



HERBERT SUGAR INDUSTRY REPORT 2019

HCPSL
Herbert Cane Productivity Services Ltd.

wilmar

CANEGROWERS
Herbert River

sra
Sugar Research
Australia

Wet Tropics
Sugar Industry
Partnership

CROP PERFORMANCE 2019

With roughly a metre of rain soon after the 2018 crushing finished in December (600 mm on 16th December alone) and another astonishing 3.5 metres in the next 100 days, the 2019 crop was in trouble from the start. With three damaging floods mainly from local rain, hundreds of blocks lost their entire trash blanket and there were immediate crop losses from high water levels and erosion. In addition, many creeks could not handle the water. For example, in Cattle, Lagoon and Mandam creeks, the water was simply not draining away and this in conjunction with some high tides resulted in months of water logging and subsequent severe crop losses.

Drone footage and satellite imagery showed many blocked mangrove creeks in the lower Herbert. The Mandam drainage board, Canegrowers, Council and other stakeholders subsequently submitted a proposal to the State government to allow cleaning and clearing of the affected drains and outlets. The town was cut off three times due to localised flooding alone.

After the severe wet season finished, we went from one extreme to another and the crop then endured a drought lasting the entire crushing season. This caused the crop to lose weight and significantly reduced the final tonnage. 2019 will also be remembered for the disastrous Townsville floods

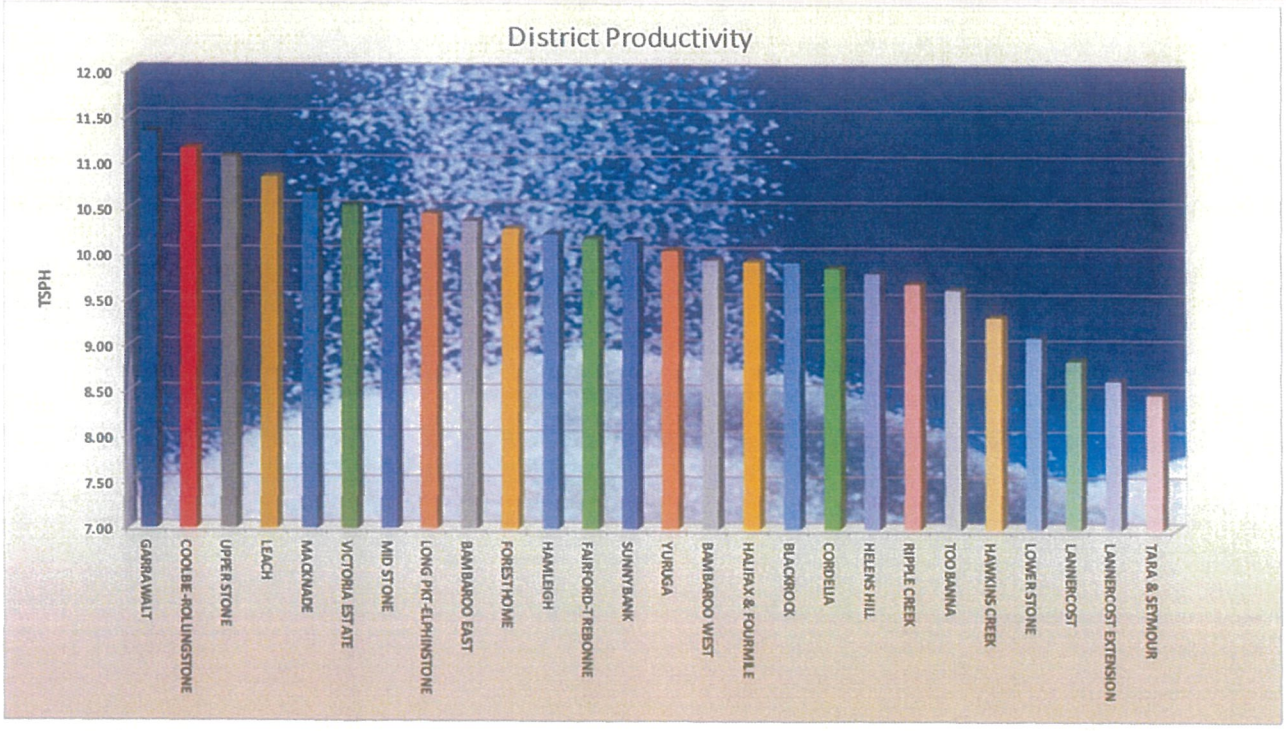
Although the final crop of 4.056 Million tonnes was somewhat disappointing, it was nevertheless remarkable given the terrible conditions it endured. The high CCS of 13.89 compensated a small amount for the below average crop.

