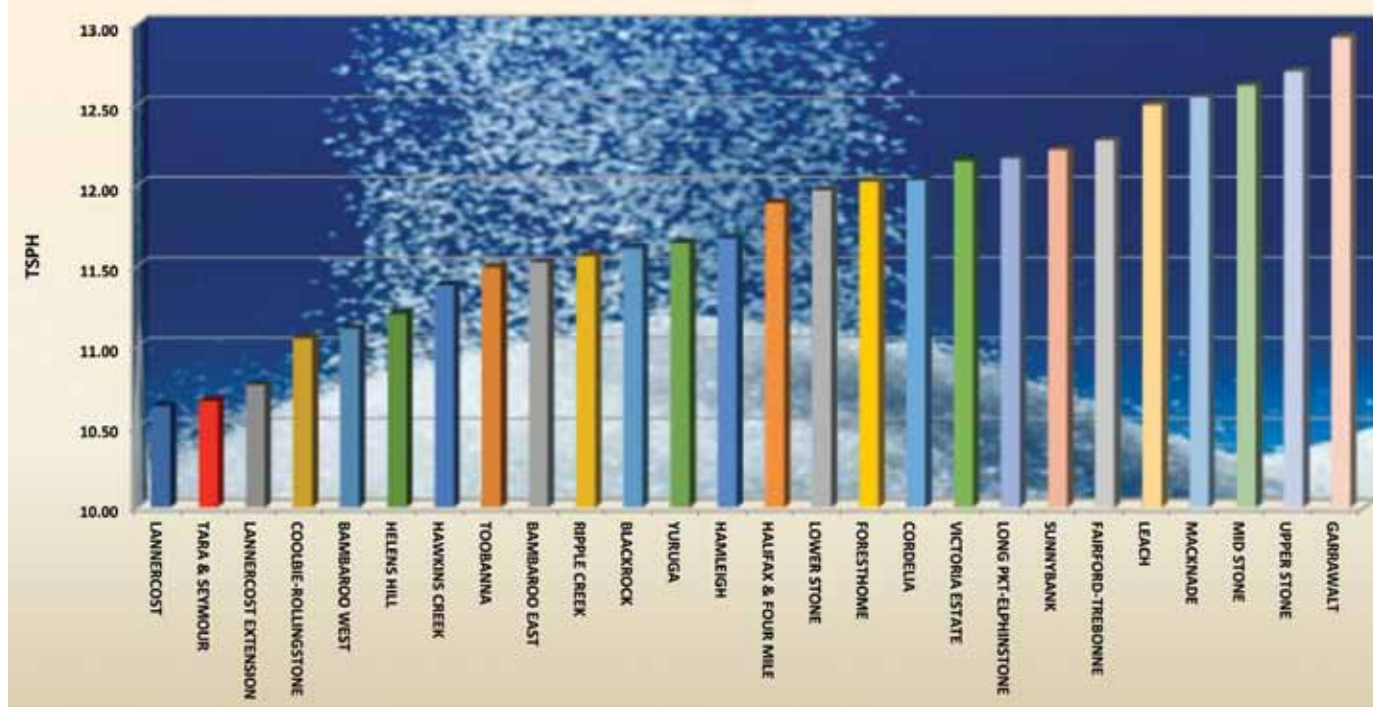




HERBERT SUGAR INDUSTRY REPORT 2018



District Productivity



CROP PERFORMANCE 2018

2018 will be remembered for extreme weather events with a big flood in March, drought during the crushing and then more localised floods in December 2018.

This was one of the few years in memory where there were virtually no mill stops due to wet weather.

However, the 2018 crop of 4.72 million tonnes of cane was still a reasonable crop with CCS of 14.24. The average cane yield was 82.71 tchp, with a sugar yield of 11.78. Although we did not achieve our Target 85 goal, the District's sugar yield (arguably a more important metric), was one of the best on record.

Most sub districts had good cane yields, with the highest CCS in 14 years. After a few challenging years previously, Stone River (spared from the worst of the flood) achieved a standout result with yields around 90 tchp and sugar around 15 CCS. The Abergowrie area and parts of Macknade also had exceptional cane yields.

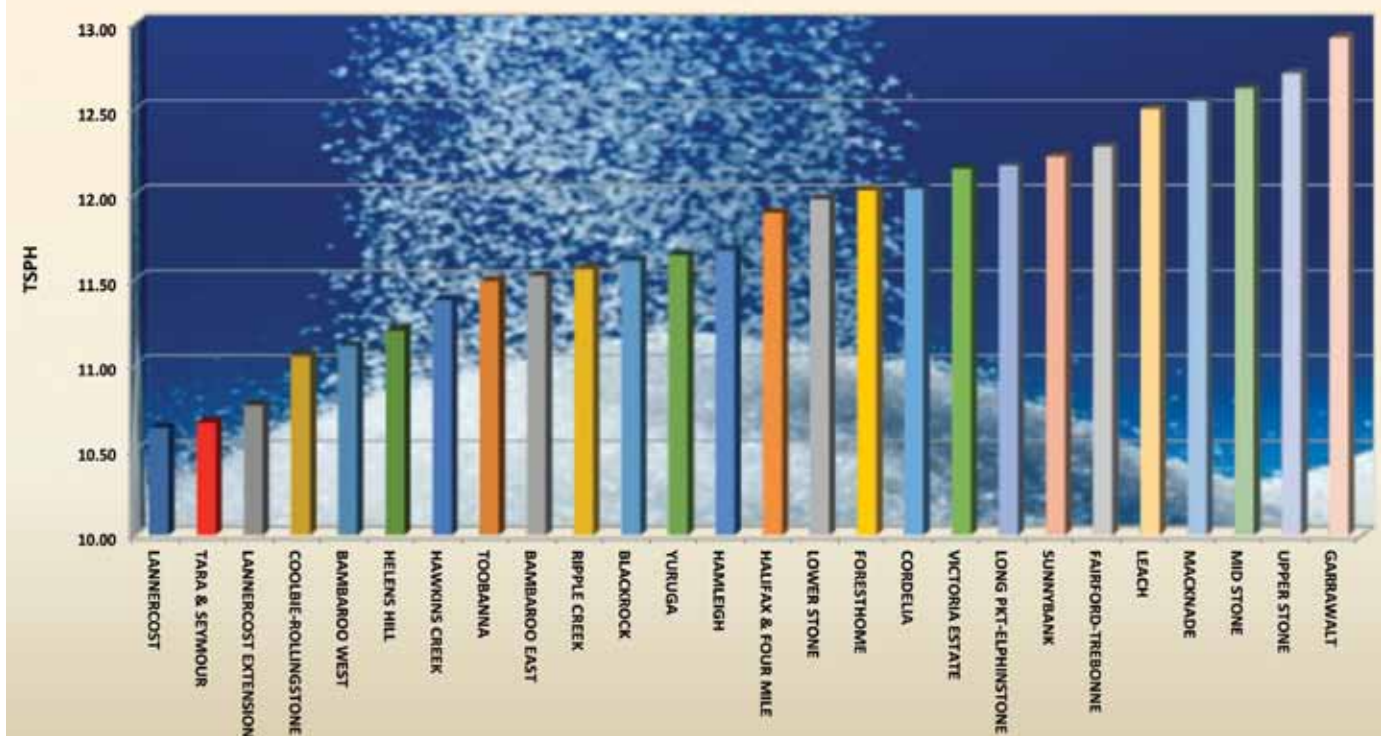
Yellow Canopy Syndrome pleasingly, was not as severe in some areas as in the past few years and this coupled with the dry conditions allowed the crop to reach its CCS potential.

HISTORICAL DATA

Year	Tonnes	Ha Harvested	CCS	Cane Yield	Sugar Yield	Year	Tonnes	Ha Harvested	CCS	Cane Yield	Sugar Yield
1991	2328911.56	41309.36	14.74	56.38	8.31	2005	5553359.05	57078.93	13.11	97.29	12.76
1992	3398465.82	42926.40	14.23	79.17	11.26	2006	4900084.45	57658.50	12.62	84.98	10.72
1993	3873973.78	44650.81	13.37	86.76	11.60	2007	4287010.73	57158.66	13.84	75.00	10.38
1994	3888137.31	46730.02	14.74	83.20	12.27	2008	4688595.64	55061.21	13.54	85.15	11.53
1995	4908214.85	50051.86	13.05	98.06	12.80	2009	3920941.21	51171.33	14.79	76.62	11.33
1996	5251285.67	53513.30	13.21	98.13	12.96	*2010	3274402.07	39567.98	12.85	82.75	10.64
1997	5272421.61	57328.33	13.37	91.97	12.29	2011	2920400.98	52364.64	12.89	55.77	7.19
*1998	4191272.31	48669.90	11.46	86.12	9.87	2012	3625680.08	50394.18	13.57	71.95	9.77
1999	4151741.51	59955.95	12.73	69.25	8.81	2013	4000685.4	54017.57	13.95	74.06	10.33
2000	2802049.39	58379.16	13.01	48.00	6.24	2014	4152315.8	55800.99	13.62	74.41	10.13
2001	3311004.97	56876.94	14.34	58.21	8.35	2015	4459593.6	56615.75	13.41	78.77	10.56
2002	4243591.27	54892.20	14.40	77.31	11.13	*2016	4812090.08	56166.82	12.26	85.67	10.50
2003	4051558.05	56975.69	13.90	71.11	9.89	*2017	5033395.85	57078.74	12.88	88.18	11.36
2004	4641372.86	56410.75	13.56	82.28	11.16	2018	4718178.26	57042.90	14.24	82.71	11.78

*Standover Left

District Productivity



REGIONAL ISSUES

The 2018 wet season arrived late, but when it did come, we experienced a significant flood in March and then a huge deluge in December when ex- Cyclone Owen decided to dump up to 700mm of rain overnight in parts of the district. The 2018 harvest period was extremely dry with little to no rain falling.

We did not quite hit the **Target 85** goal, however the region had high CCS. 4.72 million tonnes of cane were harvested in 2018. The dry harvest with no subsequent crop grow-on, the impact of the March flood and late finish of the 2017 harvest prevented the region from reaching the **Target 85** goal. The HCPSL **Target 85** program aimed at getting the Herbert industry back on track to achieving high productivity achieved a number of milestones during 2018. The most notable achievements in 2018 were:



Crop agronomy

- Numerous nutrient management plans were undertaken for growers through the Wet Tropics Sugar Industry Partners (WTSIP) program. These plans have allowed growers to better target nutrient applications, while addressing water quality concerns.
- Undertook 16 Project Catalyst trials assessing innovative farming practices. The Coca Cola Foundation through WWF have funded this project.
- The SRA funded Soil Health project was very busy establishing trial sites, assessing the impact of farming systems and hosting the “Kicking the Dirt” soil health workshops. The project team consists of involved growers, SRA, University of Queensland, Burdekin Productivity Services, MSF and HCPSL staff.

Crop improvement

- Continuation of the SRA core and introgression plant breeding programs in the region.
- The continuation of the HCPSL funded Ratoon Variety Trials. These trials were established in 2013 to assess varieties on difficult environments in the Herbert region. These trials complement the SRA core plant breeding program.

Variety management

- Variety management plans were established for approximately 30% of the fallow area for planting. HCPSL staff use the SRA QCANE Select program to assist growers select the correct variety to plant in a field.
- A trial to assess SRA5 at varying nitrogen rates.

Biosecurity and disease management

- Inspection of machinery entering or leaving the region.
- Provision of over 1600 tonnes of approved seed cane to growers, with the bulk of this cane being supplied as whole stalk and billets.
- Continued work associated with the management of the Pachymetra root rot following the survey work completed in 2015. This survey highlighted that there were considerable high levels of the disease in the soil throughout the district. Growers on impacted farms are urged to plant resistant varieties to manage the issue.

YCS management

SRA and HCPSL funded projects on YCS continued. The project made a breakthrough where cane could be maintained YCS free through the use of a specific insecticide. This breakthrough will be followed up in 2019 to investigate what is the causal agent causing YCS. The data generated from this work will assist growers to make better management decisions concerning YCS.

Drainage

- Continuation of laser levelling surveys and dumpy level surveys to improve in-field drainage.

Pest management

- Continued funding the Hinchinbrook Community Feral Pig Management Programs leading to a significant reduction in feral pig damage to cane crops.

Precision agriculture

- Continuation of the HCPSL Yield Mapping project, mapping over 20,000 hectares annually. The maps generated are now being used by industry to site specific manage cane blocks within a farm.
- HCPSL continued to fund and operate the Herbert Community Basestation network with over 350 GPS users now accessing the signal provided.
- The continuation of the Terrain NRM and HCPSL funded soil mapping project with the University of New South Wales. This project investigated ways to increase productivity through the use of electronic soil mapping equipment.
- HCPSL supported the Society of Precision Agriculture Australia (SPAA) workshop in September with over 160 people attending the workshop.

Harvest management and systems

- Continued work to investigate harvesting losses and associated issues concerning harvesting and transport. SRA lead this project with support from HCPSL and Wilmar.
- The annual harvesting forum was well attended in March, with over 120 people attending.

Youth development

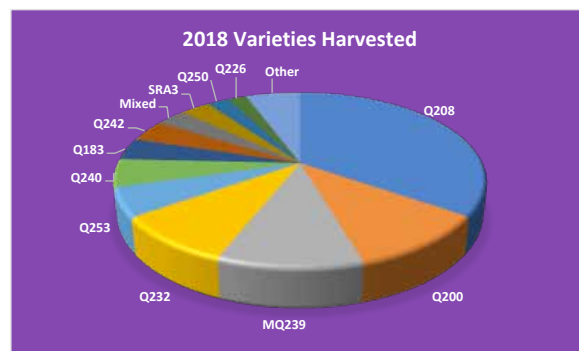
- Support and coordination of the young farmer group.
- HCPSL supported the under 18 section of the Ingham Show cane display.

