



mackay area productivity services



**ANNUAL REPORT  
FOR THE PERIOD  
1 APRIL 2019 TO 31 MARCH 2020**

# 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 services 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 demand for 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

Twelve months have come and gone and how the world has changed. Mackay Sugar's ownership was finally sorted out and we finished the 2019 season with a spike in the sugar price. We were just preparing for the new season when the COVID-19 pandemic hit and the sugar price plunged. It was a bit of a roller coaster year.

I would like to thank the CEO Anthony Schembri and all the staff for the excellent work done this year. Their commitment and dedication to this company and their work performance is above par.

I would like to welcome Indiana Zarb who is assisting Audra Allan in getting growers to attain their Smartcane BMP accreditation. These two are working together and are kicking some goals in improving our numbers in this region. BMP is extremely important for us and the industry as it shows we are serious about our social license to operate.

In addition to the BMP, MAPS now uses Agtrix Farming, a new spatial data recording program that helps growers keep track of day to day operations and records chemical and nutrient applications. Special thanks to Share Hare who has stepped up to liaise and train our staff and growers on the capabilities of the new program. Growers interested in using the program should contact their Productivity Officer.

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

- Smartcane BMP
- Sandy Creek Brightly Sub Catchment Water Quality Project
- EEF 60 (Enhanced Efficiency Fertiliser) Project
- RP 161 Nutrient Project
- Reef Alliance Project
- MAPS/SRA Observation Plots new variety trails
- Agtrix Farming – New data recording program
- Munbura Feral Pig Project
- Solider Fly Project with SRA

As well as involvement in these projects, staff also perform the core job of pest and disease management. Staff are out there now checking plants and doing surveys to keep ahead of the game and catch an issue before it gains traction.

Finally, I would like to thank the Board for their support and involvement for the year. As a result of the change of ownership of Mackay Sugar, we have had a change of Directors. I welcome back Lee Blackburn, and welcome the new Directors, Jannik Olejas and Paul Manning. Also, my thanks to the Board, senior staff and stakeholders who recently sat down together and worked out our plans for the next 5 years. This allows us to keep a clear vision and focus and to continue to strive to improve the viability and sustainability of our growers going forward.



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
- 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 training
- 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 were regularly updated before expiry dates
- The CEO attended SRA's Fire and Emergency Management training
- Washouts at MAPS' Victoria Plains farm were repaired by an earthmoving contractor
- Strict COVID-19 protocols were implemented to combat the risk of infection amongst staff and growers - social distancing, increased hygiene practices (washing hands), reduced face to face meetings and working from home are some of the practices staff have followed.

Monthly WH&S reports over the year show 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 17 January 2020. No serious issues were detected but some suggestions were investigated and necessary changes were implemented to improve safety.

## SEASON

The 2019 crushing season started on 4 June and finished on 6 December with results being very disappointing, given that the Mackay Sugar region had the potential for a much larger crop. The extended dry conditions from April to November had a major impact, reducing the tonnage of the crop considerably, but providing favourable conditions for excellent CCS levels.

The crop produced 4.92 million tonnes of cane with an average CCS of 14.02. Lack of rainfall provided ideal conditions for harvesting, but the prolonged dry had a negative effect on plant cane establishment and ratoons. Good rainfall in late December, January and February made up for some of the lost yield potential. The 2020 crop estimate is estimated to be slightly over 5 million tonnes of cane.

## 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 & surveying)
- 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 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) & Janes Creek Water Quality Project.
- **Britney Gibbs**, Productivity Officer (201 mainly Racecourse farms) & Feral Pig Project.
- **Maryanne Volker**, Productivity Officer (205 mainly Pleystowe farms) & Sandy Creek Project.
- **Brendan Rae**, Productivity Officer (215 North Coast farms) & Liaison with SRA Plant Breeding.
- **Audra Allan**, Smartcane BMP Facilitator.
- **Indiana Zarb**, Smartcane BMP Support Officer (Commenced June 2019).

- **Dave McCallum**, Senior Extension Agronomist, worked on a range of activities including: general extension, advisory work, projects/trials, industry liaison, trouble shooting and core MAPS business. Apart from the Racecourse growers whom Dave services, he has specialist areas of responsibility including Harvesting and Irrigation. Details of the work carried out by Dave McCallum are discussed later in this report.
- **Andy Humphreys**, Precision Planning Consultant (PPC) in the Reef Alliance 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. He also has the added responsibility of the role as MAPS Company Secretary.
- **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 a number of other larger group extension activities including:

- **MAPS/SRA Field Day** - held on 10 May 2019. Approximately 180 growers attended to view displays and demonstrations including:
  - New SRA Varieties & Trial Data
  - EHS Harvester Fronts
  - Department of Agriculture & Fisheries Nozzle Demonstration
  - Drones In Agriculture
  - Fine Lime Applicator
  - Smartcane BMP
  - CANEGROWERS Irrigation Efficiency Program
- **Shed Meetings** – Due to COVID-19, all 2020 shed meetings were cancelled for the safety of growers and staff. Growers were informed early of MAPS’ decision and are still able to contact their Productivity Officer with any queries or questions.
- The **Trial Information Presentation Day** was conducted in February 2019. The aim is for local advisors and extension providers to get exposure to relevant trial results, both locally and industry wide. Presentations were made by MAPS, SRA, Farmacist, QDAF (Qld Department of Agriculture and Fisheries) and Reef Catchments. Topics included:
  - Agtrix Farming
  - Yellow Canopy Syndrome (YCS) Update
  - SRA Entomology Update
  - Plant Breeding Update
  - Soil Health Project
  - Confidor® Placement Project
  - Harvester Chopper Test Rig Trials
  - Irrigation Costs & Opportunities
  - Janes Creek and Sandy Creek Project Updates

- **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 to at least every second edition of this publication.
- **Media** engagement occurs regularly and mostly it is used for awareness of important issues for the local industry. Newsletters, newspapers and ABC radio are most useful.
- **MAPS website** - The website received an overhaul in 2019 and is now is more 'user friendly' and updated on a regular basis.

Topics covered on the site include:

- Clean Seed Plots
- Variety Information
- Pest, Disease & Weeds
- Agtrix Farming
- Smartcane BMP
- Newsletters
- Weather Stations

**Figure 1: 2019 MAPS/SRA Field Day**



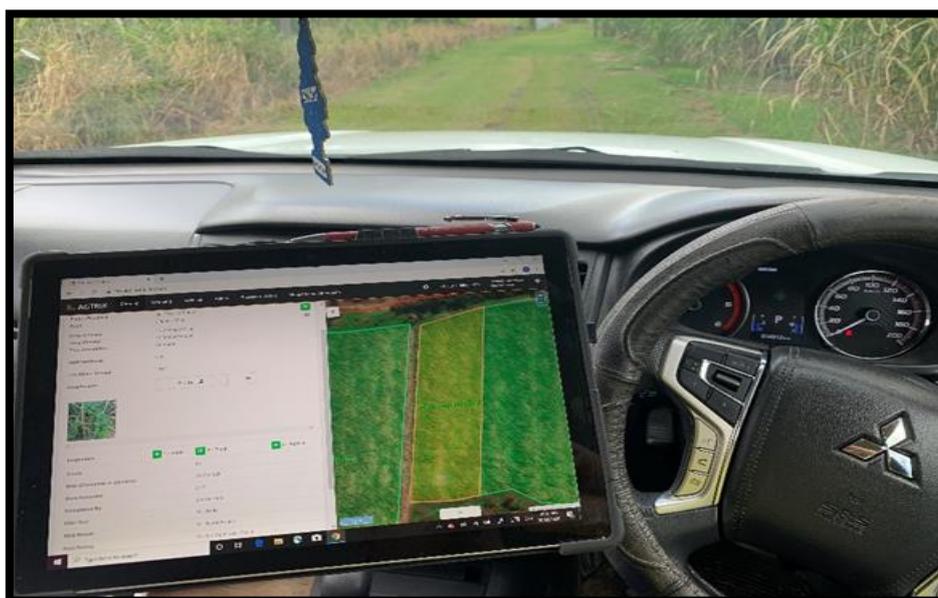
## SPECIFIC PROJECTS

### Agtrix Farming

MAPS has invested in a the new recording/reporting program, Agtrix Farming, developed by AGTRIX, which is a platform for growers to record operations and to generate reports to help in making better business decisions and in meeting compliance needs. Agtrix Farming is a web-based spatial program that displays and records a grower's farm details such as block number, block size, variety and soil types. 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 farming cultivations.

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 SurfacePro tablet which is used to capture in-field data and allows staff to demonstrate the functionality of the program to growers on a one-on-one basis.