HISTORICAL DATA

Year	Tonnes	Ha Harvested	CCS	Cane Yield	Sugar Yield
1992	3398465.82	42926.40	14.23	79.17	11.26
1993	3873973.78	44650.81	13.37	86.76	11.60
1994	3888137.31	46730.02	14.74	83.20	12.27
1995	4908214.85	50051.86	13.05	98.06	12.80
1996	5251285.67	53513.30	13.21	98.13	12.96
1997	5272421.61	57328.33	13.37	91.97	12.29
*1998	4191272.31	48609.90	11.46	86.12	9.87
1999	4151741.51	59955.95	12.73	69.25	8.81
2000	2802049.39	58379.16	13.01	48.00	6.24
2001	3311004.97	56876.94	14.34	58.21	8.35
2002	4243591.27	54892.20	14.40	77.31	11.13
2003	4051558.05	56975.69	13.90	71.11	9.89
2004	4641372.86	56410.75	13.56	82.28	11.16
2005	5553359.05	57078.93	13.11	97.29	12.76

Year	Tonnes	Ha Harvested	CCS	Cane Yield	Sugar Yield
2006	4900084.45	57658.50	12.62	84.98	10.72
2007	4287010.73	57158.66	13.84	75.00	10.38
2008	4688595.64	55061.21	13.54	85.15	11.53
2009	3920941.21	51171.33	14.79	76.62	11.33
*2010	3274402.07	39567.98	12.85	82.75	10.64
2011	2920400.98	52364.64	12.89	55.77	7.19
2012	3625680.08	50394.18	13.57	71.95	9.77
2013	4000685.4	54017.57	13.95	74.06	10.33
2014	4152315.8	55800.99	13.62	74.41	10.13
2015	4459593.6	56615.75	13.41	78.77	10.56
*2016	4812090.08	56166.82	12.26	85.67	10.50
*2017	5033395.85	57078.74	12.88	88.18	11.36
2018	4718178.26	57042.90	14.24	82.71	11.78
2019	4055701.57	56357.28	13.89	71.96	10.00

* Standover Left



REGIONAL ISSUES

The 2019 wet season arrived on the evening of the 16th of December 2018, with parts of the Lower Herbert receiving in excess of 650mm in less than a ten hour period. Prior to this event the region was extremely dry. This rain event caused flash flooding and movement of cane trash blankets in parts of the district, with the Bruce Highway at Helen's Hill plains being closed for a period of time to remove trash debris from the highway. The wet season continued from December 2018 to near June 2019, with another 3 significant events greater than 500mm occurring during the period in parts of the district. The 2019 harvest period was extremely dry with little to no rain falling. The extreme weather events had a significant impact on cane yields across the district, with 4.05 million tonnes of cane harvested in 2019. The region did not reach the **Target 85** goal of a district average of 85 tcph, with only 71.96 tcph being achieved. One consolation was that high CCS was experienced throughout the season with the district finishing the year off with an average CCS of 13.89. The HCPSL and District **Target 85** program, aimed at getting the Herbert industry back on track to achieving consistent high productivity, achieved a number of milestones during 2019. The most notable achievements in 2019 were:

Disease management and biosecurity

- Provision of over 1000 tonnes of Clean Seed cane through the HCPSL Approved Seed plots or hot water treatment tanks was provided to growers. This number was down from previous years due to the late conclusion of the wet season.
- Continued work associated with the management of the *Pachymetra* root rot following continued high counts across the district. Growers on impacted farms are urged to plant resistant varieties to manage the issue.
- HCPSL with assistance from the SRA Pathology team conducted a district wide nematode survey in late 2019. The survey found 48% of samples collected were over the economic threshold for nematodes, with both root knot and root lesion nematodes being the major nematodes of concern across the District.
- HCPSL leased a farm close to Ingham in August 2019. This farm, the existing farms at Stone River and Macknade, and small plots at Bambaroo and Abergowrie/ Hawkins Creek are to grow Clean Seed for the region going forward. HCPSL proposes to be able to provide in excess of 2000t of Clean Cane to growers in 2020 and over 3000t of Clean Cane in 2021. It has been reported in many productivity reviews of the Herbert cane region and others globally, that Clean Cane is the quickest and easiest way to increase cane yields.

Crop improvement and development

- Continuation of the SRA and Wilmar core and introgression plant breeding programs in the region.
- The continuation of the HCPSL funded Ratoon Variety Trials and assessments of SRA plant breeding trials in search of improved ratoonability of varieties.
- In 2019 both SRA10 and SRA14 varieties (bred by SRA) were released to growers through the HCPSL Clean Seed plots.
- In April 2019, the Herbert industry approved the release of the new variety of WSRA24 in 2020. This variety was made as a cross at the Wilmar plant breeding facilities at Macknade and selected through the SRA plant breeding program.

Crop agronomy

- Over 160 nutrient management plans were prepared by HCPSL staff through the Wet Tropics Sugar Industry Partners (WTSIP) and RP161 projects. These plans have allowed growers to better target nutrient applications, while addressing water quality concerns.
- The SRA funded Soil Health project harvested its trials and undertook measurements to assess what makes good soil health leading to improved productivity and sustainability. The project team consists of involved growers, SRA, University of Queensland, Burdekin Productivity Services, DAF, Wilmar, MSF and HCPSL staff.
- HCPSL conducted a trial to assess varieties for response to the crop ripener MODDUS™ in the Abergowrie area. Significant differences in CCS occurred between the treated and untreated cane.

Drainage

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

Pest management

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

Harvesting systems

- The Rural R&D for Profit and SRA funded project continued working on ways to minimise cane harvester losses at harvest. This is an SRA lead project with support from HCPSL and Wilmar.

Youth development

- HCPSL hosted Ellie McVeigh through the Queensland Farmers Federation funded Graduate Program, in 2019. Ellie worked as a HCPSL Extension Agronomist after graduating from University of Queensland.
- HCPSL supported the under 18 section of the Ingham Show cane display.
- HCPSL hosted numerous students from Abergowrie College, Ingham State High School and Gilroy Santa Maria College as school-based work experience students.

Environment and sustainability

- CANEGROWERS Herbert River continued to support growers undertaking Smartcane BMP. As of 30th. December, 2019, 355 growers had completed their farm benchmarking with 97 growers full accredited equating to 22,944 ha.
- HCPSL, the Herbert River Catchment Landcare Group and QDAF continued funding the Herbert Water Quality Monitoring Program. The data from this project is used to inform growers of their environmental impacts.
- SRA commenced the Cane to Creek Project, working with growers in the District to improve water quality outcomes.
- 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.

NEW VARIETY - WSRA24

(WSRA = clones from SRA & Wilmar Plant breeding programmes have been used to achieve this clone)

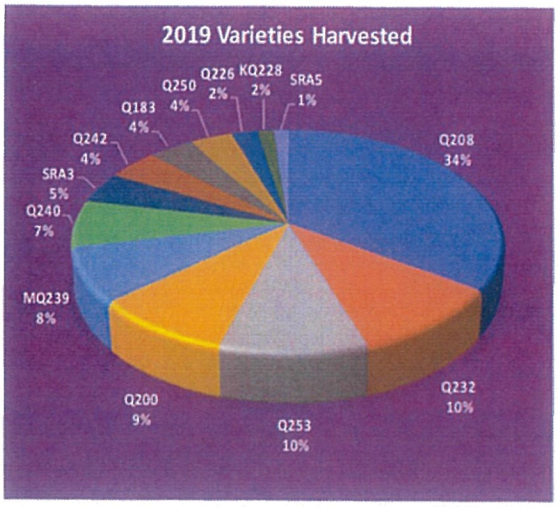
Clone Name: QA05-2486

Parentage: QN80-3425 X BN61-1123

Disease Ratings:

Smut	-	Resistant
Pachymetra	-	Resistant
Leaf Scald	-	Resistant

This variety displays open habit in the field. The stalk is usually above average in height and width, although the stool population is marginally lower. Yield has been noted to perform above average, however the CCS has displayed below average performances, compared to the standards, although seems to average out when tonnes of sugar is calculated. This variety was released based on its disease resistance.



Herbert Recommended Varieties x Soil Type			
	Dry Zone		Wet Zone
Terrace Loamy Soils	Q200Φ, Q247Φ, Q208Φ, SRA5Φ, Q238Φ, Q253Φ, Q242Φ, SRA5Φ	Alluvial Soils	Q238Φ, Q200Φ, Q208Φ, Q237Φ, Q240Φ, Q247Φ, Q250Φ, Q252Φ SRA10Φ, SRA14Φ
Clay Soils	Q200Φ, Q208Φ, Q242Φ, Q232Φ, Q226Φ, SRA5Φ, Q247Φ Q253Φ SRA14Φ	Terrace Loamy Soils	Q242Φ, Q200Φ, Q208Φ, Q237Φ, Q240Φ, Q238Φ, Q250Φ, Q183Φ, SRA10Φ SRA14Φ
Sandy Soils	Q208Φ, Q238Φ, Q226Φ, Q200Φ, Q242Φ, Q253Φ, SRA5Φ Q232Φ	Clay Soils	Q242Φ, Q237Φ, Q200Φ, SRA5Φ, Q208Φ, Q250Φ, Q232Φ, Q253Φ
Hill Slope Soils	Q208Φ, Q247Φ, SRA5Φ, Q232Φ, Q238Φ, Q242Φ, Q253Φ Q226Φ,	Seymour Soils	Q200Φ, Q240Φ, Q226Φ, Q208Φ, SRA5Φ, Q242Φ, Q253Φ, Q250Φ
Varieties Displaying Tolerance of Sodic Soils	Q138, Q215Φ, Q226Φ*		

Note – This information has been compiled using limited data for SRA10Φ, SRA14Φ, SRA5Φ, SRA3Φ, Q253Φ, Q252Φ, Q250Φ, Q247Φ, Q242Φ, Q240Φ, MQ239Φ, Q238Φ, Q237Φ, Q232Φ, Q226Φ.

DISEASE RATINGS FOR VARIETIES IN THE HERBERT

	Brown rust	Chlorotic streak	Leaf scald	Orange rust	Pachymetra root rot	RSD	Red rot	Smut	Yellow spot	
Q183Φ	R	S	I	R	R	I	I	R	I	Q183Φ
Q190Φ	I	U	R	R	R	R	R	R	I	Q190Φ
Q200Φ	R	I	R	R	I	R	R	I	I	Q200Φ
Q208Φ	R	R	R	R	I	R	R	I	R	Q208Φ
Q215Φ	R	U	R	R	R	I	R	I	R	Q215Φ
Q226Φ	I	U	R	R	I	I	R	R	R	Q226Φ
KQ228Φ	R	S	R	R	I	S	R	I	I	KQ228Φ
Q231Φ	U	U	I	R	R	R	R	R	I	Q231Φ
Q232Φ	U	R	R	R	I	I	I	I	R	Q232Φ
Q238Φ	R	S	R	R	R	I	I	R	S	Q238Φ
MQ239Φ	U	U	R	R	I	R	I	R	I	MQ239Φ
Q240Φ	U	I	R	R	I	R	R	R	I	Q240Φ
Q242Φ	U	I	R	R	R	S	I	I	R	Q242Φ
Q247Φ	U	U	R	R	R	S	R	I	S	Q247Φ
Q250Φ	U	U	R	I	I	I	I	R	I	Q250Φ
Q253Φ	I	U	R	R	R	S	I	R	S	Q253Φ
SRA5	R	U	I	R	I	U	R	I	U	SRA5
SRA10	U	U	R	R	I	U	I	I	R	SRA10
SRA14	U	U	R	R	R	U	R	I	I	SRA14
WSRA24	U	U	R	U	R	U	U	R	U	WSRA24