Environment and sustainability

- Canegrowers Herbert River continued to support growers undertaking Smartcane BMP.
- The Herbert River Catchment Landcare Group ran an NRM forum focusing on weeds, water quality and other environment matters in February. Over 40 attended the event.
- HCPSL completed the Queensland Government funded Project NEMO. This project worked with growers through farm demonstration plots to investigate farming systems and fertiliser products that could lead to improvements in water quality outcomes, while remaining profitable.
- HCPSL, the Herbert River Catchment Landcare Group and QDAF continued funding the Herbert water quality monitoring project. The data from this project is used to inform growers of their environmental impacts.
- The Cane Changer project held a number of activities in the region, working with growers to set the record straight about what the industry has and is achieving in relation to environmental management.

VARIETY PERFORMANCE & RECOMMENDATIONS

Q208^Φ continues to remain as the major variety for the district, being over 30% supply in all sub-districts. Q200^Φ continues to be a major variety throughout the district, with many crops being old ratoons. Older varieties like Q183^Φ, MQ239^Φ and Q232^Φ are declining in area planted, however are being replaced by new emerging varieties like Q253^Φ, Q240^Φ and Q250^Φ. A decision at the Herbert Regional Variety Committee has removed SRA3^Φ from the Herbert planting list because of the high incidence of smut and infection of other varieties. Poor ratooning under wet and late harvesting are also concerns with SRA3^Φ. Growers are requested **not** to continue planting SRA^Φ.



NEW VARIETIES

SRA14^Φ

Clone Name QC02-402
Parentage QN91-295 x Q200
Disease Ratings Smut- Intermediate
Pachymetra – Resistant
Leaf Scald – Resistant

Open habit in field, moderately thick barrel, prominent eye. Looks similar to its parent Q200^Φ. Yield has shown to be average to below average of standards (Q200^Φ and Q208^Φ). CCS has displayed average to above average of standards (Q200^Φ and Q208^Φ).

SRA10^Φ

Clone Name QN06-807
Parentage N92-157 X QN91-3898
Diseases Smut – Intermediate
Pachymetra – Intermediate
Leaf Scald – Resistant.

This clone has an abundance of trash with slightly drooping leaves. The stalk is usually above average in height and width, with the population being marginally lower. Yield has been noted to perform consistently below average of standards, however the CCS has displayed average to above average performances. This variety was released with the potential of it achieving early CCS.

Herbert Recommended Varieties x Soil Type			
Dry Zone		Wet Zone	
Terrace Loamy Soils	Q200 ^Φ , Q247 ^Φ , Q208 ^Φ , Q238 ^Φ , Q240 ^Φ , Q242 ^Φ , Q250 ^Φ , Q253 ^Φ , Q183 ^Φ	Alluvial Soils	Q238 ^Φ , Q200 ^Φ , Q208 ^Φ , Q237 ^Φ , Q240 ^Φ , Q247 ^Φ , Q250 ^Φ , Q231 ^Φ , Q183 ^Φ
Clay Soils	Q200 ^Φ , Q208 ^Φ , Q242 ^Φ , Q232 ^Φ , Q226 ^Φ , SRA5 ^Φ , Q253 ^Φ , Q183 ^Φ , Q231 ^Φ	Terrace Loamy Soils	Q242 ^Φ , Q200 ^Φ , Q208 ^Φ , Q237 ^Φ , Q240 ^Φ , Q238 ^Φ , Q250 ^Φ , Q231 ^Φ , Q183 ^Φ , Q253 ^Φ
Sandy Soils	Q208 ^Φ , Q232 ^Φ , Q226 ^Φ , Q200 ^Φ , Q242 ^Φ , Q253 ^Φ , SRA5 ^Φ	Clay Soils	Q242 ^Φ , Q237 ^Φ , Q200 ^Φ , SRA5 ^Φ , Q208 ^Φ , Q240 ^Φ , Q232 ^Φ , Q231 ^Φ , Q183 ^Φ , Q253 ^Φ
Hill Slope Soils	Q208 ^Φ , SRA5 ^Φ , Q232 ^Φ , Q238 ^Φ , Q242 ^Φ , Q253 ^Φ	Seymour Soils	Q200 ^Φ , Q240 ^Φ , Q183 ^Φ , Q208 ^Φ , SRA5 ^Φ , Q242 ^Φ , Q253 ^Φ
Varieties Displaying Tolerance of Sodic Soils Q138, Q215 ^Φ , Q226 ^Φ *			

Note – This information has been compiled using limited data for SRA5^Φ, Q250^Φ, Q247^Φ, Q242^Φ, Q238^Φ, Q237^Φ, Q226^Φ

DISEASE RATINGS FOR VARIETIES IN THE HERBERT

	Brown rust	Chlorotic streak	Leaf scald	Orange rust	Pachymetra root rot	RSD	Red rot	Smut	Yellow spot	
Q183 ^Φ										Q183 ^Φ
Q190 ^Φ										Q190 ^Φ
Q200 ^Φ										Q200 ^Φ
Q208 ^Φ										Q208 ^Φ
Q215 ^Φ										Q215 ^Φ
Q226 ^Φ										Q226 ^Φ
KQ228 ^Φ										KQ228 ^Φ
Q231 ^Φ										Q231 ^Φ
Q232 ^Φ										Q232 ^Φ
Q238 ^Φ										Q238 ^Φ
MQ239 ^Φ										MQ239 ^Φ
Q240 ^Φ										Q240 ^Φ
Q242 ^Φ										Q242 ^Φ
Q247 ^Φ										Q247 ^Φ
Q250 ^Φ										Q250 ^Φ
Q253 ^Φ										Q253 ^Φ
SRA3 ^Φ										SRA3 ^Φ
SRA5 ^Φ										SRA5 ^Φ
SRA10 ^Φ										SRA10 ^Φ
SRA14 ^Φ										SRA14 ^Φ

= Resistant
 = Intermediate
 = Susceptible
 = Unknown/In Trial

PLANT BREEDING & SELECTION PROGRAM

Implementation of Herbert Plant Breeding Review Recommendations

The first Herbert Clonal Assessment Trial (CAT) containing 526 replicated clones was harvested in 2018 and the yield information is currently undergoing analysis and interpretation. First ratoon data will be collected in 2019, and together with the plant crop data, will be used to identify the best performing clones for disease testing and advancement to the Final Assessment Trial program.



A new laboratory was built in 2018 with new juice lab equipment, including a disintegrator and NIR instrument for quality component analysis. The new NIR instrument has undergone testing and will be subjected to further testing and calibration before the 2019 season commences.

Introgression Trials

The first introgression seedling trial (iPAT) for the new program was planted in the Herbert in 2018 with 8000 seedlings. The trial was harvested in November 2018 and will be harvested again in June 2019.

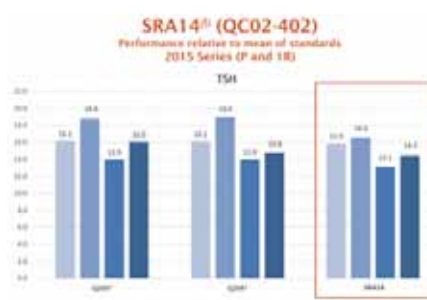
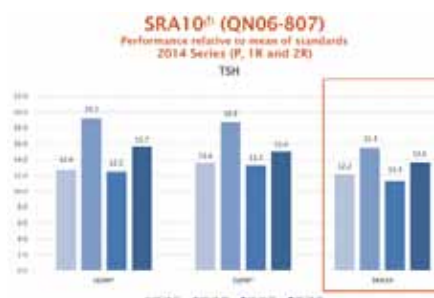
An introgression Clonal Assessment Trial (iCAT) was also planted in 2018 with 400 introgression clones. This trial will be harvested at commercial speed in 2019, and yield data and observations will be collected in the ratoon crop.

Propagations were planted in 2018 in preparation for the first introgression Final Assessment Trial (iFAT) in 2019 with 50 new introgression clones.

The introgression program will provide a sustained pipeline for the generation of new clones from wild relatives. It will also broaden the genetic base of Australian sugarcane breeding and deliver novel variation for current and future challenges.

New Release Varieties

The Herbert Regional Variety Committee Meeting (RVC) was held on 11th. April 2018. At this meeting, two new varieties were added to the Recommended List for planting in the Herbert region: SRA10[®] and SRA14[®]. These varieties will be available for growers in 2019.



iCAT - 400 clones at SRA Ingham



iPAT - 8,000 introgression seedlings split between HCPSL Macknade & SRA Ingham

SHOWCASING OUR INDUSTRY

VISITORS TO THE HERBERT

During 2018 the Herbert cane industry received the following delegations to view our industry practices first hand -

- 29th. May - 39 university students from the USA to review cane farming and environmental management in the Australian Cane industry.
- 1st and 2nd August - Brazilian sugarcane delegation reviewed cane farming and harvesting systems.
- 3rd. August - Pacific Islander delegation reviewed sugarcane industry environmental stewardship programs.
- 30th. August - Brazilian sugarcane delegation reviewed cane farming and harvesting systems.
- 5th. and 6th. September - A French based drone and sensor company, Delair, undertook a workshop in the region for industry technical staff.
- 26th. September - Brazilian sugarcane delegation reviewed cane farming and precision agricultural systems.

HERBERT SUGAR INDUSTRY AWARDS PRESENTED IN APRIL 2018

Award	Recipient
Grower of the Year (Sponsored by HCPSL)	Morselli Family Farming
Young Grower of the Year (Sponsored by QSL)	Lyle Glenwright
Mangrove Jack Award (Sponsored by Herbert River Catchment Group)	Sam & Santo Lamari
QMCHA Harvesting Efficiency Award	Gangemi Harvesting
Innovation Award (Sponsored by Rabobank)	Dan & Leanne Cordner
Farm Presentation Award (Sponsored by CAMECO)	Tony Crisafulli
Improved Farm Layout Award Sponsored by Canegrowers Herbert River)	Matthew Ingegneri
Consistent High Productivity (Sponsored by QSL)	Vella Enterprises TP Pedrucci L & J Rinaldo B & C Finlayson ST Gosney Mrs L Manenti
R&D On-farm Co-operation (Sponsored by HCPSL)	Steve Fortini Paul Cantamessa Warren & John Russo Vince Russo
Lifetime Achievement Award (Sponsored by HCPSL)	John Mahony Roger Celotto



Grower of the year - Morselli Family Farming



Young Grower of the Year – Lyle Glenwright



Innovation Award – Dan & Leanne Cordner



Lifetime Achievement Award – Roger Celotto

RESEARCH AND DEVELOPMENT



Australian Government
Department of Agriculture
and Water Resources



HCPSL
Herbert Cane Productivity Services Ltd.



SMART BLEND PROJECT – MORE PROFIT FOR NITROGEN

Trial sites at Lannercost and Lillypond are currently assessing the blending of enhanced efficiency fertilisers to maximise sugarcane profitability. Different blends and rates of urea with Agromaster® (PCU) and Entec® (NI) urea are being compared to straight urea (U). To date the trial at Lillypond has shown no significant difference in yield between any of the fertilised treatments (Fig. 1). However, the unfertilised control did produce less yield than fertilised treatments.

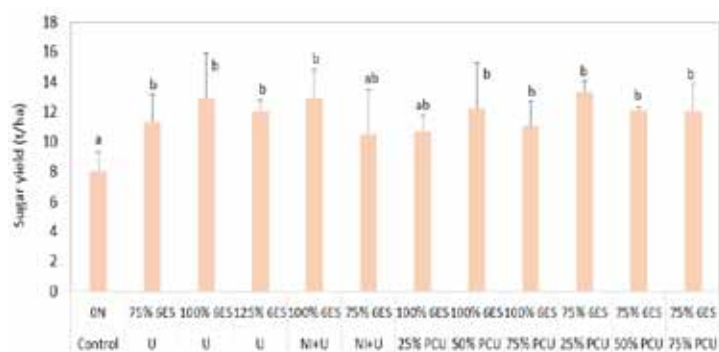


Figure 1. Yield results from 2018 harvest of Lillypond Smartblend trial. (PCU = Agromaster®, U = urea, NI = Entec)

At the Lannercost site all fertilised treatments resulted in significantly higher yields than the unfertilised control (Fig. 2). Among the fertilised treatments, urea at 125% of 6ES and 50% Agromaster® (with 50% urea) at 6ES produced similar yields that were significantly higher than other treatments. Results also indicate a general trend that nitrogen application at the 6ES resulted in higher yields than at 75% 6ES, particularly when Agromaster® and urea were blended.

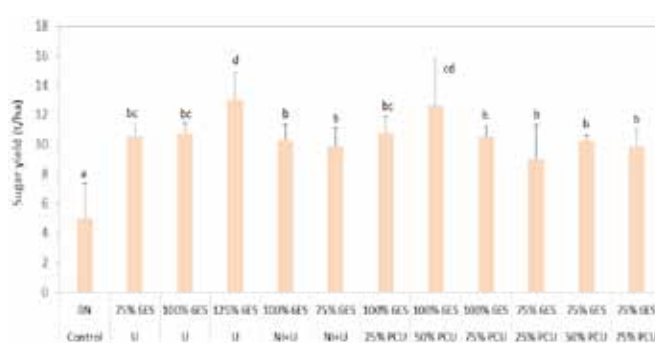


Figure 2. Yield results from 2018 harvest of Lannercost Smartblend trial. (PCU = Agromaster®, U = urea, NI = Entec)



Queensland
Government



ENHANCED EFFICIENCY FERTILISER PROJECT - EEF60

Despite an unfavourable start to the year with the March floods inundating several of the EEF60 trial sites in Ingham and Tully, all blocks have recovered well and there are no visible long-term productivity impacts. All 15 EEF60 growers established in 2017 have received their nutrient management plans.