**Figure 2: In-field data collection**



### Government Reef Program

The Reef Alliance Project 2 finished in April 2020. The project has the same basic objectives as its predecessor programs but has an increased focus on extension and improved practice adoption and less funding available for grower projects. The criteria for project support has also been tightened, with assistance dependent on achieving positive behavioural change.

Going forward, MAPS' project submission for the Great Barrier Reef Foundation funding is focused on water quality improvements through reducing Dissolved Inorganic Nitrogen (DIN) in the Plane and Pioneer Basins. The project will focus on one-on-one grower extension to develop property-specific nutrient management plans, a collaboration with SRA in on-farm demonstrations and water quality sampling and monitoring.

MAPS will also seek access to the minor/major grants available to growers in a separate Reef Catchments project. This collaborating puts a real focus on grower practice improvement and provides assistance to growers becoming compliant with the Reef Regulations.

Andy Humphreys will be involved with the project which is due to commence in July 2020.

### Smartcane BMP

To build on the improved results of the Smartcane BMP program achieved in 2018 under the guidance of Audra Allan (BMP Facilitator), MAPS employed Indiana Zarb in June 2019.

Their collaboration achieved excellent results throughout 2019 and they have continued the good work into 2020.

Growers have appreciated the professionalism and enthusiasm of Audra and Indiana in providing the support and expertise to guide growers through the BMP process to accreditation.

A total of 93 Businesses (147 Growers, 14,300 ha) have been accredited to the end of March 2020 as seen in Table 1.

**Table 1 - Smartcane BMP Mackay numbers**

<b>Time frame</b>	<b>MAPS Facilitated Businesses Accredited</b>
Till end of December 2018	31
January 19 – April 19	10
May 19 – August 19	8
September 19 – December 19	10
January 20 – March 20	34
<b>Total</b>	<b>93</b>

## Variety Observation Plots

MAPS works closely with SRA Plant Breeding to gain advanced information on promising advanced clones and varieties earmarked for release. These canes are planted in observation plots on 6 farms spread throughout Mackay Sugar area (North Eton, Septimus, Farleigh, Mt Pelion, Sandy Creek and Victoria Plains). MAPS staff and growers get the chance to view and assess the advanced clones against current commercial canes on a range of soil types and their growth characteristics under different weather conditions.

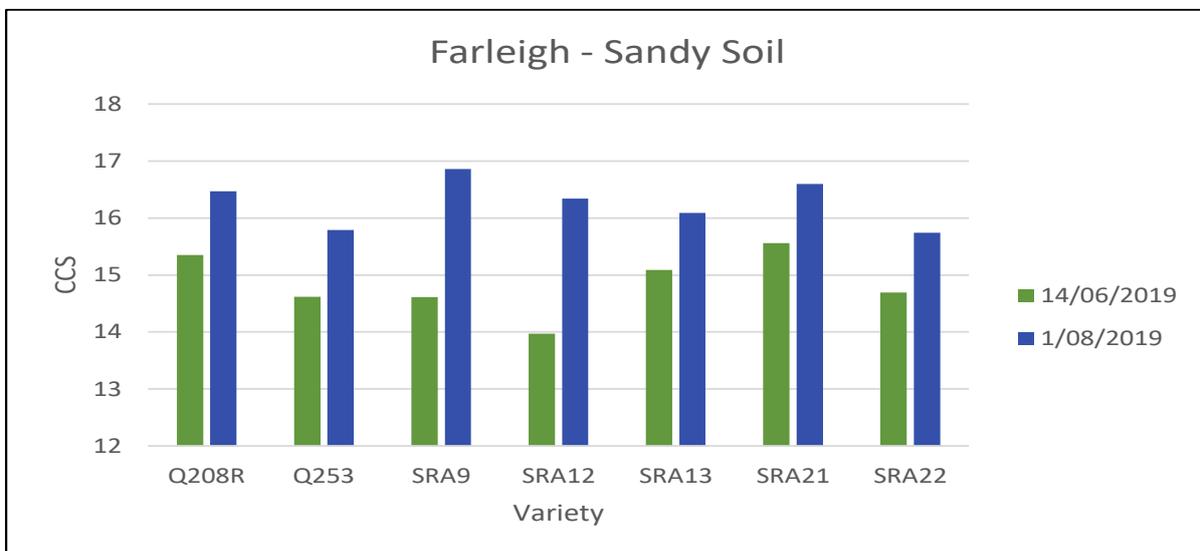
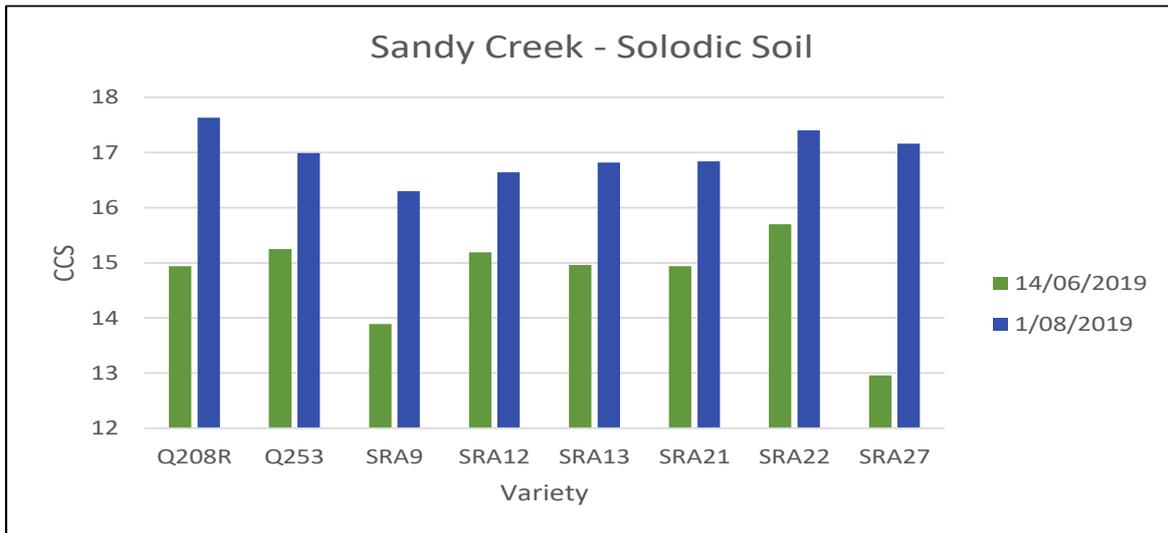
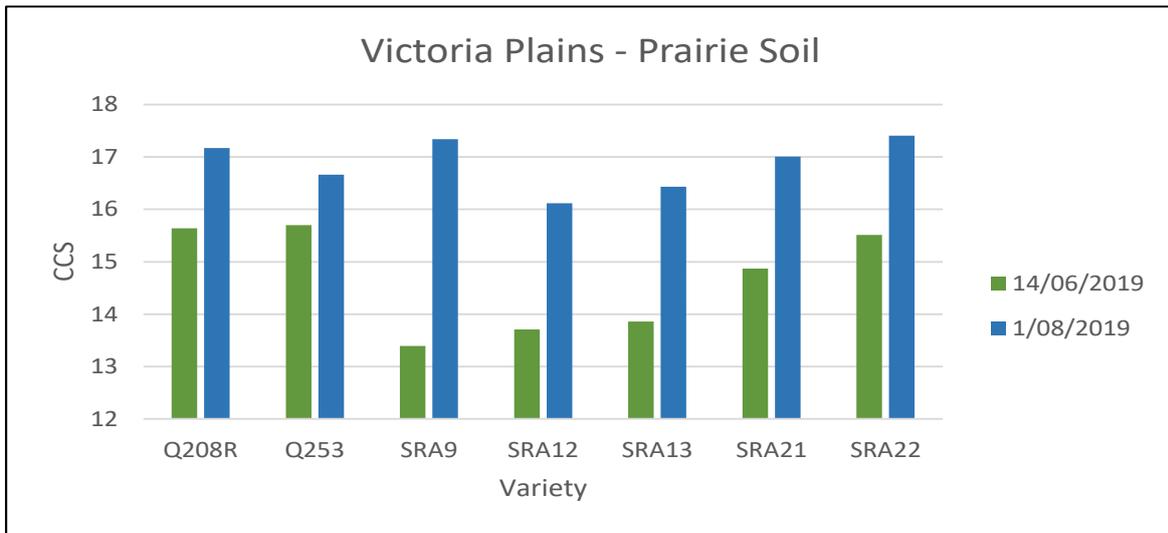
Valuable new information is gained on disease susceptibility, lodging and ratooning. 2019 commercial data and early maturity data from the newly released varieties was collected by MAPS and presented to the growers via the MAPS Newsletter and the MAPS website.