R = Resistant I = Intermediate S = Susceptible U = Unknown/In Trial

MODDUS® TRIAL

In 2018 a block in Abergowrie was planted with seven different varieties. The Abergowrie area was chosen for this trial, as it is renowned for its lower CCS levels early in the season. Q231Φ and Q208Φ were chosen as they have a history with MODDUS® and their results were used as a benchmark to compare against. The other five varieties Q253Φ, Q242Φ, SRA5Φ , SRA10Φ and SRA14Φ were selected as there is limited knowledge about the response they have to the crop ripener. The trial was replicated three times.

MODDUS® SPRAY END Applied on 8.5.2019 by Helicopter

Rep 3							Rep 2							Rep 1						
SRA10	Q231	SRA14	Q208	Q242	Q253	SRA5	Q242	Q253	Q231	SRA10	SRA14	Q208	SRA5	Q208	SRA5	Q253	Q242	SRA10	SRA14	Q231
No Spray or Sample Zone approx 20m																				
SRA10	Q231	SRA14	Q208	Q242	Q253	SRA5	Q242	Q253	Q231	SRA10	SRA14	Q208	SRA5	Q208	SRA5	Q253	Q242	SRA10	SRA14	Q231

NO SPRAY END.

In the table at right, you will see the CCS results for all of the varieties across the weeks sampled. The yield information, tonnes cane per hectare (TCH) and tonnes of sugar per hectare (TSH) were calculated at the 12 week period. An overview of some of the results are:

Q231Φ – Optimum time of harvest is six weeks after application. This is a similar result to previous trials.

Q242Φ – Slower to react to the Moddus®, although it was still looking good at twelve weeks from the application date. There was a small decline in yield, but an increase in the CCS at this stage.

SRA10Φ – The best increase in CCS was noted at 6 to 8 weeks after application. The Moddus® treatment did not appear to affect its yield and continued to have a CCS increase up to the 12 week mark, resulting in an increased tonnes of sugar per hectare (TSH).

SRA14Φ – Responded well also, with CCS improvements occurring mostly between weeks 8 and 10. By week 12, CCS improvement had started to decline, but it held its yield, so the TSH for the Moddus® treated cane was still in front.

SRA5Φ – This variety showed great improvement in week 6 then again in week 10. We believe this is due to the weather conditions occurring around week 8, as Q253Φ, Q242Φ, Q231Φ and even Q208Φ showed similar results. By the 12th week there was a yield loss, which resulted in lower TSH for the Moddus® treated blocks.

Q253Φ – With the results below, it is believed the best harvest time for Q253Φ would be six weeks after application. Even though it held onto its CCS improvement until the 12 week mark, the Moddus® treatment area suffered a yield loss, resulting in a lower TSH by week 12.

It is to be noted, that during this trial the area did experience unseasonal amounts of rain with long periods of bleak overcast days. The same trial held in different weather conditions could produce different results.