This process involved collecting soil tests, understanding the soil type on their farms, ameliorant applications and fallow management in order to provide personalised fertiliser recommendations which are in line with Six Easy Steps guidelines. Several growers are now implementing these nutrient management plans on their farms and are finding the colour coded fertiliser maps (included in nutrient management plans) very helpful.

Given that this project is in its initial year, the process of developing nutrient management plans has been the main method of facilitating one-on-one extension with the EEF60 growers. Once the first year of data has been collected, it can be extended to other growers in the District via shed meetings or other group extension activities.

At present, HCPSL EEF60 extension agronomist Shannon O'Brien and other HCPSL extension staff have focused on extending how the industry aims to improve water quality through the use of enhanced efficiency fertilisers. This message has been extended to local, national and international visitors.

All EEF60 growers are eagerly awaiting the release of the results and are looking forward to seeing how the different treatments compare in productivity and profitability.



Extending how enhanced efficiency fertilisers reduce nitrogen losses to a group of Pacific Island delegates



Sugar Research
Australia

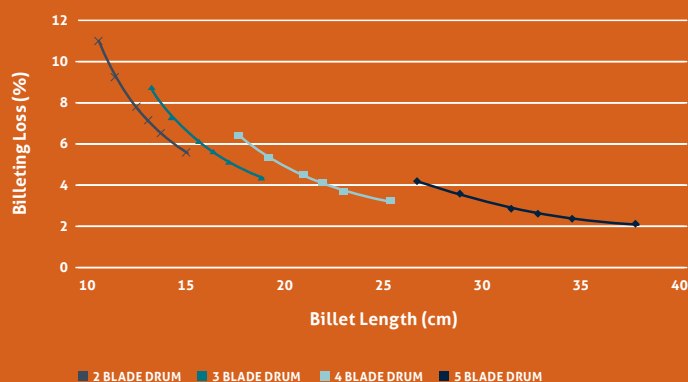
FEEDTRAIN OPTIMISATION

The quality of harvested sugarcane is affected by the length of the billets (see billet length factsheet) and billet quality (see assessing billet quality factsheet).

Chopper drum configuration, blade condition (sharpness) and feedtrain speed in relation to chopper drum speed have been shown to have a significant impact on billet quality and sugar loss.

Short and damaged billets are also a major contributor to harvesting losses which can be significant.

Increasing the number of chopper blades shortens billet length and increases losses as shown in the graph below.



FEEDTRAIN SETUP

Research indicates that the ratio between the surface speed of the feed rollers and the average chopper tip speed has a significant impact on sugar loss and cane quality.

Sugar loss, billet quality, billet length and consistency of length are optimised when this ratio is around 55-60%.

Trial results in QLD and NSW show that correctly matching the surface speed of the rollers to tip speed of the choppers can reduce chopper losses by 2% to 7% through:

- Enhanced evenness of feed resulting in uniform length, better quality billets
- Reduced juice loss in the chopping process
- Enhanced machine performance

As this ratio gets below 50% there is:

- Increased number of cuts and increased loss per cut
- Greater variability in billet length
- Increased billet damage, and
- Increased power consumption and blade wear.



Measuring soil health, setting benchmarks and supporting practice change (Herbert and Burdekin SOIL HEALTH PROJECT 2017005)

Following a successful-multi species legume cover crop over the 2017/18 wet season at the demonstration sites, the next step was to terminate the legume crop and take soil samples to determine nutrient status (N, P, K & S) from both the project and grower plots prior to commencing cultivation. The nutrition program for plant and ratoon crops will be based on the soil test results and SIX EASY STEPS nutrient management guidelines for the Herbert.

Two out of three project legume cover crops at the demonstration sites were slashed down mid-April/early-May and left to break down on the soil surface. The legume crop at the third site was knocked down with a frail mulcher. The grower plots were worked conventionally (disced, ripped, rotary-hoed etc). Where the legume crops were slashed down, it was difficult to keep the legume residue on the pre-mounded beds and out of the inter-row. An application of Glyphosate and 2,4-D was required to control grass and weeds before cultivation and planting the sugarcane crop. A Bed Renovator was used to reform the beds and incorporate any legume residue still lying in the inter-row from the earlier slashing event. The next cultivation on the project plots was conducted on a “**just in time**” approach, meaning the soil was cultivated only a few days before planting commenced. This method is used to conserve moisture and ensure good germination.

Two of the three project plots were planted with a dual double disc opener at 1.80m row spacing, while the third was planted with a Mizzi mound planter at 1.80m row spacing. The grower plots were all planted using a conventional furrow opener planter. Both the project and grower plots were planted with the same variety and planting rate to ensure similar plant populations per hectare.

After planting, all plots were sprayed with Dual Gold, Atrazine, 2,4-D and Gramoxone for pre-emergence weed control. The grower plots were cultivated at a different time to the mounded beds. Fertiliser was applied to each plot as determined from soil samples taken earlier in the year.

With the long dry spring and early summer, pre-emergent herbicides were not applied except for one site in the grower plot.

Five shed meetings were held with discussions taking place around a soil pit. A total of 88 growers (representing approx. 13822 ha) attended the five meetings. The soil pits were used to illustrate soil compaction, soil horizons/ layers and cane rooting systems. Davey Olsen (SRA) and Lawrence DiBella (HCPSL) talked about soil health, compaction, pre-wet season mounding and legumes. Davey Olsen (SRA) also did a presentation on some of the results from the paired site growers and a general talk on soil health and the purpose of the project.



Soil health under trash blanket at Bambaroo



Soil Pit demonstration at “Kicking the Dirt” shed meetings



Wide row mound planting

PROJECT CATALYST

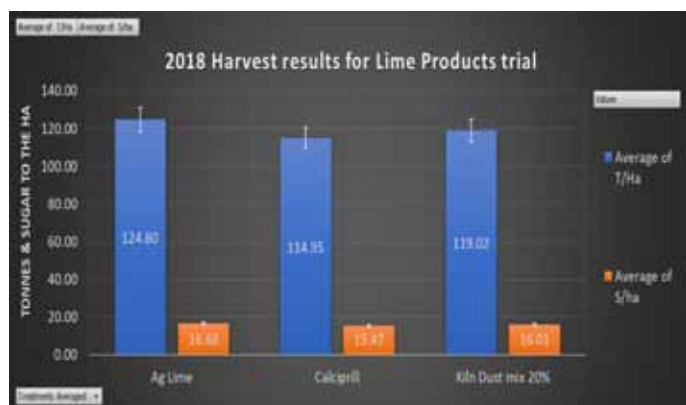
Project Catalyst (PC) inaugurated seventeen PC trials at the end of 2016 with HCPSL assessing innovative farming practices to improve soil and water quality. Project Catalyst trials are farmer-initiated trials that run over a three-year period. The trials look at ways to reduce chemical use, improve nitrogen use efficiency (NUE), improve soil health, improve sediment and water quality runoff while still improving or maintaining yield and sugar.

Some trial work is presented below with interesting data coming from the 2018 harvest season.

Lime Product Trial had its first harvest on the 2nd of August. This trial is assessing which lime product is the most cost effective, while still producing good cane and sugar tonnage. First year of data has produced the below results for yield and



Reduced N after Sunn hemp trial had its first harvest for the 2018 season on the 1st of September. The following results suggest that there is potential to reduce chemical fertiliser after a good legume crop. There was no statistical difference between nitrogen rates and the lowest N rate produced the highest sugar to hectare tonnage. See results below -

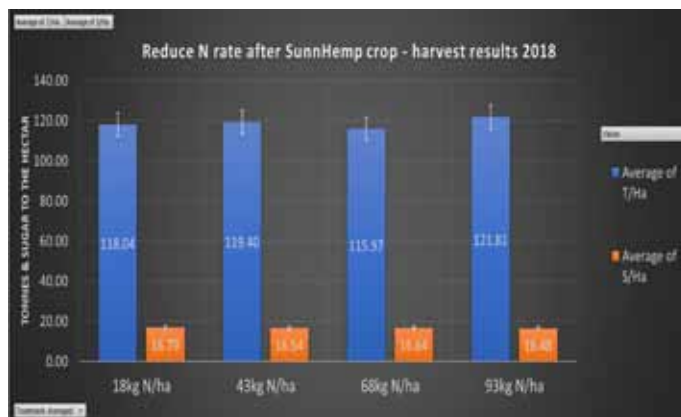


sugar - pH samples for the "Lime Product Trial" were taken on the 30th of August 2018 after the harvest. Agricultural Lime is so far shifting pH values the most. pH testing will continue this year on a smaller scale. See below for results -



Bio-Fertiliser Trials - Both the "Bio-fertiliser trials" had their first harvest for the 2018 season. So far there are no statistical differences between treatments, though economic analysis suggests the bio-fertiliser treatments are saving up to \$100 per ha compared to conventional methods of fertiliser.

Mixed Legume Trials are continuing into the third year of trials, with all three trials still producing interesting data with the aim to confidently reduce chemical fertiliser at the plant cane stage and improve soil health overall. The CRC for High Performing Soils (HPS) are jointly funding the third trial with Project Catalyst. Continue to watch this space for further development on mixed legume cropping and soil health benefits.



Microbial Products trials - There are three trials around the district that are testing microbial products in a drum to compare against conventional farming practices.

- **The Serenade Prime trial** at Pinnacle Hill has two years of data. There is no statistical difference between treatments at this stage, but the Serenade Prime has improved in the second season. Third leaf samples taken suggest that the Serenade Prime is perhaps helping the plant to take up Calcium and Magnesium better than the conventional.
- **The Microbial trial** at Seymour was harvested in September 2018 for the first time. This trial compared Serenade Prime, HE Plus microbes & Seasol Plus against a conventional practice. There is no statistical difference between treatments at this stage in the trial. HCPSL is waiting for the results of a DNA sequence to see if the microbes are still active in the soil and root zone at 15 & 25 weeks after application of treatments.
- **The K-Humates trial** has had its first harvest, with no statistical difference between the product and the conventional practice. This trial is running on a reduced rate of N of 100kg per ha and it alleged that potassium humates are supposed to assist with N uptake.

Project Catalyst were sponsors of the SPAA precision agricultural forum held on the 7th of September. Several interviews were held for the Project Catalyst website.

A "How to grow Legumes" checklist was produced with SRA Soil Health Project. This was presented in two forms, and an in-depth booklet is available to growers via the HCPSL and Project Catalyst websites.

Please feel free to have a look at www.projectcatalyst.net.au for more information on Catalyst trials around the State.

EXTENSION



Water Quality Grants and Tenders

2018 was an intense but very successful year for WTSIP/HCPSL extension staff. Existing staff, Leanne Carr and Jarrod Sartor, welcomed some new team members with Shannon O'Brien and Melissa Royle to help support our services for growers. The beginning of the year was mostly taken up developing projects with growers, applying for funding through the Reef Trust 3 program, as well as assisting with Reef Trust 4 repeated tender applications. The Herbert was extremely successful through the grants process and managed to secure over \$600,000 of funding through the Reef Trust 3 grower water quality grants. Growers were funded to make a variety of on-farm improvements including variable rate fertiliser application, zero till legume planting, and moving to controlled traffic systems. As a part of the funding, all successful applicants are required to obtain Smartcane BMP and WTSIP extension officers have been working closely with the Smartcane BMP facilitators to help growers implement the necessary requirements on farm to achieve accreditation.

Paul Mizzi's deep ripping innovation project has proven that weather always has the final say! We managed to obtain our first run of deep core nitrogen samples after receiving about 2 inches of rain in October, after what seemed like an eternity of waiting, however, it was still not quite enough to get good movement of nitrogen in the soil profile and we found no statistical difference between treatments. We were then waiting for another lot of rain to take the next samples, however, that ended up being over 600mm in 24 hours in December, which was pretty much the end of that, as by the time we would have been able to take the samples, all of the nitrogen would have moved through most of the profile. Moving forward we will be conducting biomass sampling later in the year to give us an indication of any differences between deep ripping and conventional ripping. We are very grateful to the HCPSL field



Minka Ibanez and Trevor Pallanza sampling on Mizzi's trial

team who have been slogging it out through heat and rain to ensure our trials are sampled when needed. This project is ending in June and before then we are looking to have a demonstration day and discussion on the results to date.

Nutrient Management

Funding from WTSIP and HCPSL secured the time of agroecologist David Hardwick, to run a number of soil health workshops in the district early in 2018. David is an expert in his trade and the workshops were a great experience for growers and extension staff. We looked at the biological influences on nutrient cycling in our soils with a focus on nitrogen and phosphorus movement and availability. Through these workshops, extension staff have been inspired to utilise some new extension delivery techniques and it is hoped that growers are enjoying the new format and the move to outside venues with no powerpoint presentations. Our very own "Back 2 Basics" series, focussing on better understanding our soil tests, with key aspects like how soil nutrients work together and how we can successfully manage our soils for optimum productivity potential has been well supported and received by growers. If you have any suggestions on future topics that you would like a better understanding of, please don't hesitate to make suggestions. We want to be able to provide growers with up to date information and skills to assist you to remain productive, sustainable and economical.



