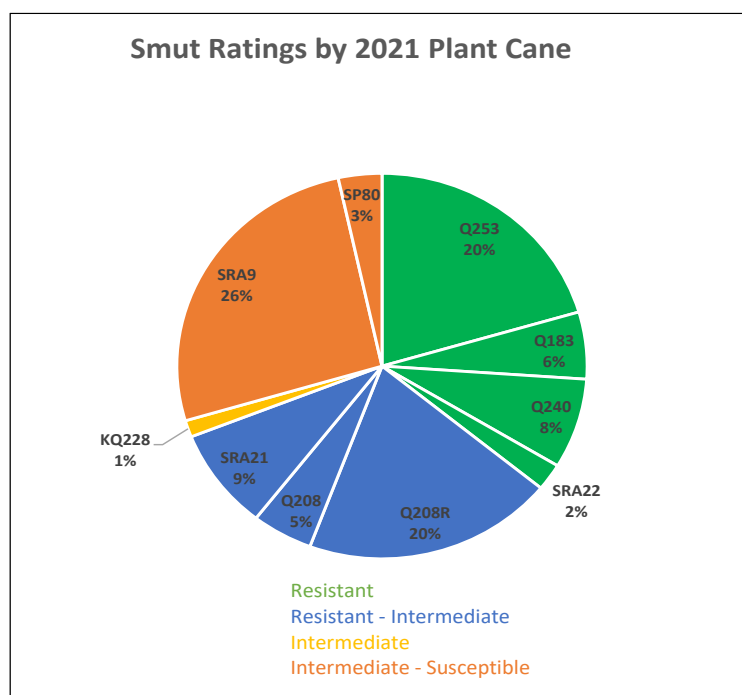


Figure 23: 2021 plant cane smut ratings

PESTS

MAPS data suggests that over 34,000 tonnes of cane was lost due to pest activity in 2021. Again, the three major pest that cause the most damage are cane grubs, feral pigs and rats. Soldier fly is of concern because of the increasing occurrences of the pest throughout the Mackay Sugar region. In comparison to the other major pest, soldier fly damage is much lower, however where the damage is on individual farms the yield losses are quite significant. MAPS are collaborating with SRA in establishing a variety trial on a soldier fly infected farm to trial several seedlings and new varieties against the pest.

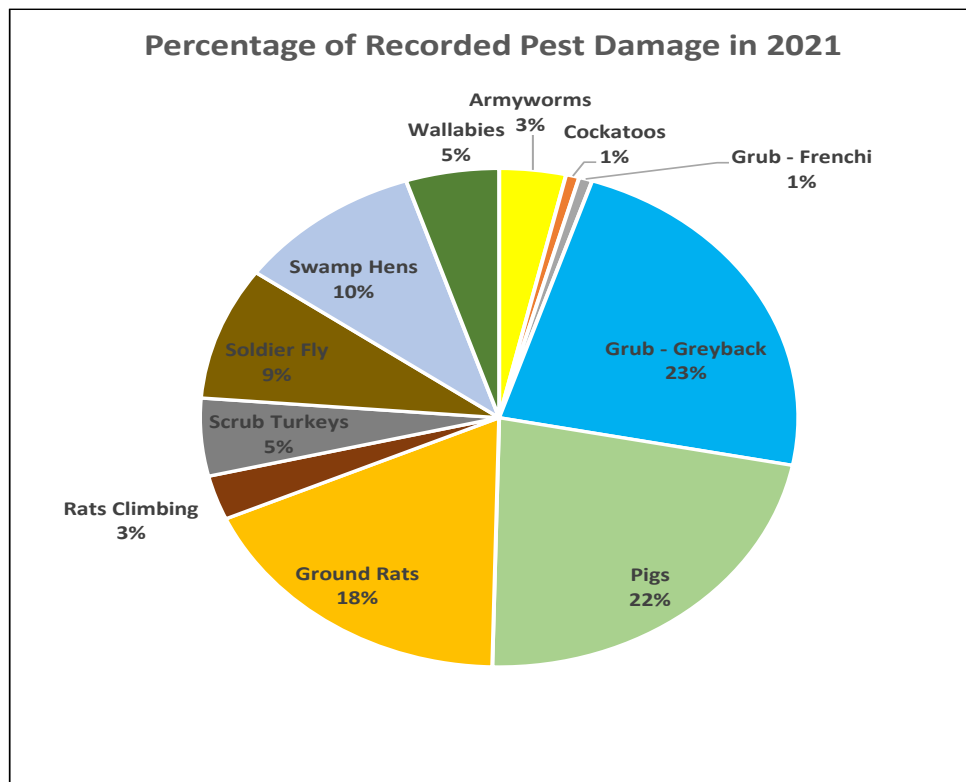


Figure 24: 2021 recorded pest damage

Cane Grubs

Cane grub damage has remained relatively the same compared to the previous year. The recorded grub damage was a result of growers not applying Imidacloprid (grub control chemical) or not correctly applying the chemical. Heavy beetle flights were recorded from December 2021 through to February 2022, with significant grub damage being recorded for the 2022 crop. During the MAPS shed meetings the grub damage was raised and discussions were had on how to combat the pest for the upcoming season.



Figure 25: Cane grub damage

Feral Pigs & Rats

Both feral pig and rat damage has slightly decreased from the previous year. Traditionally with a dry period during the crush, both the pigs and rats are forced out of their natural harbourage and into cane crops for a food source and shelter. However, with regular rainfall throughout the 2021 crush, the pest didn't need to use cane blocks for food or shelter, resulting in less damage and yield losses throughout the Mackay sugar region. MAPS applied for an extension of the Damage Mitigation Permit for the culling of rats with the Department of Environment and Science. A three-year permit was granted for growers to continue baiting rats and reduce the amount of crop damage.



Figure 26: Feral pig damage

ACKNOWLEDGEMENTS

MAPS are the main on-farm provider of quality advice and extension for all Mackay cane growers. By helping growers to be more productive and profitable we are also helping Mackay Sugar to crush more quality cane.

Thanks to those farmers and harvester crews who have cooperated with MAPS to organise various trials. A good relationship with Mackay Sugar means we can communicate with each other's needs when it comes to harvesting and cane quality issues.

We rely on good partnerships and relationships with individuals and several organisations including CANEGROWERS Mackay, Mackay Sugar Ltd, SRA, Reef Catchments, Queensland Department of Agriculture and Fisheries, Department of Science and the agribusiness companies.

No one should take for granted MAPS' hard-working, dedicated and loyal staff. The Board and I are lucky to have such a great bunch of people. Thanks to the MAPS Board for their support and for their efforts throughout the year.

Anthony Schembri