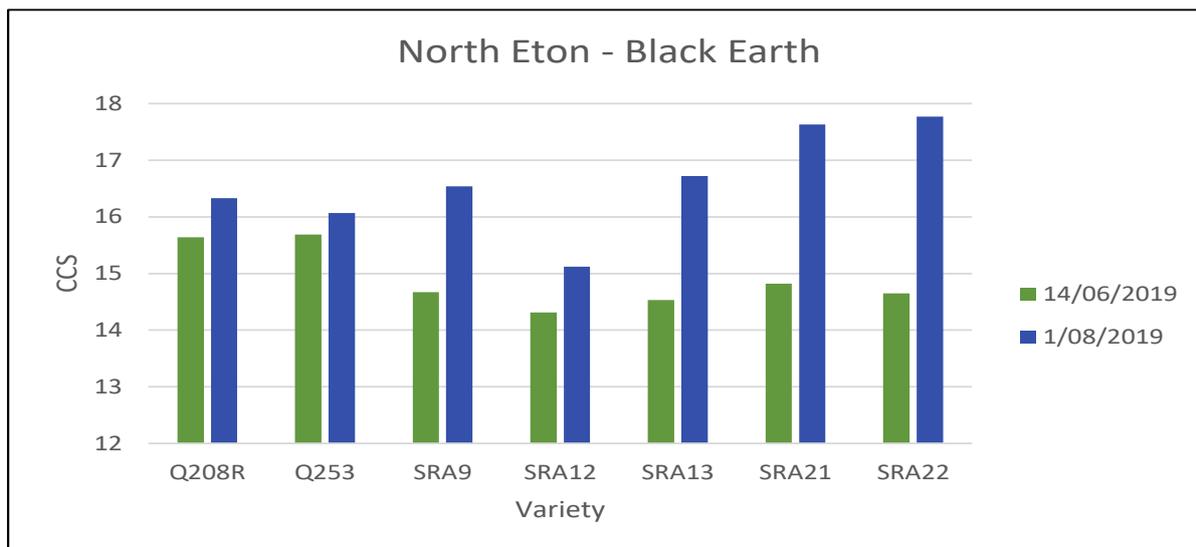
This data will allow growers to make better informed decisions on variety management on their farms.

**Table 2: 2019 Commercial data**

Variety	Crop Class	Soil Type	Productivity Zone	Harvest Date	CCS	Mackay Sugar Daily CCS	TCH	TSH
Q250	Fallow Plant	Alluvial	Palms/ Foulden	10/09/2019	15.65	15.30	129	20.19
Q253	1st Ratoon	Alluvial	Palms/ Foulden	12/06/2019	10.58	11.12	91	9.63
Q253	Fallow Plant	Grey Clay	Habana	20/08/2019	15.09	14.33	100	15.09
Q253	Replant	Solodic	North Coast	18/09/2019	15.77	15.45	79	12.46
Q253	Fallow Plant	Solodic	North Coast	26/09/2019	15.71	15.49	112	17.60
Q253	Fallow Plant	Podzolic	Sandy Creek	26/11/2019	13.32	15.46	104	13.85
SRA9	Fallow Plant	Prairie	Habana	25/06/2019	12.29	12.39	96	11.80
SRA9	1st Ratoon	Podzolic	Sandy Creek	4/09/2019	13.48	15.06	145	19.55
SRA9	Fallow Plant	Podzolic	Sandy Creek	10/09/2019	13.85	15.30	123	17.04
SRA9	Fallow Plant	Soloth	Bakers Creek	10/09/2019	15.22	15.30	98	14.92
SRA9	Fallow Plant	Soloth	North Coast	9/10/2019	15.57	15.64	98	15.26
SRA9	4th Ratoon	Sandy Loam	Septimus/Pinevale	13/10/2019	15.31	15.60	98	15.00
SRA12	Fallow Plant	Black Earth	Habana	30/08/2019	14.85	14.82	85	12.62
SRA12	Fallow Plant	Prairie	Victoria Plains	11/10/2019	15.62	15.53	107	16.71
SRA13	Fallow Plant	Solodic	North Coast	26/09/2019	14.94	15.49	98	14.64
SRA13	Fallow Plant	Prairie	Victoria Plains	10/10/2019	15.12	15.07	94	14.21
SRA21	Replant	Prairie	Habana	28/08/2019	14.74	14.71	94	13.86
SRA21	Replant	Solodic	North Coast	18/09/2019	15.57	15.45	80	12.46

Figure 3: Maturity tests in MAPS Observation Plots (4 graphs)





### Approved Clean Seed Plots

Approved seed cane of all major varieties was available from the plots at Victoria Plains, Finch Hatton and Calen. A total of 946 assignments collected their quotas in 2019. To facilitate greater use of clean seed, MAPS continues to fill grower orders by using a blower and plant-cutter to supply whole stalks on planter trailers ready to hand load.

This only applies to selected varieties. Between cane cut onto trailers and growers cutting their own cane, a total of 400 tonnes was collected. In an effort to get more uptake of clean seed, MAPS has provided growers the option of buying billets from the plot. This option proved to be very popular with a total of 590 tonnes of billets purchased. A total of 990 tonnes of clean seed was collected from the MAPS plot, which is a notable increase from 2018 as seen in Figure 5 below.

MAPS has established an additional two billet distribution plots in the Mackay Sugar region located at Mount Pelion and Tannalo. Each plot is approximately 2 hectares in size. Three varieties will be grown which will be available in billet form to growers on selected dates throughout the year. 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 SRA Brisbane Laboratory. Once the results have been received and the absence of RSD is confirmed, the plots are free to be opened.

The hot water treatment tank was operational during the month of August, with cane treated for Plane Creek Productivity Services Ltd, SRA and the MAPS plot. A total of thirty (30) tonnes was treated.

Figure 4: MAPS Clean Seed Plot - SRA21



Figure 5: MAPS Plots approved seed distribution

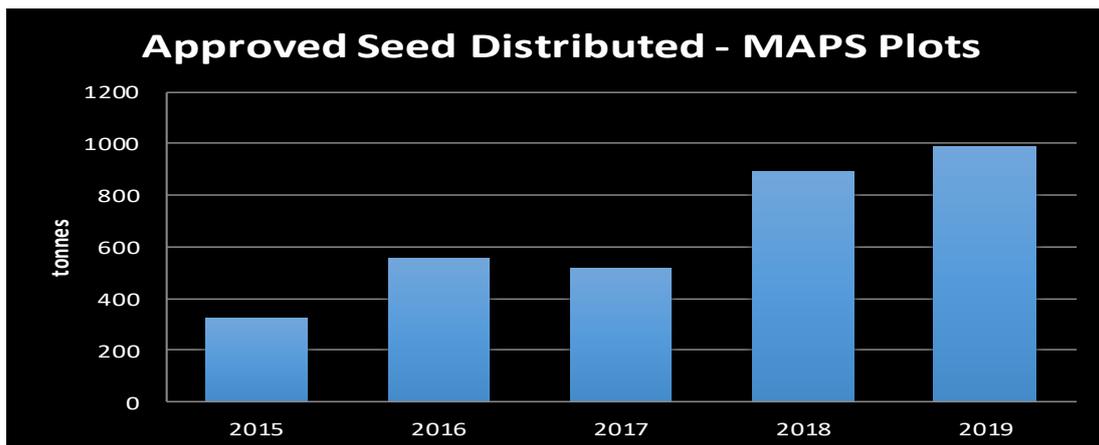


Figure 6: Variety breakdown of approved seed



## **Rural Water Use Efficiency**

The Rural Water Use Efficiency Program is funded by DNRM (Department of Natural Resources and Mines), administered through CANEGROWERS Queensland and delivered by agencies such as MAPS. This project aims to provide relevant irrigation information to sugarcane producers to enable them to make better irrigation decisions and improve their practices. Through this program, MAPS was able to fund four new weather stations located throughout the Mackay Sugar region. The four locations are Pindi Pindi, Balberra, Tannalo and Victoria Plains. Data recorded includes wind speed, wind direction and rainfall. The Victoria Plains station also measures relative humidity and barometric pressure. Data from the four sites can be accessed on the MAPS website.

## **EEF60 (Enhanced Efficiency Fertiliser) Project**

MAPS is a collaborator in the EEF60 project administered by CANEGROWERS and run by SRA. MAPS (through Dave McCallum) is responsible for managing the project (seven Mackay co-operators) and its findings in the Central district. MAPS' involvement in the project ends in June 2020, but MAPS will continue with the extension of the results and findings of the project.