Growers at a "Back 2 Basics" Workshop

As part of our nutrient management program we have delivered over 100 plans focused on identifying constraints and matching fertiliser to requirements. These nutrient management plans are an excellent tool for consolidating all the soils and productivity information gathered over many years and provides the grower with opportunities to identify and manage possible hidden issues or developing problems. If you would like a plan for your farm, please contact the HCPSL office. Ideally, please obtain soil tests for this year's plant early so there is time to put a plan together for growers prior to planting. As a part of looking over the soil testing history across the district for the last 8-10 years, it appears we have declining levels of calcium in our soils. HCPSL has noticed a significant number of tests that suggest nutrient calcium levels are deficient in a wide range of soils. Calcium is an important nutrient in plant growth and for soil structure. We would encourage all growers to obtain a soil test to ascertain if a limiting constraint exists. The easiest and cheapest way to address this problem is in the fallow.

WTSIP Extension Staff are very grateful for the support of growers and look forward to further discussions with all. At this stage there are no further grants available, but we look forward to helping you through nutrient management planning and learnings in this key area of farm management.



The **Herbert River Catchment Landcare Group** undertook the following activities in 2018 -

- Held the Hinchinbrook NRM forum in February, with over 40 attending the event. The forum focused on pest and weed management and the management of environmental issues.
- A display on pest and weed management at the Ingham Show.
- Continued riparian revegetation and weed control in the Palm Creek system.
- Continued involvement in the Hinchinbrook Community Feral Pig Management Program.
- Continued support for the Herbert Water Quality Monitoring Program.
- Continued support for the eradication of declared weeds in the Shire.
- Commenced a joint project with the Lucinda Progress Association to manage weeds and revegetate the Lucinda Wetlands.
- Financial support for the Herbert Water Quality Monitoring project.

There has been a steady increase in the number of members throughout the year in the Lower Herbert sub-group, while the Upper Herbert sub-group remains in care taker mode.

The Herbert River Catchment Landcare Group is always seeking new members. Please do not hesitate to contact Lawrence Di Bella on 47761808, if you are interested in being involved in Landcare.



The Hinchinbrook NRM Forum held in February

HERBERT WQ MONITORING PROGRAM UPDATE 2018

HCPSL with some support from Department of Agriculture and Fisheries (DAF) and the Herbert River Catchment Landcare Group continued some limited water quality (WQ) monitoring during the 2017-18 water year at priority sugarcane and WQ reference sites. In contrast to the 2016-17 water year, the lower Herbert experienced some early storms (Sept - Oct 2017) and received above 'average rainfall' and river discharge for the district over the 2017-18 wet season.

Figure 3 shows that initial events or 'first flush' where rainfall exceeded ~50mm/day will drive high dissolved inorganic nitrogen (DIN) losses (> 4000µg/L), particularly after periods of hot-dry weather. These high DIN losses are often exacerbated by poor plant growth and subsequent nutrient uptake by crops when under stress, leaving more nutrients available to be washed away, similar to that experienced again this (2018 -19) wet season.

However the negative impacts on crop vigour during these conditions and on WQ can be reduced with better soil structure, improved moisture conservation and more effective utilisation of nutrients through the adoption of good farm management practices, particularly early in the wet season, where rainfall events are generally more manageable and the potential for pollutant loss is greatest.

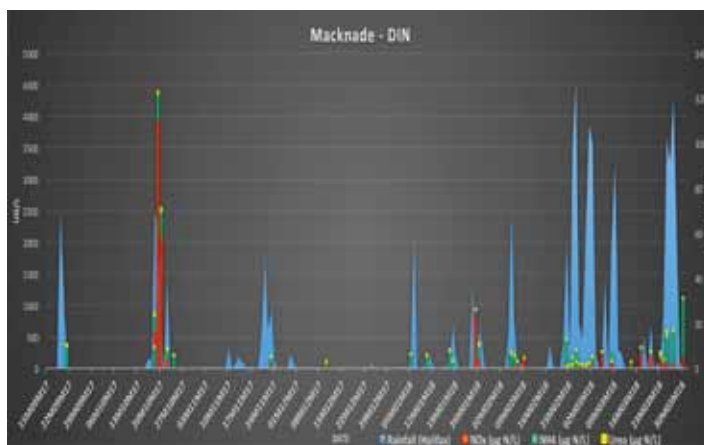


Figure 3 - Dissolved Inorganic Nitrogen Loss during rainfall events at Macknade WQ monitoring site

WQ data collected in the lower Herbert over the past 7 years (2011- 2018) universally demonstrates this pattern of high DIN losses early in the wet season across all WQ sites measured where there is significant intensive agricultural activity including sugarcane. In contrast, DIN losses from nature conservation areas are not only much lower in pollutant concentrations, (DIN range: 30 - 100µg/L), but likely due to the high level of organic matter in these soils, also tend to be far less variable over time, supporting the proposed benefits for improved soil health in agricultural landscapes.

Unfortunately, there is no ongoing funding to support sub catchment scale WQ monitoring this financial year, therefore WQ loads in the Herbert Basin and any improvements will only be measured at the John Row Bridge – GBRCLMP (QG) site in the foreseeable future.

GROWER AND INDUSTRY FORUMS

Harvesting Forum

The annual Herbert Harvesting Forum was held on the 14th of March at the Royal Hotel in Ingham. This forum was well attended with over 120 industry delegates attending the event. Topics presented and discussed:

- Report back to the industry concerning the SRA enhancing the sugar industry value chain by addressing harvest losses through research, technology and adoption project (Phil-Anthony Patane - SRA)
- Report back to industry concerning the SRA chopper test rig (Joseph Bonassi - SRA)
- Presentation on the facts and myths concerning farming systems (Lawrence Di Bella - HCPSL)
- Report back to industry from the industry group who visited the Isis and Maryborough region concerning improved harvesting practices. (Grower report back)

Industry update

On the 10th of April the Grower Update forum was held at the Knight Club in Ingham. This forum was well attended with over 85 attending the event. The following topics were covered at the event:

- Variety and variety management
 - o A plant breeding target (Jason Eglington - SRA)
 - o Getting more cane from HCPSL Approved Seed plots (Graeme Holzberger - HCPSL)
- Soil health
 - o Soil health and what does it mean? (Davey Olsen - SRA)
 - o The facts and myths concerning farming systems (Lawrence Di Bella - HCPSL)
- YCS
 - o What's new with YCS (Frikkie Botha - SRA)
 - o Agronomy and insect trials (Davey Olsen - SRA)
 - o Blocked plumbing in YCS affected plants (Gerard Scalia - SRA)



Leanne Carr (HCPSL WTSIP Extension Officer) presenting to growers at the Walk and Talk Day

HCPSL Herbert Walk and Talk Day

The annual HCPSL Herbert Walk and Talk Day was held at the HCPSL Macknade Research Farm on 26th of April, with over 100 attending the event. The following topics were covered at the event:

- New varieties and their management (SRA and HCPSL)
- Soil health and tools that can be used (Project Catalyst, SRA and Nifty Ag)
- Enhanced Efficiency Fertiliser- eNtrench® and its use in cane (HCPSL and Dow Agrosiences)
- Sinker® for the control of pineapple disease control at planting (Nufarm and HCPSL)
- Control of Navua sedge with Sempra® (Nufarm)
- Getting the most out of lime and gypsum (HCPSL and Mirriwinni Lime)
- Financial benchmarking in the cane industry (Coscer and AgProfit)

The day concluded with a BBQ and the annual industry awards presentations.

“Kicking the Dirt” Shed meeting - Making dirt into Healthy Soils

SRA, HCPSL, Project Catalyst and Project Cane Changer teamed up to deliver five shed meetings between the 17th and 20th of September. The meetings were well attended with 89 growers attending the numerous events held across the district.

Attendants had the opportunity to:

- Visit farms with improved soil health conditions and understand what they were doing
- Getting the latest research on soil health.
- Getting below the soil surface (in soil pits) to see what was happening there. The soil pits created a huge amount of discussion concerning managing compaction, root systems and soil impediments.
- Setting the record straight concerning environmental practices through Project Cane Changer.



Lawrence Di Bella (HCPSL) and Davey Olsen (SRA) in a soil pit

Legume Agronomy 101 workshops

HCPSL and SRA teamed up to deliver a number of workshops across the district focusing on legume establishment and stubble management between the 22nd and 23rd of November. Seventy-eight attend the workshops.

PRECISION AGRICULTURE

HCPSL continued to build on its Precision Ag capabilities with the DualEM with quite a demand for electrical conductivity (EC) Mapping, particularly on farms which have within block yield variability. Some of the highlights of this EC mapping program were:



- the design and construction of a new sled by Gough Plastics to tow the device. This is more robust than the original one made in house out of PVC pipe.
- Continued work with UNSW in Mossman and Proserpine where around 100 ha was EC mapped and some 1600 Kg of soil samples were sent to Sydney for analysis by the UNSW soil science department.
- Around 1000 ha in total was mapped.
- Around 250 ha had variable rate lime or gypsum applied.
- All Herbert trial blocks including soil health sites were mapped.
- SRA variety trial plots in Ingham, Tully, Cairns, Proserpine, Mackay and Sarina were EC mapped.

Other important components of the HCPSL PA platform include the GPS base station network, yield monitoring and the Drone which has a multi spectral camera capable of monitoring crop health. Highlights of the work with the drone have been:

- intensive mapping of variety and soil health trial sites
- the unexpected demand for investigations of flood damage
- rapid data acquisition on pests and weeds.

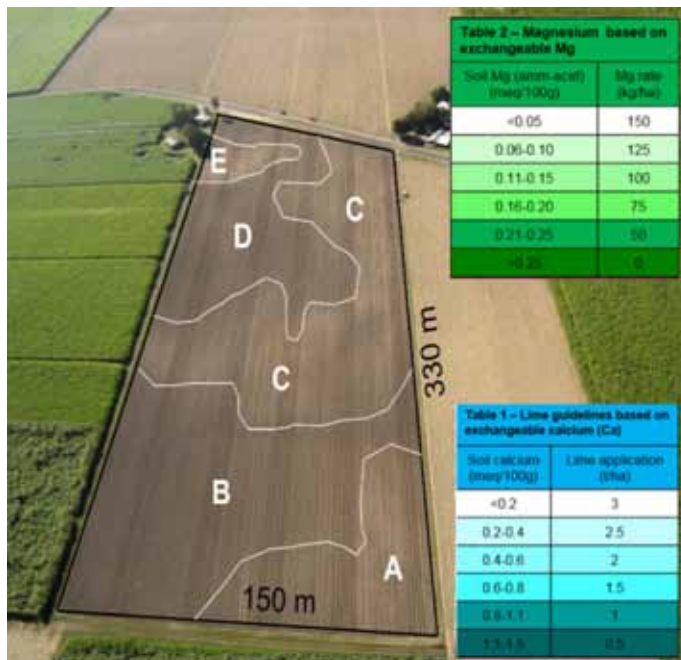
The DualEM 421 is a relatively new machine that sends an alternating magnetic field into the ground with a transmitting coil and measures the electrical conductivity of the soil (the induced return magnetic field) with receiving coils. It links this to GPS data which is then recorded on a data logger. It is then interpolated with GIS software to create a metre by metre within block EC map at depths from 0.6 Metres to 6 Metres. This is then linked to soil tests. Most important in this iterative process, is the knowledge of the farmer. This local knowledge is invaluable in understanding what the EC map means.

The reason this work is not straight forward is explained below in what it actually measures.

Apparent soil electrical conductivity is a measure of the bulk conductivity of the soil; that is, ECa is a measure of anything conductive within the volume of measurement and is influenced, whether directly or indirectly, by any edaphic property that affects bulk soil conductance. Measurements of ECa are complex because they reflect the influence of the interaction of several soil physical and chemical properties. This is a consequence of the fact that ECa is a product of three parallel pathways of conductance. The three parallel pathways of current flow that contribute to the ECa measurement include: (i) a solid-liquid pathway (Pathway 1) primarily via exchangeable cations associated with clay minerals, (ii) a liquid phase pathway (Pathway 2) via salts contained in the soil water occupying the large pores, and (iii) a solid pathway (Pathway 3) via soil particles that are in direct and continuous contact with one another (Rhoades et al., 1989, 1999a).

Because of these pathways of conductance, ECa is influenced by a complex interaction of salinity (i.e., ECe, electrical conductivity of the saturation extract, dS m⁻¹), saturation percentage (SP), water content (q), bulk density (rb), organic matter (OM), cation exchange capacity (CEC), clay content and mineralogy, and temperature. The influences of salinity, water content, and temperature on electrical conductivity have been well known and documented (US Salinity Laboratory Staff, 1954). Saturation percentage and rb are both directly influenced by OM and texture, particularly clay content in mineral soils (Stiven and Khan, 1966; Rhoades et al., 1990;

Gavlaket al., 2003). Saturation percentage is especially reflective of the texture in mineral soils. The exchange surfaces on clays and OM provide a solid-liquid phase pathway primarily via exchangeable cations. Consequently, clay content (and mineralogy), CEC, and OM are recognized as factors influencing ECa measurements. Measurements of ECa must be interpreted with these interacting factors in mind.



An example of a zonal prescription map



Growers doing variable rate soil amendment applications in the Bambaroo/Yuruga area



PRECISION AGRICULTURE



A field zonally variable rate gypsum application by Miriwinni Lime



Applying zonal variable rate lime on ratoons. Miriwinni Lime operates zonal and variable rate lime and gypsum application equipment in the Herbert region



HCPSL GPS AND BASE STATIONS

Some of the highlights of the year included:

- Rectification of the extensive damage to the network caused by storms and lightning at the beginning of the year including new mast and Base Station at Foresthome
- A new 50 foot mast upgrade on Warren and John Russo's shed at Abergowrie.
- Mains power connected to the Mt Abswold Base.
- New antenna and power supply on Halifax water tower.
- Several prescription maps were made and loaded into the Miriwinni Lime trucks and grower in-field spreaders.
- Soil health workshops and trenches showing the root zones of cane and benefits of lower compaction and controlled traffic.
- Some growers starting to use their GPS systems by uploading prescription maps to the tractor screen via a USB for variable rate control.



Stone River Mast being repaired by BMS

Name	2018 CMR+	Location	CH.	FREQ. MHZ
J Irvin	B	Warrens Hill	0	465.2750
V Russo	R	Trebonne	0	465.2750
A Pace	B	Mutarnee	3	466.7500
R Pace	R	Bambaroo	3	466.7500
R & G Zatta	B	Mt Abswold	2	462.8000
V Castellani	B	Abergowrie	4	464.9000
W & J Russo	R1	Herbert Vale	4	464.9000
C Carey	R2	Dalrymple	4	464.9000
G Accornero	B	Foresthome	5	463.0750
Water Tower	R	Halifax	5	463.0750
C Guy	B	Bogottos Hill	6	463.6750
S Harrigan	R1	Top Stone	6	463.6750
S Patane	R2	Lannercost	6	463.6750
N Reid	B	Pinnacle Hill	8	464.8500
C Lenzo	R	Pappins Rd	8	464.8500

PESTS AND DISEASES

RATOON STUNTING DISEASE (RSD) AND CHLOROTIC STREAK DISEASE (CSD)

The District continues to manage RSD and CSD through the HCPSL Approved "Clean" Seed plot and plant tissue culture programs. The data below showcases the number of tonnes through these programs over the past five years and the alignment with **Target 85** objectives.

Year	Approved Seed sales (t)	Tissue culture sales (# of plants)	Cane hot water treated (t)
2014	1200	200	110
2015	842	3500	93
2016	1200	2500	73
2017	1169	-	104
2018	1183	200	90

Growers are increasingly realising that quality seed cane is critical to maximise a variety's full yield potential. HCPSL staff undertook over 1500 seed inspections for growers in 2018 prior to planting. Data and trials both show that the use of clean seed can increase average farm yields by 10 - 12 tonnes of cane/ha.

FERAL PIGS

Feral pig numbers continue to remain static and crop damage at historical lows since the inception of the Hinchinbrook Community Feral Pig Management Program (HCFMP), 10 years ago. The cane industry through HCPSL, Hinchinbrook Shire Council (HSC), Forestry industry and Queensland Government currently fund the activities of the program.

Herbert Tonnes Pig Damage	
Years	Tonnes lost
2012-13	32059
2013-14	12599
2014-15	6044
2015-16	6373
2016-17	5576
2017-18	10837



The HCFMP has been successful in getting numbers of feral pigs down with just over 400 feral pigs being taken out in 2018. It has been noted that feral pig damage increases in the years when cane standover occurs (like in 2017-18).

HCFMP was successful in attracting State Government funding to manage feral pigs' impact on turtle populations along the coast areas and adjacent cane lands within the Hinchinbrook Shire.

Growers are advised to get actively involved and assist with the baiting and trapping program. The Herbert is lucky to have this control program which is the envy of many other regions.

Growers needing assistance with trapping and baiting activities are urged to contact:

David Bacchiella

Feral Pig Management Officer with the HSC.

Mobile: 0458 764 660

Phone: (07) 47764607

CANEGRUBS

Levels of canegrub damage were very low in historically impacted areas due to a combination of good farming practices and the significant use of imidacloprid products.

YCS

Levels of YCS appeared to be lower in 2018 than in 2014, 2015 and 2016 however the impact on CCS and yield is still a major concern. Some growers still sustained yield and ccs losses due to YCS throughout the district in 2018. Growers are encouraged to look at the substantial amount of available information on the SRA website. <https://sugarresearch.com.au>

PACHYMETRA ROOT ROT

Following the HCPSL district wide survey for *Pachymetra* and the extension of results, many growers are now undertaking routine *Pachymetra* testing of soil before planting. This disease is of serious concern to industry and has been directly linked to reduced productivity of some fields, ratoon failure and posing a crop stress, which in turn leads to the crop being more susceptible to YCS. Growers are urged to continue sampling soils for *Pachymetra*, prior to planting. The only option for controlling *Pachymetra* is the use of resistant varieties. In 2018 there were 108 *Pachymetra* samples sent from HCPSL to the SRA Tully lab for testing.

RATS

Rats were down in 2018 due to the short wet season and dry harvest.

In 2017, HCPSL, Mackay Area Productivity Services (MAPS) and CANEGROWERS Brisbane worked together to secure an aerial baiting permit to apply Rattoff® through the use of a helicopter or UAV.



This permit was extended to other cane growing regions in 2018 though SRA activities. Farmers working together can achieve control synergies by strategically baiting neighbouring farms simultaneously.



IT'S TIME TO SET THE RECORD STRAIGHT, AND CELEBRATE THE WAY YOU FARM.

You're always looking for ways to improve your farm. So, chances are you're already doing BMP.

We're here to help you every step of the way.


SMARTCANE BMP
smartcane.com.au

Phone your local facilitator, Maria Battoraro, CANEGROWERS Herbert River on 4776 5350.

MANAGEMENT CHANGES AT CANEGROWERS HERBERT RIVER

The end of 2018 saw the retirement of long-term Manager of Canegrowers Herbert River, Mr. Peter Edward Sheedy. Peter and family moved to the Herbert River Region in March 1988 to take up the role and he remained in the position until December 2018.

Over this period Peter was involved in many significant changes both locally and at State level. Hereunder are just a few:

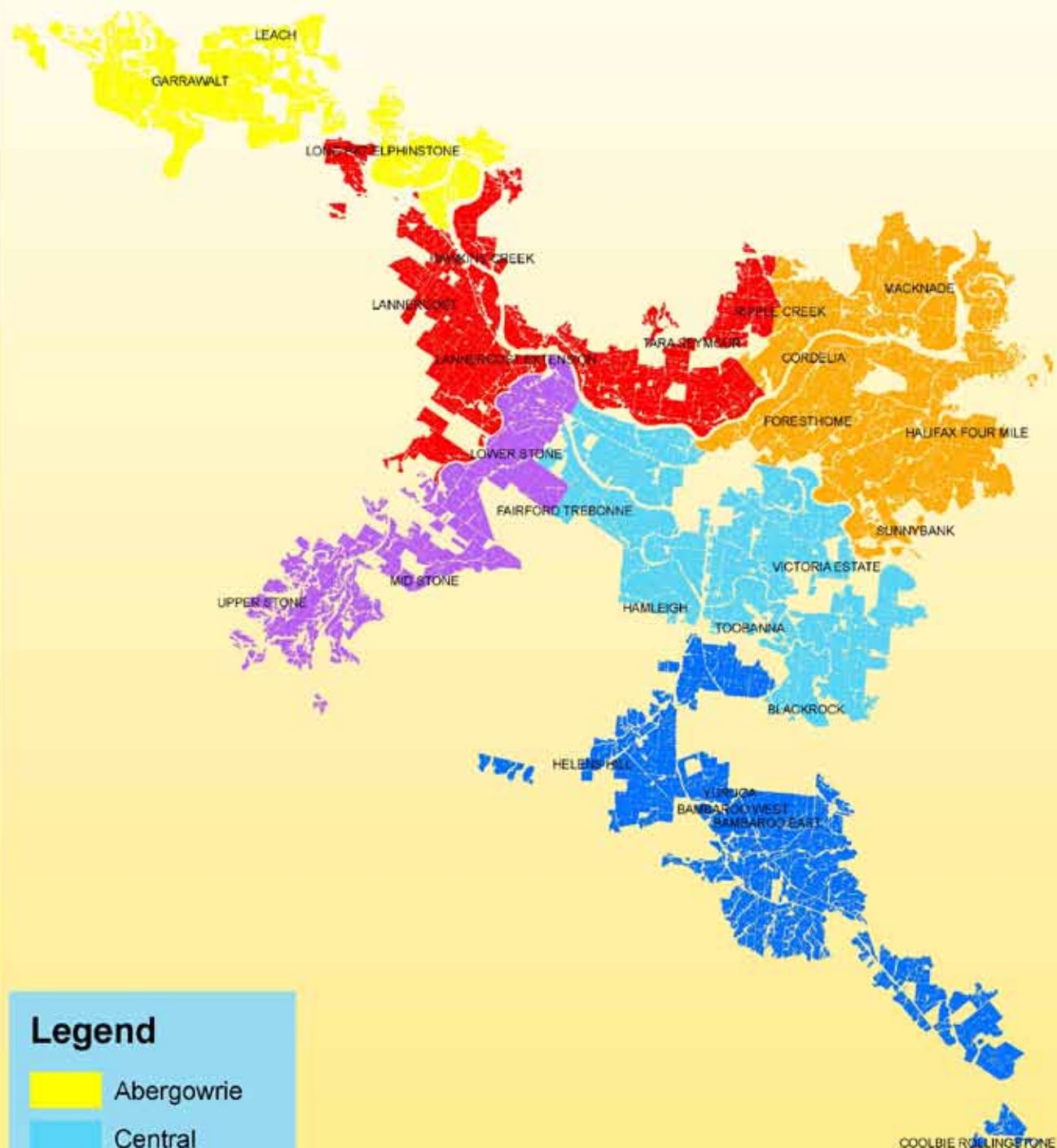
- Canegrowers restructure from MSC to Company structure
- Continuous crushing negotiations
- Cane land and new land expansions
- Elphinstone Pocket new Rail Bridge
- Siding Rationalisation across District
- Grasso's Road Overpass on Highway
- Sugar Industry Infrastructure Program (SIIP)
- Water Quality Monitoring
- BSES restructure to SRA
- Wet Tropics Sugar Industry Partnership
- Cattle and Frances Creek Rehabilitation
- BMP

A very well attended farewell function was held for Peter and his family on 7th December 2018 with some reminiscing and memorable words said by Chairman, Michael Pisano, Executive Officer, Maria Battoraro and Wilmar Production Manager, Adam Douglas. Peter and Elizabeth have retired to Mackay.

Mr. Frank Scardamaglia has been appointed the Manager and commenced in the role on 18th February 2019. He has spent the last four years as the Nth Qld and Nthn Territory Manager for Puma Energy. Frank has management skills and experience in financial, Human Resources, OH&S and customer relations. Frank believes sustainable businesses are driven by building respectful relationships that grow into effective partnerships.