## **Harvester Sugar Loss Testing**

The MAPS test rig has been used in Mackay Sugar area as part of the state-wide SRA EEF60 Project and with the harvesters involved in the Janes Creek Project. Growers are encouraged to utilise the harvest loss equipment to access their harvester to reduce cane losses and improve the harvester efficiency.

## **Sandy Creek Water Quality Project**

This joint project between Reef Catchments and MAPS engages producers in the Sandy Creek catchment in monitoring water quality and implementing on-farm change for water quality improvements.

MAPS works with up to 20 growers in the catchment providing increased one-on-one agronomic support on chemical management to the growers and through accessing minor grants to modify and upgrade spraying equipment designed to improve water quality. Maryanne Volker is the main contributor to this two year project.

## **RP161 Nutrient Management Project**

This joint project between MAPS and Farmacist works with growers to assess their nutrient management practices and assist where possible to bring them in line with best practices. The starting point is the production of a nutrient management plan and with targeted extension aimed at improving water quality, while maintaining or improving productivity. Dave McCallum is the main contributor to this project.

### **Janes Creek Water Quality Project**

This is a joint project between Reef Catchments and MAPS. The aim of the project is to work with producers in the Janes Creek catchment on monitoring and improving water quality. MAPS works with 9 cane farmers and 5 harvesting contractors in the catchment who have access to grants to modify farming equipment to improve water quality. Steve Garrad is the main contributor to this project.

The project has proven to be a success with high grower participation and involvement with growers collecting water samples during rain run-off events and requesting further water quality monitoring sites be added to the catchment. With the farming area being adjacent to residential developments, water samples are now collected from the residential run-off into Janes Creek and well as from the farm land. The results of the samples will be presented to the farmers in June 2020.

### **Munbura Feral Pig Project**

MAPS, through funding from Qld Department of Agriculture and Fisheries (DAF), assists a grower group with developing a collaborative feral pig management program. Britney Gibbs is the main contributor to this project working with 20 Munbura growers. The project which is completed in June 2020 has proven to be very successful in bringing the group of growers together and working collectively to reduce the damage and yield loss as a result of feral pigs.

The combination of using in-field motion detection cameras and newly designed traps has had an improved result in combating the feral pig damage and numbers. MAPS' involvement with the coordination of the project has allowed growers to concentrate on the task of in-field monitoring and trapping, successfully reducing feral pig numbers.

**Figure 7: Feral Pig Project Shed meeting**



**Figure 8: Pig trap designed for project**



## SENIOR EXTENSION AGRONOMIST ACTIVITIES

**Dave McCallum** engaged in a wide range of work during 19/20. A summary of some of the more significant activities is as follows:

### 1. Service 60 Racecourse farms as their Productivity Officer

- Grower Services including: plant inspections, pachymetra sampling, refractometer testing, calibrations, biosecurity checks on equipment, legume advice, farming systems, Soldier Fly and grub issues, rat damage assessment and advice, assess armyworm infestation, plant germination checks, fire claims, harvesting timing, irrigation queries, variety identification, Yellow Canopy Syndrome and BMP self-assessment
- Helped plant, monitor and distribute seed cane from MAPS Approved Seed farm
- Helped plant some variety observation plots
- Organised MAPS Trial Information Day
- Assisted CANEGROWERS Mackay with 2019 crop assessment reports of growers' farms that were affected by the 2018 November fires

### 2. Harvesting

- Meeting with SRA personnel (Nick Hill) regarding coordinating harvesting EEF trials (seven farms)
- Conducted five harvesting sugar loss tests as part of the Janes Creek Project
- Attended two contractor/grower meetings to discuss SRA harvesting trial results

### 3. Irrigation

- Installed 10 GDots and repaired multiple GDots and probe transmitters
- Installed 2 EnviroProbes
- Measured cane growth weekly and recorded on EnviroProbe website
- Installed new weather station (Tannalo) with Agritech Solutions technicians
- Attend the Irrigation Advisors Focus Group meeting regarding the SRA Irrigation project

### 4. Sandy Creek Water Quality Project

- Attended final water quality results 18/19 meeting of project
- Attended pre-season grower co-operator meeting for next Phase 2 of project
- Attend Steering Committee for Phase 2 of Sandy Creek project

### 5. RP161 Nutrient Management Project

- Attended progress meetings with Farmacist to discuss status of project
- Engaged 17 growers to participate in the RP161 project
- Developed Nutrient Management Plans for growers and conducted fertiliser calibration checks

## 6. Fallow Management

- Scouting soybean crops for timely insect spraying
- Advice on herbicide spraying, especially in-crop grass weeds
- Advice on legume spray out and timing
- Discussions on possible soy grain harvesting, including harvester and transport cost and availability, contract options, insect and desiccant spraying options and cost
- Liaise with local engineering firm with the development of MAPS legume planter.

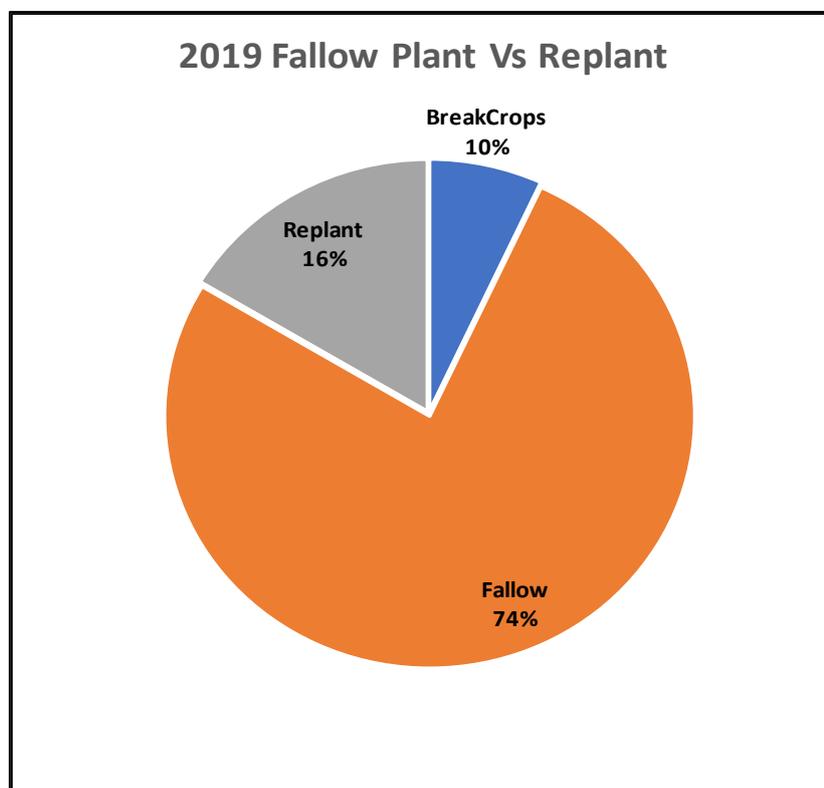
## IMPORTANT BENCHMARKS

A benefit of having a spatial record keeping is that 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.

### Fallow break crops

1,200 ha of fallow legumes (92% soybean) were planted in 2018/19. This represents only 10% of the fallow (Figure 9). This is almost double the area planted in the previous year. More growers are now growing a break crop for a cash crop and are getting a double benefit out of their fallow. Growing fallow legumes is a recommended management practice if growers want to address their poor soil health issues.

Figure 9: 2019 Fallow Plant Vs Replant

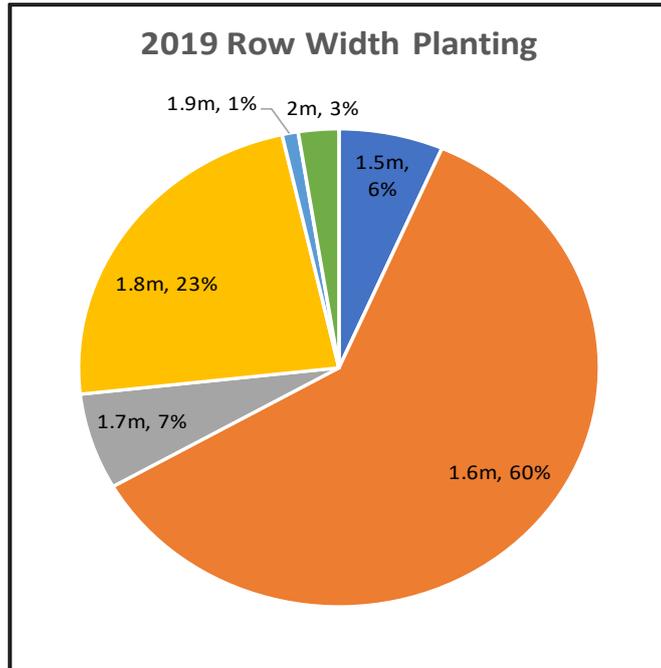


### Row spacing

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 6% of all cane planted in 2019.