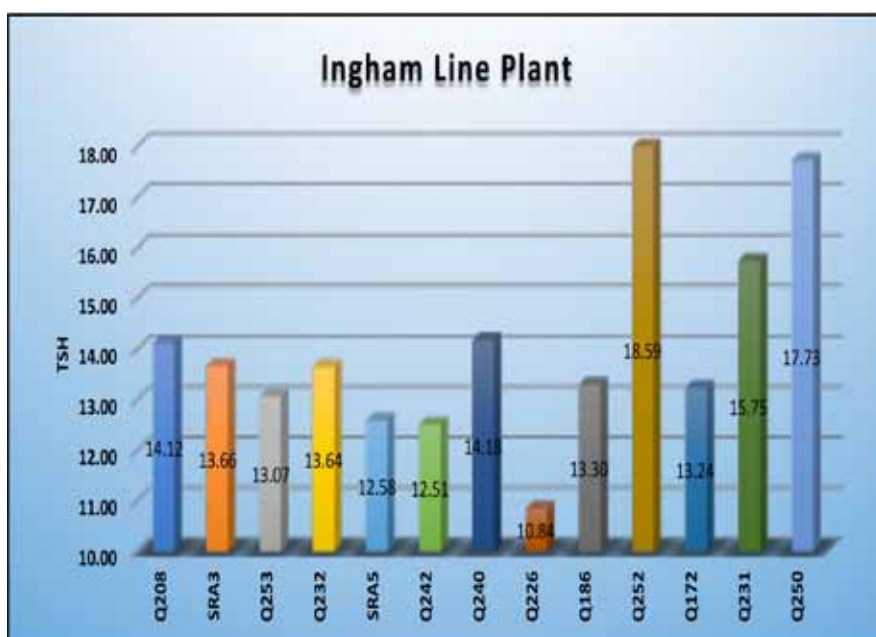
Productivity Zones



Legend

- Abergowrie
- Central
- Ingham Line
- Lower Herbert
- Stone River
- Wet Belt

INGHAM LINE



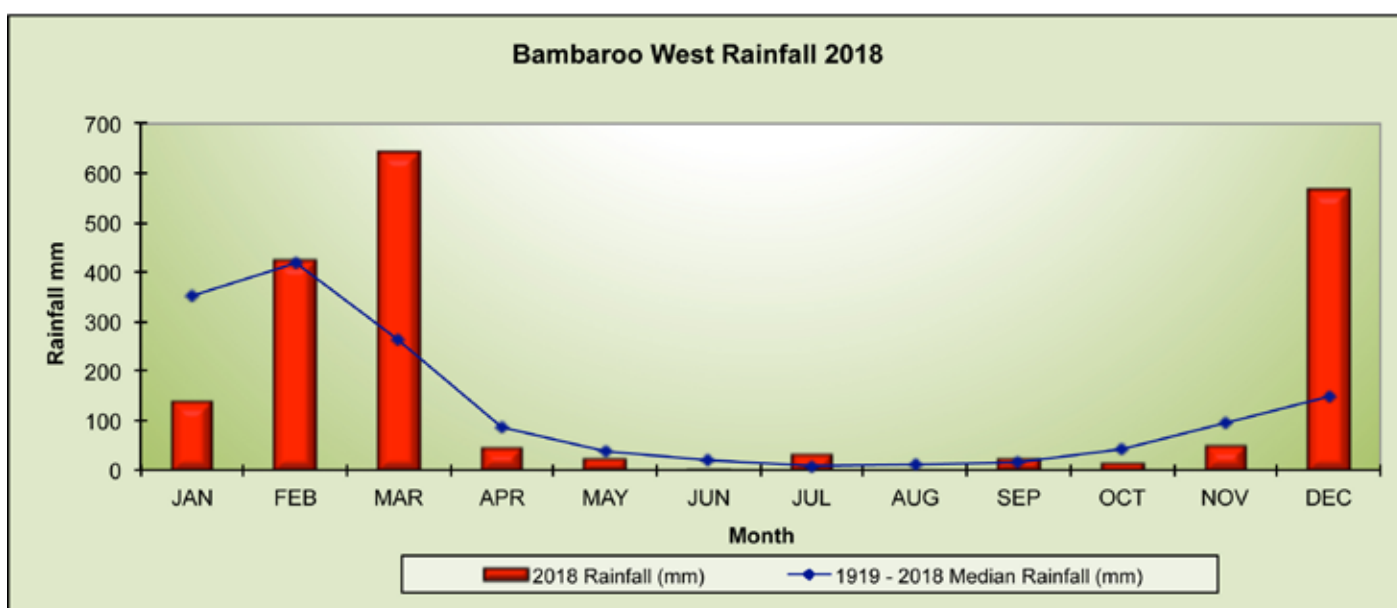
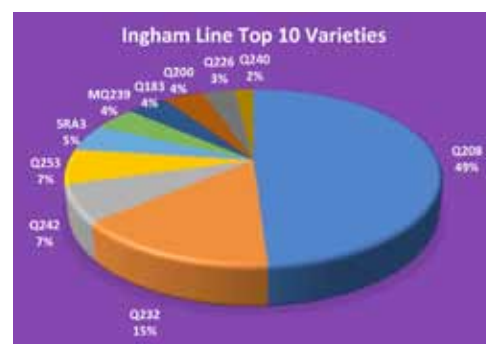
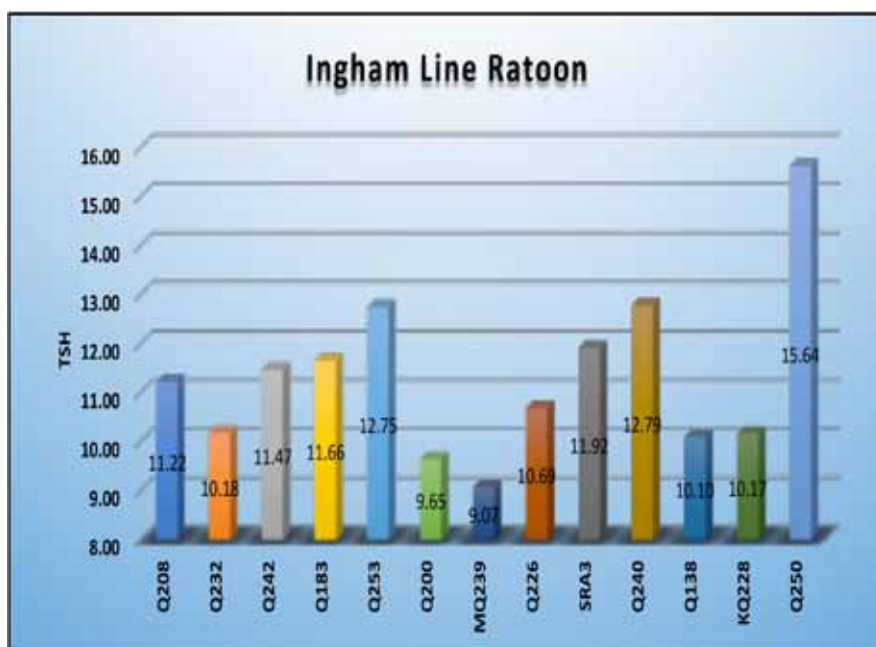
Ingham Line encompasses the subdistricts of Coolbie Rollingstone, Bambaroo East, Bambaroo West, Yuruga and Helen's Hill.

Over the last couple of years, interest in Q250^ϕ has increased in the Ingham Line district, with a significant level of Q250^ϕ being picked up from the Ingham Line plot. The variety is displaying high TSH and showing at this point of time, to be handling the reasonably drier environment better than first thought. However, growers need to be aware that Q250^ϕ will not handle completely dry conditions as well as the dryland varieties.

Q208^ϕ has maintained approximately 50% of the crop in the area. Q232^ϕ, Q253^ϕ and Q240^ϕ have increased in the past 12 months. With these varieties increasing, growers need to be aware that Q240^ϕ is more moisture dependant than Q250^ϕ.

During the year, RSD has been detected in several blocks of Q253^ϕ. Growers are urged to maintain high hygiene practices when working with Q253^ϕ, to reduce the chances of infection and spread of RSD in this variety.

Just as the percentage of SRA3^ϕ was starting to make itself known, we are expecting it to reduce greatly as Smut was seen again in moderate to high levels in some crops of SRA3^ϕ across the district. Thus, SRA3^ϕ has not been planted in the Ingham line plot for 2019



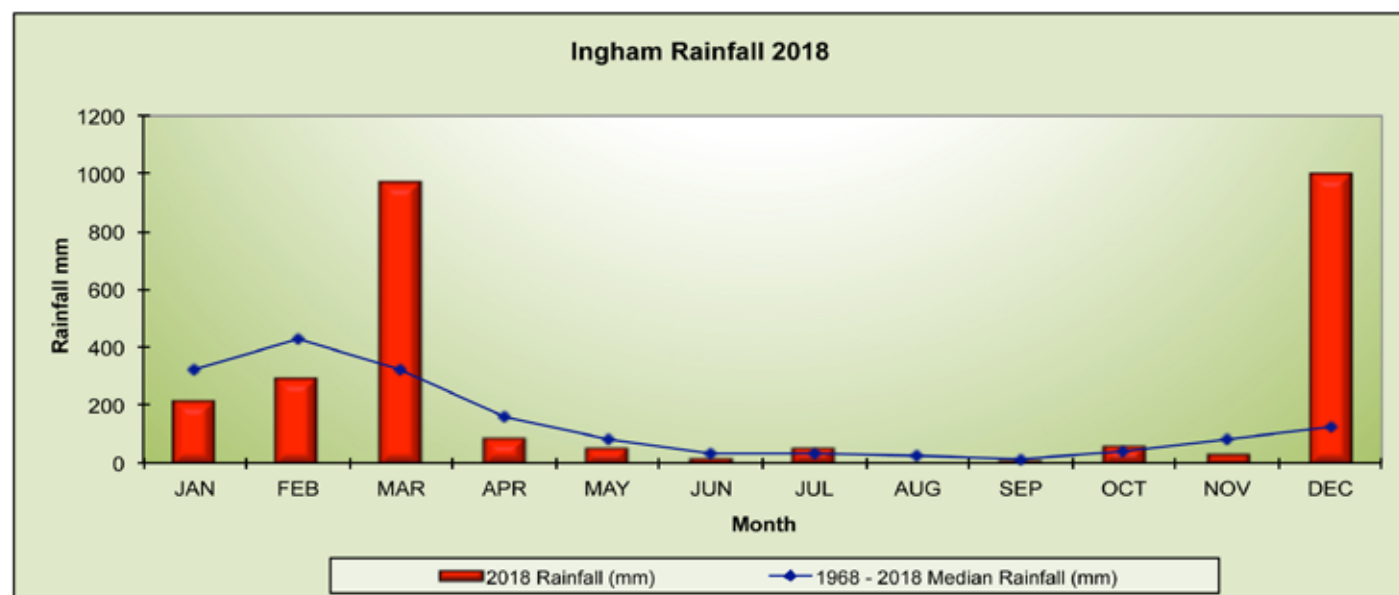
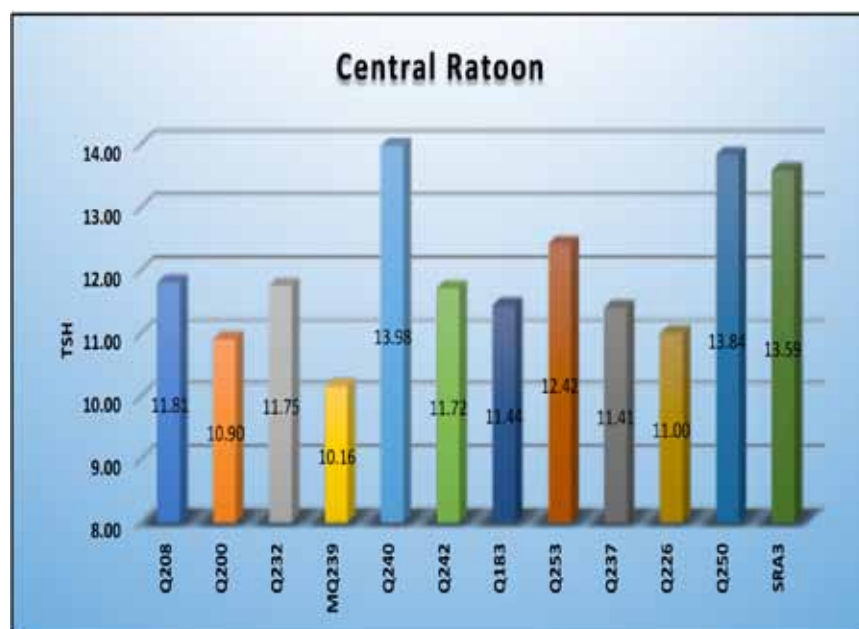
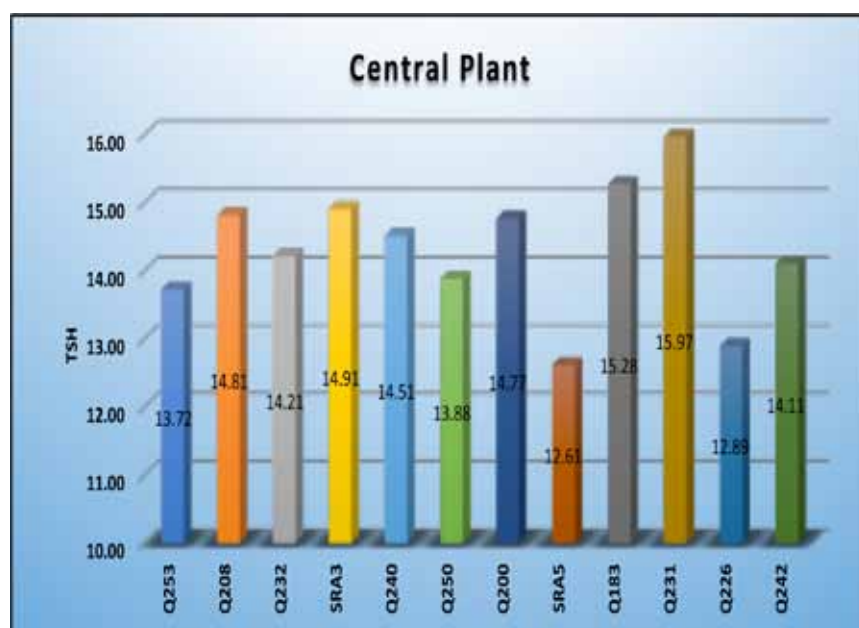
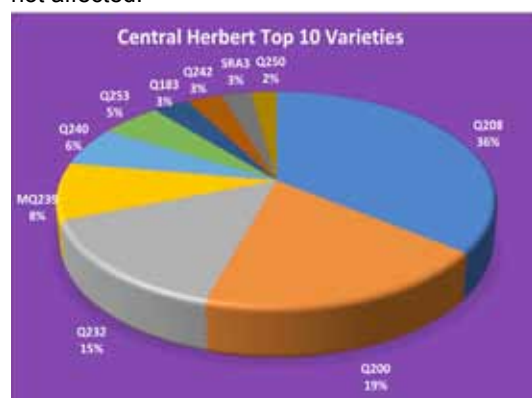
CENTRAL HERBERT

Central Herbert encompasses the subdistricts of Blackrock, Toobanna, Hamleigh, Fairford Trebonne and Victoria Estate. In March, the Herbert District encountered a flood, affecting several farms and varieties in the Central subdistrict.

Q240^φ and Q250^φ were high achievers in 2018, where TSH in ratoons were measured. SRA3^φ was also a high achiever in the Plant & Ratoon crops for TSH, although it is expected that the percentage of this variety is going to decrease, as crops in the area have displayed varied smut symptoms. (SRA3^φ will not be available from the Central plot in 2019).

Whilst reports of rat damage in 2018 were down on 2017, there were still a couple of reports of Q250^φ showing rat damage. Q250^φ would best be planted away from rat harbourage areas.

MQ239^φ has reduced from 10.5% to 8%. The amount of Q253^φ within the subdistrict has increased, and part of the reason being, it has been used as a replacement for some of the MQ239^φ. As a percentage of RSD has recently been detected in some blocks of Q253^φ, growers may need to consider obtaining clean sources of Q253^φ each year (either through hot water treating or clean seed plots). Germination of Q253^φ may also be affected by the hot water treating process, like some other varieties. However, like the varieties, the germination of material from those hot water treated sources is not affected.