Approximately 27% of all plantings were at acceptable row widths, being 1.8 m or greater (Figure 10). The true crop health benefits of wider row spacing are difficult to achieve because haulouts still wander and it is not yet economic to fit them with GPS guidance.

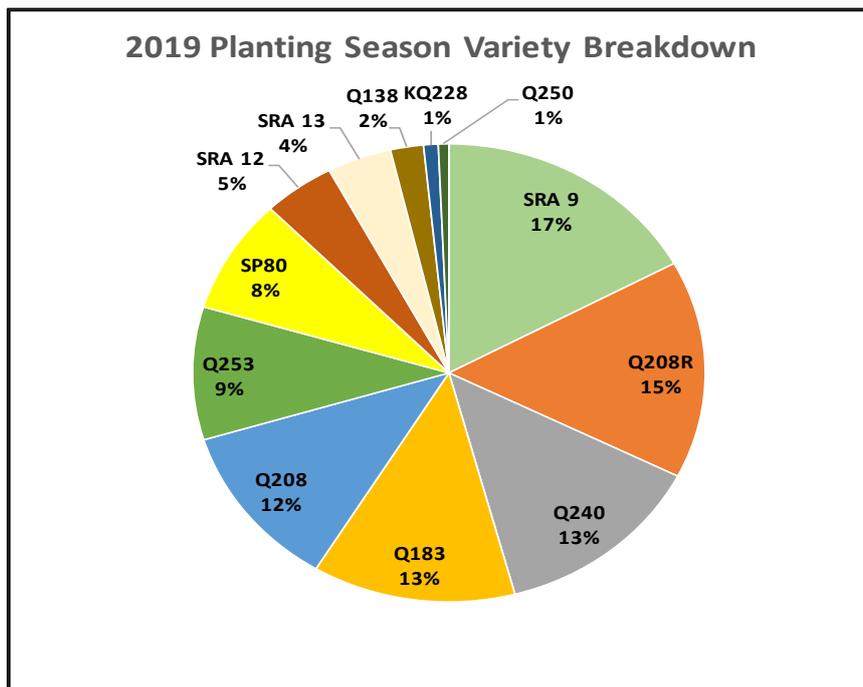
Figure 10: 2019 Row Spacing plantings



### Variety profile

SRA9 has increased 15% from the previous year, while Q240 has decreased 15% from 2018. Growers have planted SRA9 because it is a high yielding variety that is also pachymetra resistant. Q208R is quickly replacing the original Q208 with growers recognising Q208R as the more versatile and productive of the two. Q253 has also proven to be popular amongst growers with the variety surging by 7%.

Figure 11: 2019 Planting variety breakdown



## Pachymetra Root Rot

With Pachymetra still considered one of our most serious disease issues, growers have addressed the issue with 58% of the area now planted with resistant varieties (Figure 12).

With resistant varieties being released such as SRA9, SRA12, SRA13 and Q253 in the last few years, the reliance on intermediate varieties will decrease, combating the impact of the disease.

The breakdown of Pachymetra test results (Figure 13) demonstrates that over 50% of the samples collected have a med-high spore count, which needs to be addressed with a resistant variety.

Figure 12: 2019 Pachymetra ratings

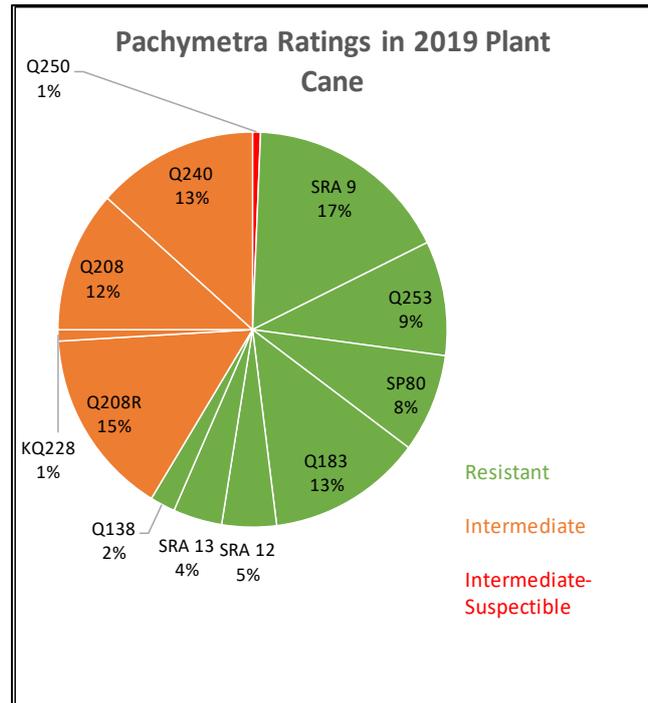
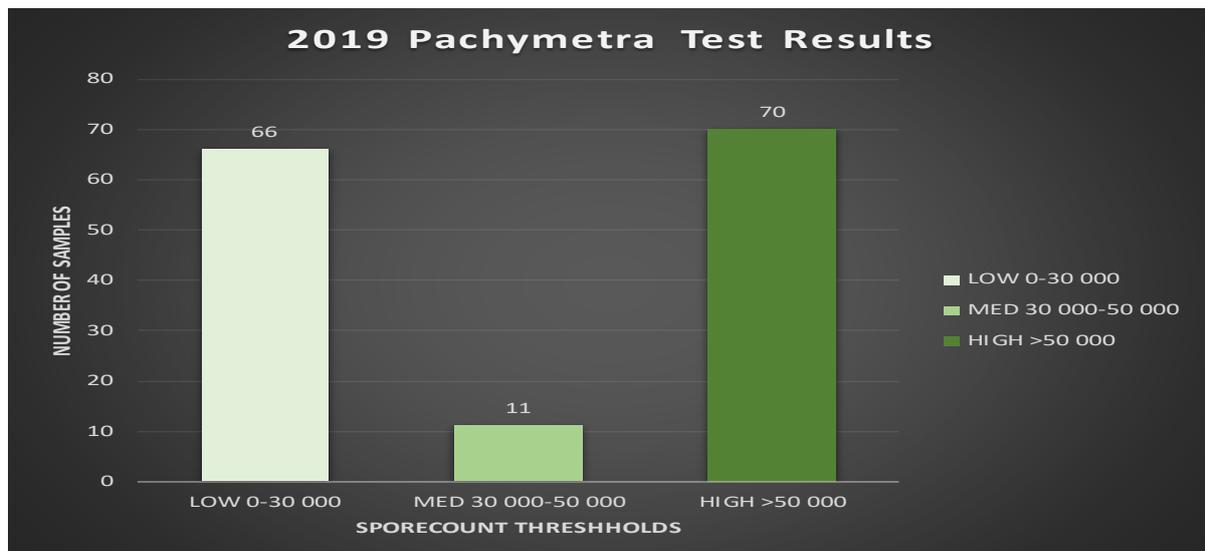


Figure 13: 2019 Pachymetra test results



## Chlorotic Streak

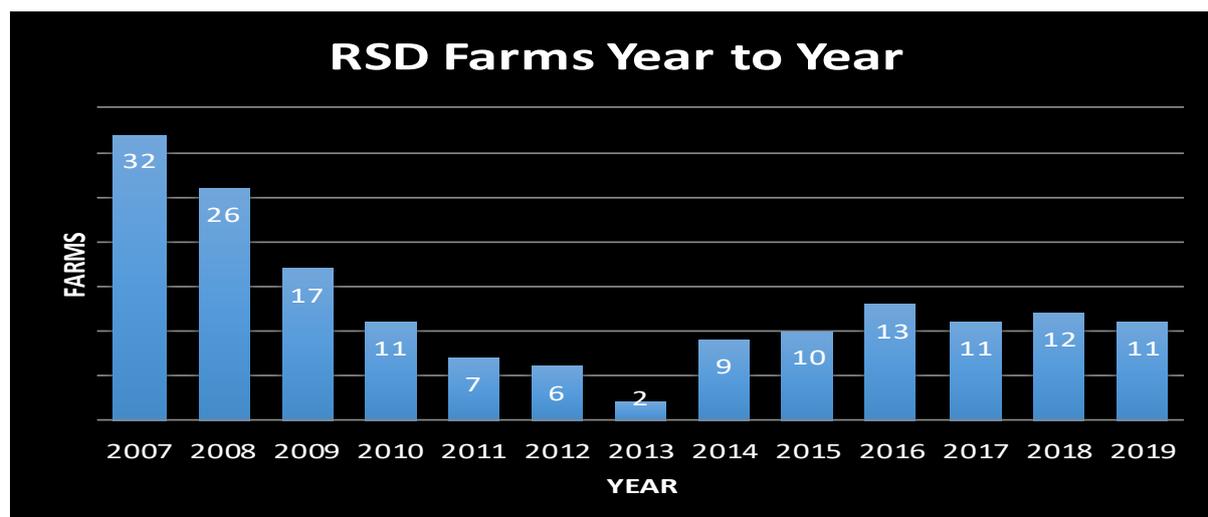
Approximately 56% of the area planted in 2019 was with resistant and intermediate-resistant varieties.

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.

## Ratoon Stunting Disease (RSD)

This disease is managed closely by the Productivity Officers who 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 use poor planting/harvest hygiene. 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 in at least one block on their farm (Figure 14).

Figure 14: RSD farms 2007-2019



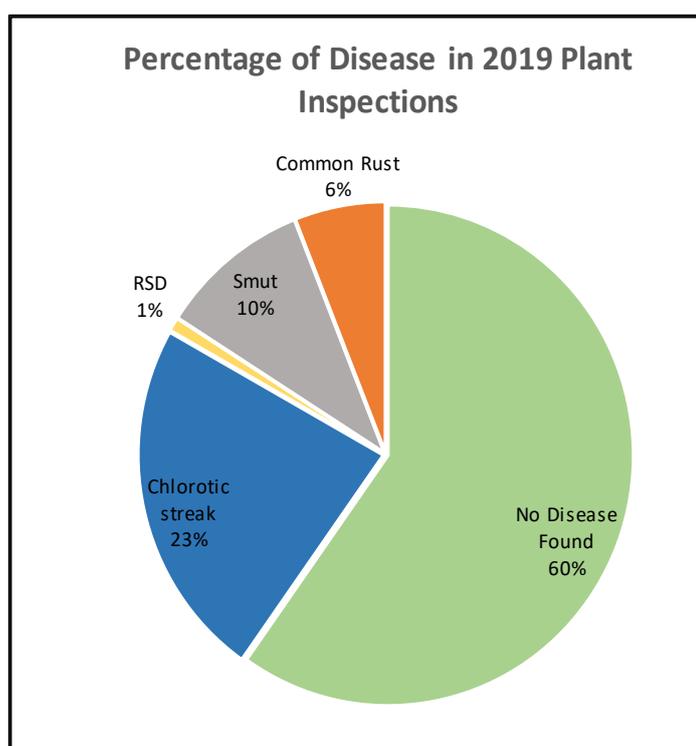
## Plant Inspections

60% of the plant inspections conducted in 2019 have resulted in no disease detected (Figure 15).

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 15: Diseases in 2019 plant inspections



## 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 plus Finch Hatton and Calen lease plots for this sole purpose. 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 76% of cane planted in 2019 came from a seed source LESS than 4 years away from HWT. In an effort to supply more clean seed to growers, MAPS has established another two mother clean seed plots in Calen and Gargett. These mother plots will provide the clean plant material for the two bulk clean seed plots to be open for billet distribution in 2020.

Figure 16: 2019 plant area HWT dates

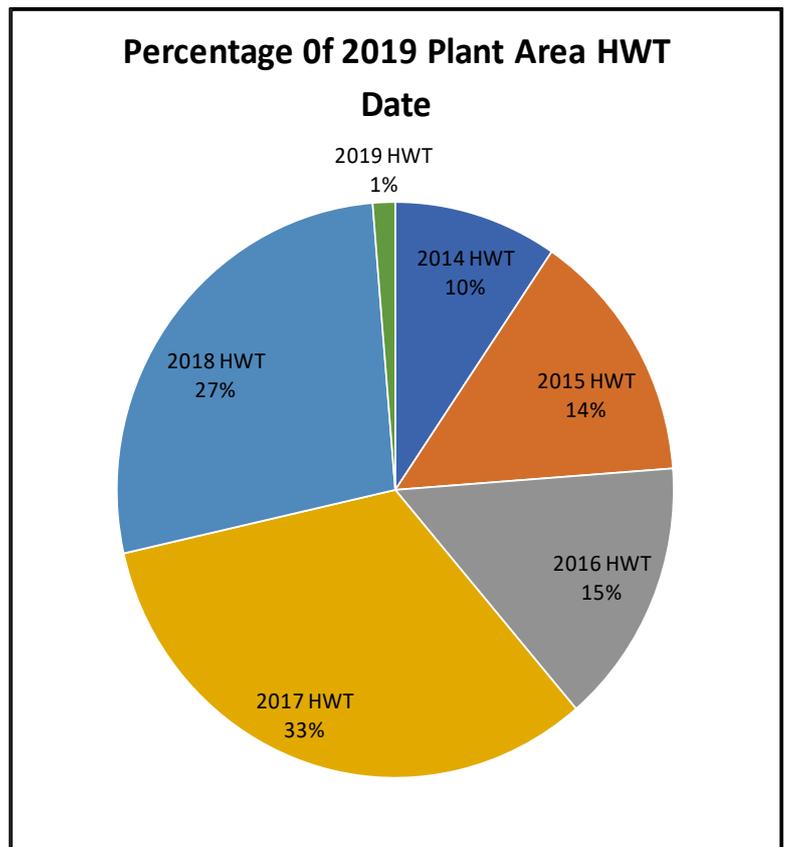


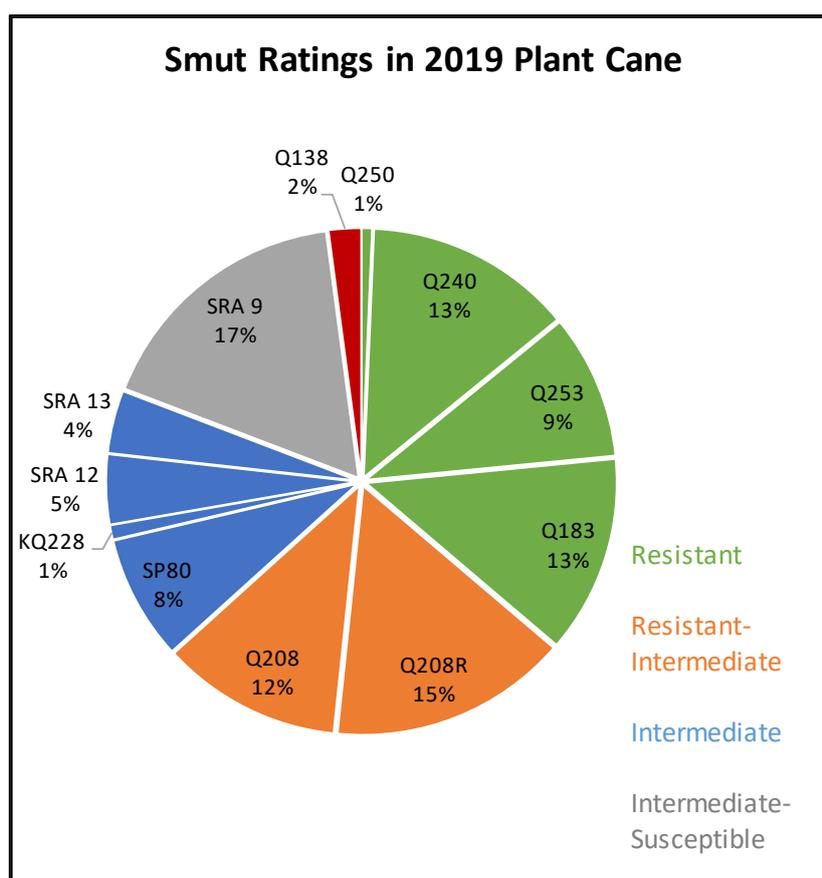
Figure 17: Calen clean seed distribution Mother Plot



## 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. The dry conditions experienced throughout the 2019 season provided ideal conditions for Smut to flourish. 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 are expected. While SRA9 has a relatively high Smut rating, very little or no Smut is being found in the field, which is very encouraging, considering the recent dry conditions.