STONE RIVER

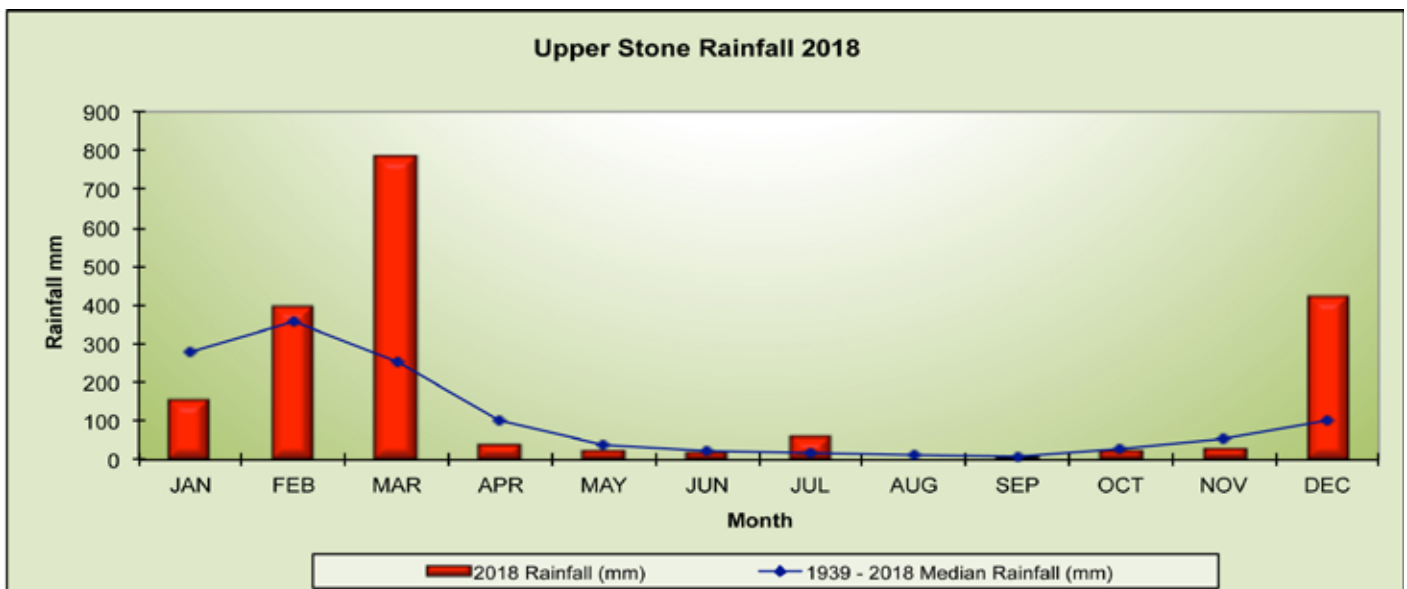
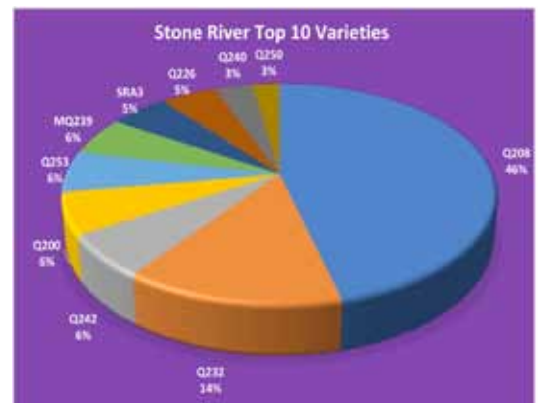
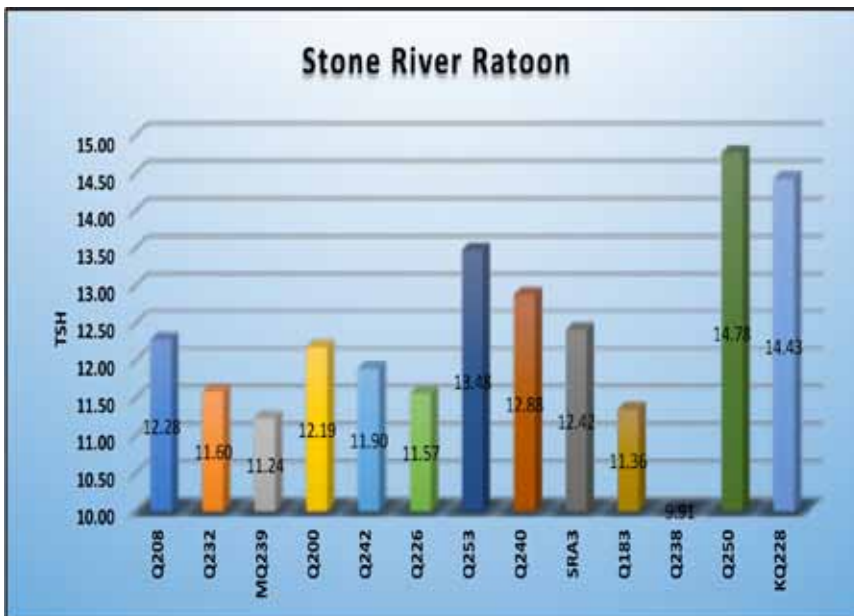


Stone River encompasses the subdistricts of Upper, Mid and Lower Stone.

Stone River experienced some drier conditions earlier in 2018, unlike 2017 and 2016. Varieties like Q240^h and Q250^h showed some stress due to the lack of moisture during 2018. Q250^h has shown some potential in the Stone River area for a couple of years now, and the TSH in the plant and ratoon crops for 2018 proves this, although it can be limited in production in the real dry areas of the subdistrict. Q208^h remains close to the 45% mark as it did in 2017. Q232^h has made an increase in the area, which is a surprise as it does not perform highly in the TSH.

Q253^h is growing in popularity in the Stone River area. It has displayed a growth habit in the dry conditions where its growth tends to slowdown during drier periods, and then pick back up again when conditions improve. RSD has also been found in some blocks of Q253^h, so hygiene is important especially when dealing with Q253^h, in the access and handing of the planting material and ratoon crops, and with the machinery associated with managing the crop.

SRA3^h is nearly at the same percentage of area as Q253^h, although it has continued to show varied levels of smut across the district, and as a result it has only been planted in the two plots on HCPSL farms in 2018. SRA3^h is currently being reviewed for 2019 planting.



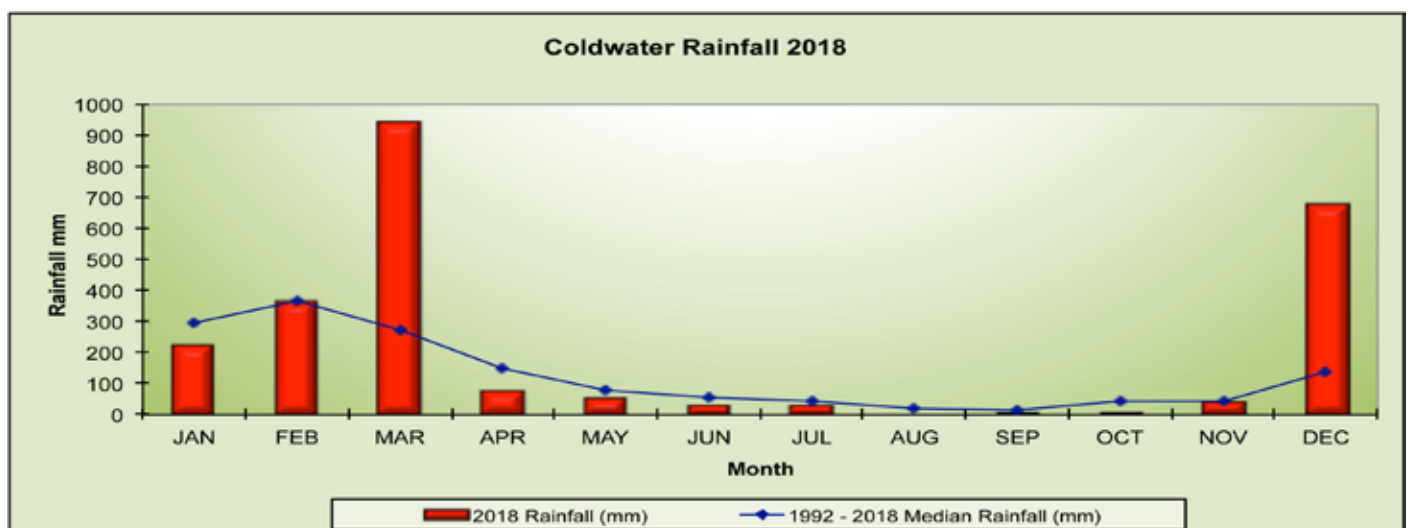
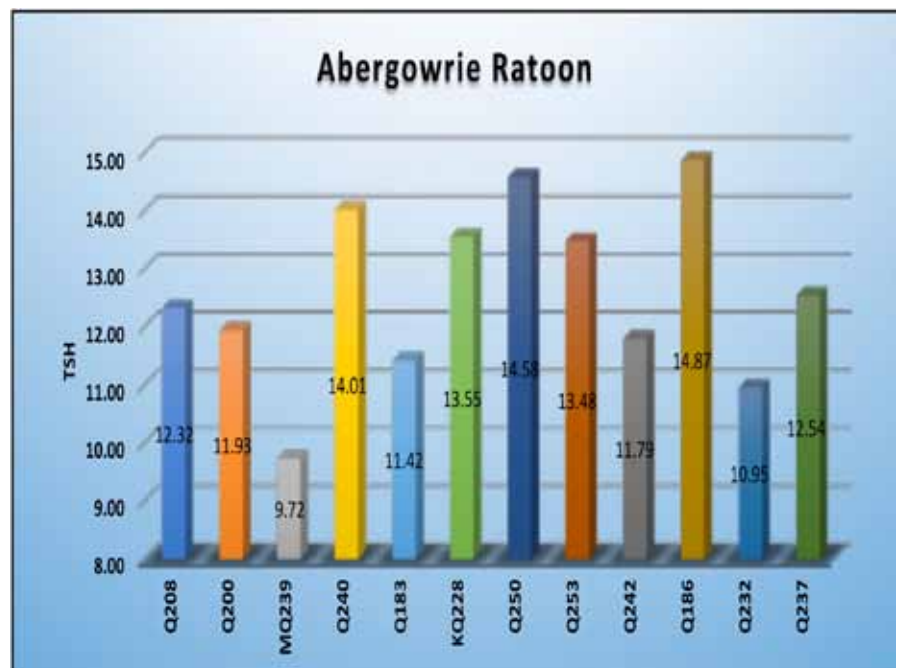
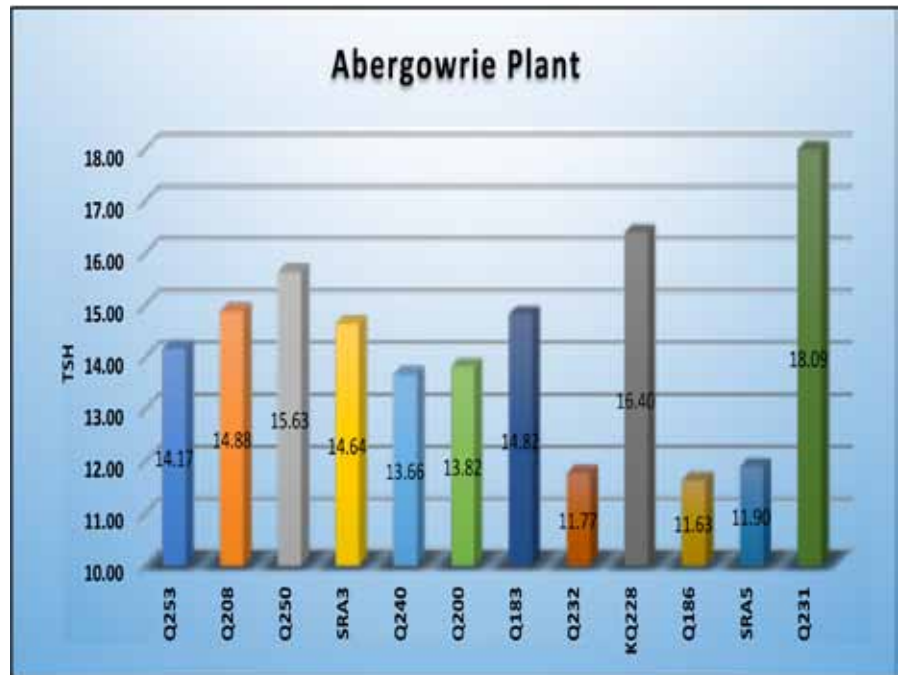
ABERGOWRIE

Abergowrie encompasses the subdistricts of Elphinstone Long Pocket, Leach and Garrawalt. Like the other subdistricts, lower lying farms and blocks sustained crop damage with the floods in March, with several varieties being affected.

Over the past couple of years, growers in the Abergowrie subdistrict have focussed on selecting Pachymetra resistant varieties for their problematic blocks which resulted in Q231^Φ and Q247^Φ being in high demand for their resistance. Q231^Φ has shown great results with TSH in the plant crop.