Figure 18: 2019 plant cane Smut ratings



## Yellow Canopy Syndrome (YCS)

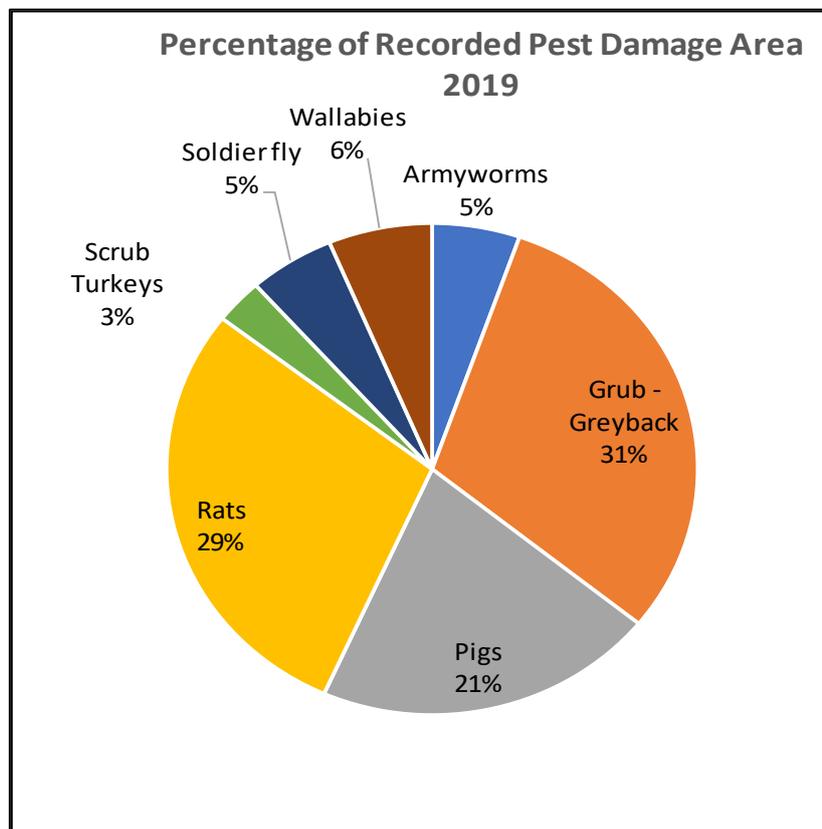
SRA continues to conduct trials to understand the effects of YCS on cane plant physiology and bio-chemistry, however the causes of this syndrome remain largely unknown. The impact of YCS across the region varied greatly, which unfortunately is the nature of the syndrome and causes a great deal of concern to growers.

Throughout the 2019 crush, the North Coast region of Mackay Sugar was largely impacted by YCS and combined with the dry conditions, the crop yield and PRS was greatly affected. Some of the more severe YCS blocks suffered a PRS reduction of 3-4 units. While all varieties express some level of YCS, the most impacted were Q232, Q242, Q138 and Q240.

## PESTS

MAPS data suggests that over 28,000 tonnes of cane were lost due to pest activity in 2019. Greyback grubs caused the most damage, followed by rats and pigs (Figure 19).

**Figure 19: 2019 Recorded Pest Damage**



### Rats

Approximately 10,000 tonnes of cane are estimated to have been eaten and destroyed by the combination of climbing and ground rats in 2019. The rat damage is marginally less than the previous year. With the dry conditions experienced during the harvest, the rats used the cane blocks as a harbourage and a food source, resulting in the considerable yield losses.

### Feral Pigs

Approximately 6,000 tonnes of cane are estimated to have been destroyed by feral pigs in 2019. Pig damage was similar to the previous year.

### Other vertebrate pests

Other vertebrate pests which pose problems each year but vary in severity and geographic spread and which require attention by MAPS staff include swamp hens (coots), scrub turkeys, wallabies and cockatoos. Both cockatoo and swamp hen damage slightly increased from the previous year.

## Cane Grubs

Cane grub damage has doubled from the previous year with over 8,000 tonnes estimated to have been lost in 2019. Growers have effectively used the grub control chemical, Imidacloprid, to reduce the risk of grub damage and therefore yield losses. However due to the dry conditions experienced the previous year, numerous growers could not apply grub control treatments effectively, resulting in the recorded damage.

Figure 20: Estimated pest damage 2010-2019

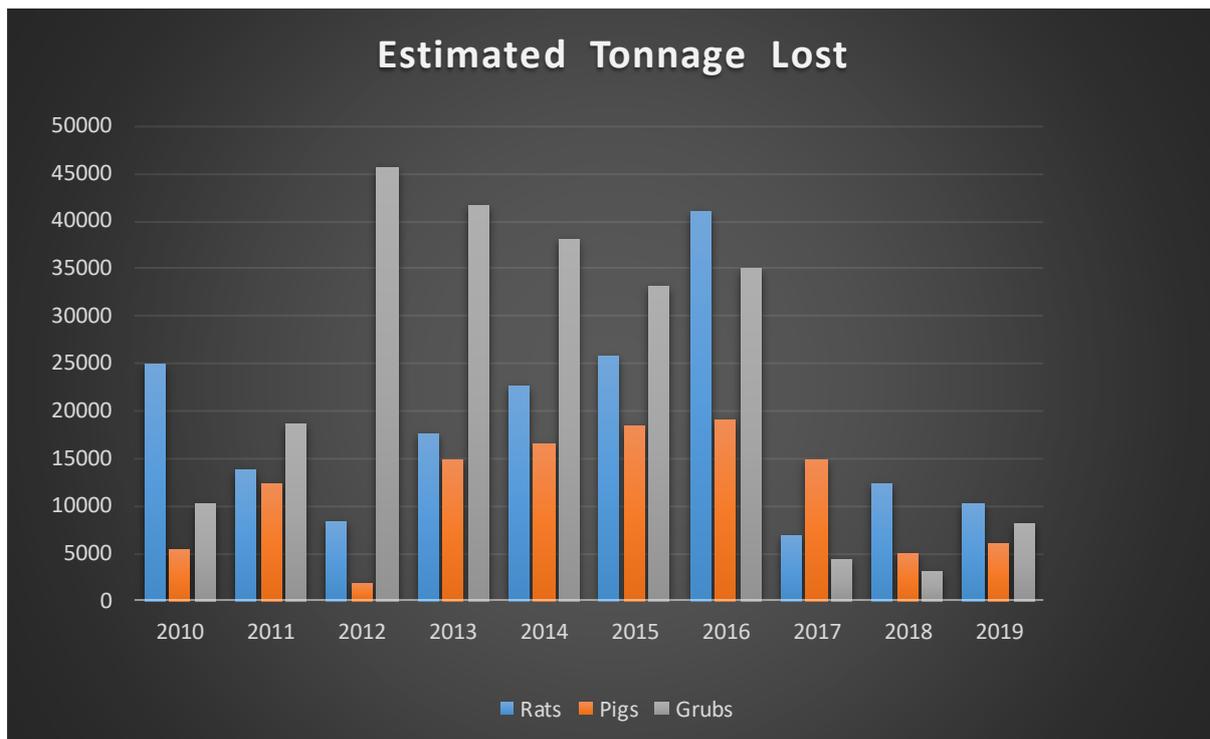


Figure 21: Cane grub larvae



Figure 22: Cane grub damage



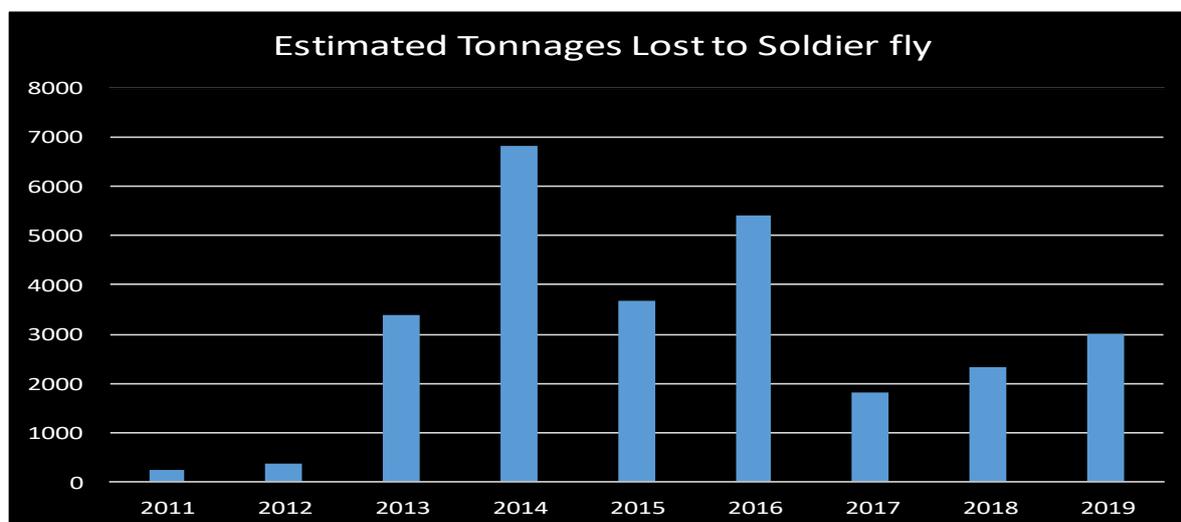
## Soldier Fly

Soldier Fly infestations are still on the increase, with some smaller outbreaks being recorded in areas which have not been exposed in recent history.