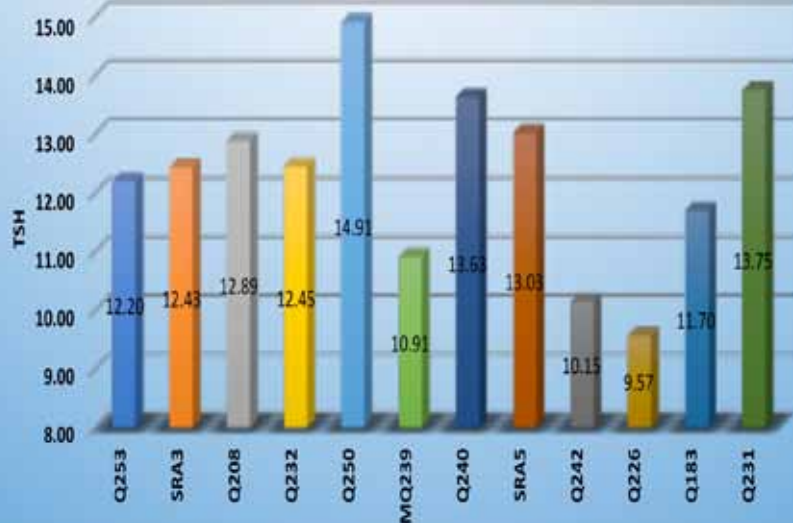
From 2017 – 2018 the amount of Q208^Φ in the area has increased by approximately 1.5%. Q200^Φ has remained at a steady 17%, while Q240^Φ, Q250^Φ and Q253^Φ have all made a significant increase. Unfortunately in 2018, several blocks of Q253^Φ across the Herbert District have been diagnosed with RSD. Growers need to be mindful of hygiene practices when dealing with this variety, regarding to both planting material and ratoon crops, and machinery.

SRA3^Φ has not been planted in the Abergowrie plot in 2018, due to the varied levels of smut being seen in the district.



WET BELT

Wet Belt Plant



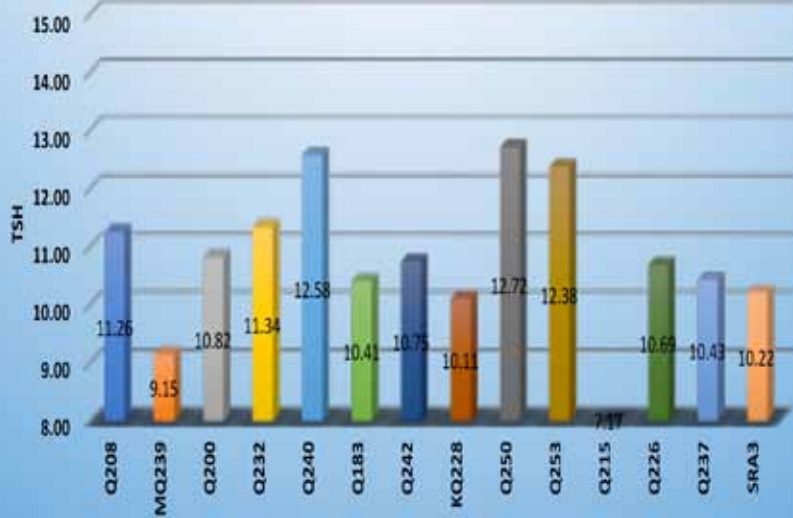
Wet Belt encompasses the subdistricts of Tara Seymour, Hawkins Creek, Lannercost and Lannercost Extension. Floods in March impacted several farms and varieties in the Wet Belt subdistrict.

Reports of rat damage in Q208^ϕ were down on the levels experienced in 2017. Reports of rat damage did extend to Q250^ϕ as well in 2018, so growers do need to take into consideration rat harbourage areas when planting Q250^ϕ.

As well as Q250^ϕ and Q253^ϕ, Q240^ϕ was also a popular variety selected for planting in 2018. The amount of area under these varieties increased substantially from 2017 to 2018. Q250^ϕ, has proven to be a good early CCS variety, whereas Q240^ϕ is better harvested midseason onwards. Unfortunately with Q253^ϕ, RSD has been found in several blocks across the district, so growers will need to exercise extra care with hygiene when planting and managing this variety.

The amount of SRA3^ϕ throughout the Wet Belt area was on a rise, although due to the varying smut levels in SRA3^ϕ, it was not planted in the Wet Belt seed plot for access in 2019.

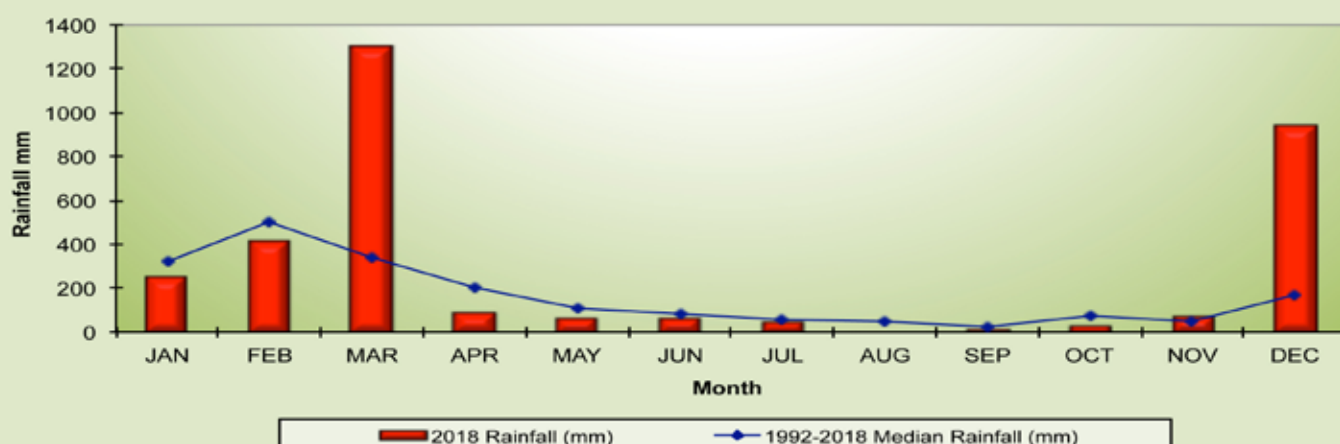
Wet Belt Ratoon



Wet Belt Top 10 Varieties



Wet Belt Rainfall 2018

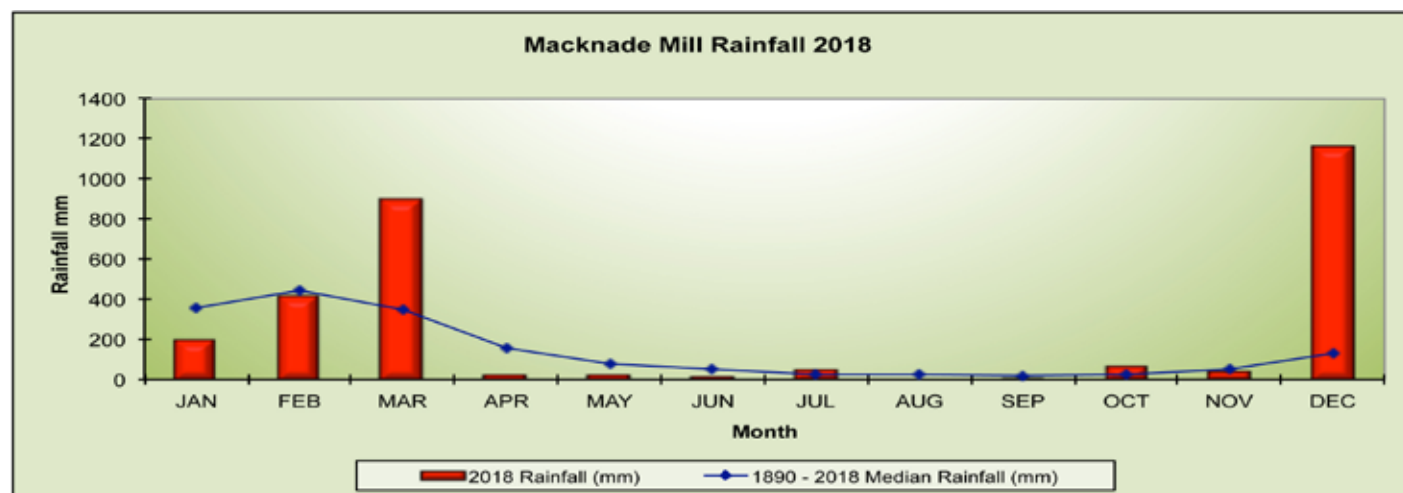
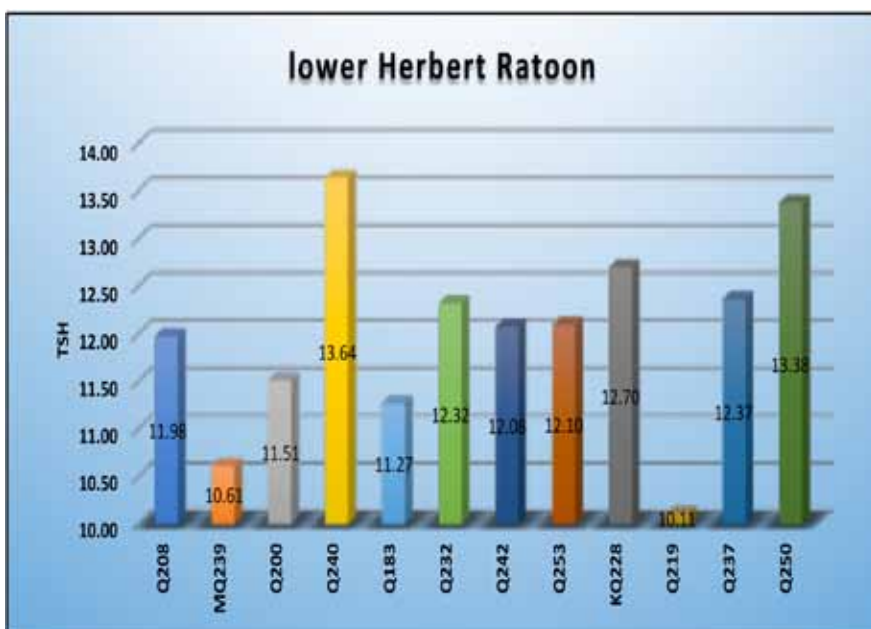
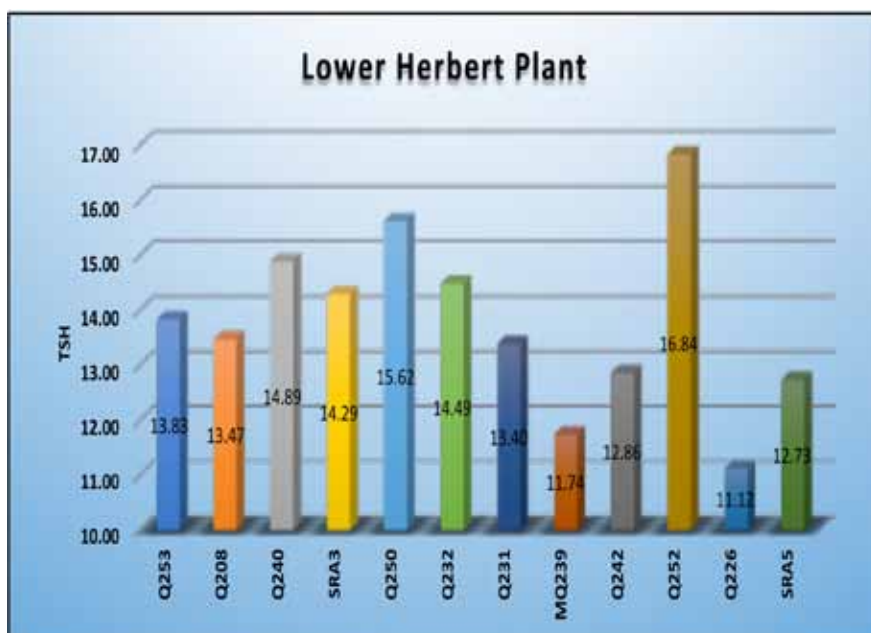
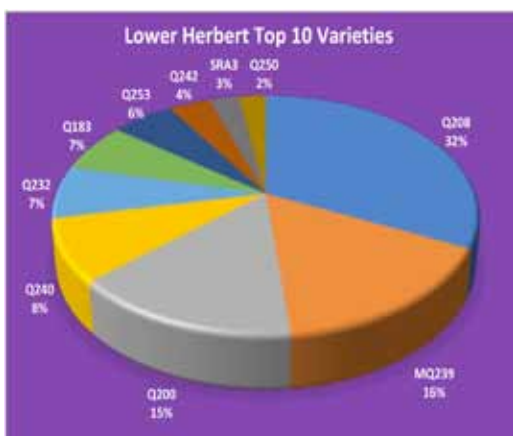


LOWER HERBERT

Lower Herbert encompasses the subdistricts of Ripple Creek, Macknade, Halifax Fourmile, Cordelia, Foresthome and Sunnybank. Like the other subdistricts, the Lower Herbert experienced flood damage in March, across several farms and varieties.

Between 2017 and 2018 there was a 2.5% increase in the area of Q208^h and Q240^h for this district. Q240^h has performed very well in the TSH for Plant and Ratoon blocks. MQ239^h has stayed at a level of 16%, where as in most other areas it has declined. Q250^h, Q240^h and Q253^h were among the more popular varieties planted in 2018. It is expected that the area of Q250^h and Q253^h is to increase in the upcoming years, even though several blocks of Q250^h had shown rat damage, due to its soft rind and high sugar. Q253^h has also been diagnosed with RSD in several blocks across the district, so growers do need to think about maintaining hygiene when handling Q253^h

The amount of SRA3^h throughout the Lower Herbert area was on a rise, although due to the variation in smut levels seen in SRA3^h, it has only been planted in the two plots on the HCSPL farms. This variety is currently under review for planting in 2019.



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Thank you to all those who have participated in and contributed to the cane productivity initiative over the past year