Approximately 3,000 tonnes was the estimated loss from this pest in 2019. MAPS continues to work with Soldier Fly-affected growers, in order to ensure that current management practices are extended and any new ideas/practices evaluated.

MAPS has been collaborating with SRA who has established an insecticide screening trial and aerial spraying trial in the Finch Hatton area.

**Figure 23: Solider fly damage 2010-2019**



## Other insects

Other insects which pose problems each year but vary in severity and geographic spread and which require attention by MAPS staff include Wireworms, Weevil Borer, Moth Borer, Bud Moth and Armyworm. The combination of Armyworms and dry weather experienced during the 2019 crushing caused a great deal of concern for growers, however the blocks recovered well with no yield losses recorded.

## WEEDS

### Red Witchweed

MAPS, through Steve Garrad, provides liaison between affected growers and Biosecurity Queensland (BQ). They continue working toward eradication using hygiene practices, false host fallow crops, ethylene injection and other means, with funding for the project ending by June 2020. Funding is being sought for an extra four years with the expectation the weed will be eradicated by then and the affected farmers can resume full production on their properties.

## OTHER SIGNIFICANT ACTIVITIES/EVENTS

### **MAPS 5 Year Strategic Plan and Budget 2020/2021**

The MAPS Board, CEO and senior staff reviewed the MAPS Work Program and activities 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 Program and Fallow Management were identified as opportunities to improve sustainability and productivity. A 5 year Strategic Plan was implemented. The CEO, Company Secretary and Board reviewed the 2020/2021 Budget. The Budget was adjusted and approved by the Board.

### **Regional Variety Committee (RVC)**

MAPS proposed the possibility of introducing other varieties into the Final Assessment Trials (FAT) as standards at the RVC meeting. SRA9 was put forward, because it is a very high yielding variety that would set a higher standard for tonnes/hectare. SRA agreed to add SRA9 as a standard into future FAT's plots. MAPS will provide SRA with a clean source of SRA9 from the MAPS clean seed plot.

MAPS requested that SRA11 be trialled in the Central region. SRA11 is a southern variety which has good Smut and Pachymetra ratings, however the variety has been identified with some fibre issues. The Regional Variety Committee was informed of MAPS' request and of the milling issues and agreed for a milling trial to be established. The milling trial will be ready for harvest in 2021. SRA11 will not be planted into observation plots.

SRA26 is a northern variety that has good Smut and Pachymetra ratings with no milling issues. MAPS has requested a plant source through SRA, so that the material can be propagated up through a MAPS Mother Plot and maturity and commercial data collected before a potential release in the central region.

### **Ratoon Stunting Disease (RSD) Survey**

Staff conducted a 2019 RSD survey of the Mackay Sugar region, which targeted inspecting older blocks of ratoons. Each Productivity Officer surveyed approximately 25% of their farms. Older ratoon blocks on these farms were selected because if RSD is present, it is more likely to be found in those blocks. No new detections of RSD were found with over 300 farms inspected, as shown in Table 3. These results reinforce the good work MAPS does to maintain the current low levels of RSD throughout the Mackay sugar region. Currently RSD is only found on 1.1% of Mackay Sugar farms. The survey will be conducted again in 2020.

Recent reports from several of the northern milling areas indicate RSD levels are extremely high with 30-40% of farms affected. These high levels are a result of the lack of RSD monitoring, lack of clean seed uptake and lack of adequate machine/equipment (harvesters/planters) hygiene from farm to farm. RSD levels can escalate quickly if they are left unchecked as observed from the levels recorded in the north. MAPS sets a very high standard with RSD monitoring and the results are reinforced by the RSD survey results and the current RSD levels throughout the Mackay Sugar region.

**Table 3: 2019 RSD survey**

Area	No. of Farms	RSD Detections
Marian	90	Nil
Farleigh	92	Nil
Racecourse	88	Nil
Pleystowe	75	Nil
<b>Total</b>	<b>345</b>	<b>Nil</b>

### **2019 Productivity Conference**

Most productivity services companies attended the Productivity Conference in Cairns on 26-28 November 2019.

The biggest challenges faced by the Productivity Boards were identified as:

- Losing cane land to other crops and urbanisation
- Little time for non-core activities which are always increasing
- Pachymetra & Ratoon Stunting Disease
- Lack of suitable varieties
- Water quality regulations (Reef Regulations)
- External funding affecting core activities
- Threat of exotic pests
- Attracting young people to work as advisors and retaining staff
- Cost of irrigation and water availability
- Record keeping and reporting
- Convincing growers to use practices that enhance soil health.

Other significant issues raised by the group included:

- **Complementary fallow crops in the Sugar Industry**  
With the current high prices of legume crops, more and more growers are investigating a range of possible fallow crop options for Queensland sugar cane farming systems. Apart from the standard fallow options, other crops being investigated are sun hemp, sunflower, spring rice, sesame, sweet corn, chickpeas and camelina oilseed. Growers are working on adapting cropping systems in new or diverse environments, with an aim of developing robust, sustainable and diverse farming systems with enduring profitability. Trials are investigating the benefits of a multi-species fallow planting of sun hemp, sunflower and sweet corn, hoping the interaction between the nitrogen fixing properties of sun hemp, deep root system of sweet corn and the soil biological conditioning of sunflower will be highly beneficial in the sugar industry. The trials are promoting the benefit of a 16 month fallow to grow several break crops as cash crops, while improving soil health.

- Dirty harvesters/equipment arriving in districts**  
 Several machines from all districts had arrived in other districts quite filthy and without being granted a permit to move. The importance of growers/resellers obtaining permits and the implications of not being thorough (new Biosecurity Act fines and potential spread of pests/weeds/disease) were discussed. More work needs to be done to ensure growers and contractors understand their responsibilities. The Mackay district is very proactive in promoting the importance of machinery permits via the MAPS website & newsletters, Billet Newsletter and discussing the topic at shed meetings.
- High RSD levels in the Wet Tropics**  
 Ratoon stunting Disease (RSD) can have a significant financial impact on the sugar industry if left unchecked. Unfortunately, over the years, several Productivity Services have focused on other activities and the RSD levels have increased to between 20-40% of farms affected. To address their current high levels, they are now implementing a clean seed program and conducting regular plant inspections. Fortunately, MAPS has always maintained the strict protocols of clean seed, regular plant inspections and providing one-on-one extension with growers to combat the disease. Due to this excellent work, the Mackay district has very low RSD levels of 1% of farms affected.

The group decided that the Productivity Conference would continue biennially and that the Burdekin and Herbert regions would host the conference in 2021.

### Community Involvement

MAPS staff gave assistance and support to a number of community activities such as the Mackay Show, Pioneer Valley Show and CANEGROWERS Mackay Ag-Trade Expo.

### STAFF CHANGES

**Indiana Zarb** commenced as a Smartcane BMP Support Officer in June 2019.

### STAFF TRAINING

Indiana Zarb attended a **Chemical Accreditation Training** course at SRA Mackay

Staff attended an **Irrigation Workshop** held at the SRA Mackay

CEO attended annual **Fire and Emergency Training** at SRA Mackay

Maryanne Volker, Britney Gibbs, Brendan Rae and Indiana Zarb attended a **Sugarcane Production Basics Workshop** held by SRA at Clare

Maryanne Volker, Britney Gibbs, Brendan Rae and Indiana Zarb attended a **SRA Six Easy Steps Workshop** at the SRA Library

Staff attended a **Mental Health First Aid Training Workshop** held at the SRA Library

Shane Hare travelled to the Agtrix Headquarters in Northern NSW for **Agtrix Farming** training

Maryanne Volker attended a **Fallow Management/ Breakcropping Field Tour** held in Bundaberg.

## ACKNOWLEDGEMENTS

MAPS is the main on-farm provider of quality advice and extension to 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 co-operated 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 Limited, SRA, Reef Catchments, Queensland Department of Agriculture and Fisheries (DAF), Department of Environment and Science (DES) 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

### MAPS Staff - 2019