Treatment	Variety	4 Wks	6 Wks	8 Wks	10 Wks	12 Wks
MODDUS®	Q208Φ	7.82	10.02	11.21	12.04	12.90
NO SPRAY	Q208Φ	8.31	8.63	9.91	9.84	11.04
CCS Difference		-0.49	1.39	1.30	2.20	1.86
MODDUS®	Q231Φ	9.78	11.97	11.22	12.62	13.08
NO SPRAY	Q231Φ	9.05	9.50	10.88	11.42	11.74
CCS Difference		0.73	2.47	0.34	1.19	1.34
MODDUS®	Q242Φ	9.43	10.52	12.19	12.86	13.05
NO SPRAY	Q242Φ	8.89	9.94	11.71	11.88	11.94
CCS Difference		0.54	0.58	0.48	0.98	1.11
MODDUS®	Q253Φ	9.73	10.92	11.63	12.64	12.96
NO SPRAY	Q253Φ	8.81	9.61	10.91	11.39	11.63
CCS Difference		0.92	1.31	0.72	1.25	1.33
MODDUS®	SRA10Φ	9.23	11.31	12.11	12.78	13.55
NO SPRAY	SRA10Φ	9.02	9.04	9.69	11.45	12.11
CCS Difference		0.21	2.27	2.42	1.33	1.44
MODDUS®	SRA14Φ	7.81	9.02	11.94	12.15	11.94
NO SPRAY	SRA14Φ	7.72	8.46	9.84	10.39	11.22
CCS Difference		0.09	0.55	2.09	1.75	0.72
MODDUS®	SRA5Φ	6.69	8.41	9.59	11.03	10.90
NO SPRAY	SRA5Φ	6.68	6.52	8.51	8.73	10.16
CCS Difference		0.01	1.88	1.08	2.30	0.74

VISITORS TO THE HERBERT

During 2019 the Herbert cane industry received the following delegations to view our industry practices first hand -

- 18th. and 19th. March - HCPSL hosted the 1st Regenerative Sugarcane Forum with over 120 attending from throughout the country.
- 26th. March - Isis Sugar Mill area growers visited the district.
- 29th. and 30th. March - The Women in Sugar Herbert (WISH) hosted the Statewide conference in Ingham, with over 100 attending the event.
- 24th. July - HCPSL hosted a Brazilian sugarcane delegation who reviewed cane farming and harvesting systems.
- 6th. August - HCPSL hosted a visit by Nestle representatives to view first-hand sustainable sugarcane production systems in the Herbert.

Vising Nestle representatives with Darren Reinaudo, Michael Reinaudo & Shannon O'Brien (HCPSL)

Lifetime Achievement Award – Bino Chiesa

HERBERT SUGAR INDUSTRY AWARDS PRESENTED IN APRIL 2019

Award - 2018	Recipient
Grower of the Year (Sponsored by HCPSL)	Tony Crisafulli
Young Grower of the Year (Sponsored by QSL)	Alan Accornero
Mangrove Jack Award (Sponsored by Herbert River Catchment Group)	Sam Di Bella
Harvesting Efficiency Award (Sponsored by Sugar Research Australia)	Sartor Harvesting
Innovation Award (Sponsored by Rabobank)	Vince Castellani
Farm Presentation for Harvesting Award (Sponsored by CAMECO)	R, C & P Quabba
Improved Farm Layout Award (Sponsored by Canegrowers Herbert River)	Wilmar Sugar
Consistent High Productivity (Sponsored by QSL)	Celotto, B, D & SE Torrisi, SO, KA, GC & EM Beeva Nominees Russo Farming Torrisi GG & SA Morellini P Gosney ST Williams NJ & JM Zatta G & AJ
R&D On-farm Co-operation (Sponsored by HCPSL)	RFC Agriservices Pty Ltd Wilmar Sugar Motti Enzo Discretionary Trust GRC Nominees Russo Farming
Lifetime Achievement Award (Sponsored by HCPSL)	Bino Chiesa

Grower of the Year – Tony Crisafulli

Young Grower of the Year – Alan Accornero

SMARTBLEND PROJECT - *MORE PROFIT FOR NITROGEN*

In 2016, three trial sites at Lannercost and Lilypond were established to assess the blending of enhanced efficiency fertilisers to maximise sugarcane profitability. Different blends and rates of urea with Agromaster® (PCU) and Entec® urea are being compared to straight urea.

In 2019, the project concluded with the final harvest of both sites. Below are the results from the trial sites for the 2019 harvest. More information will be provided to industry once the final report and overall results from all years is compiled.

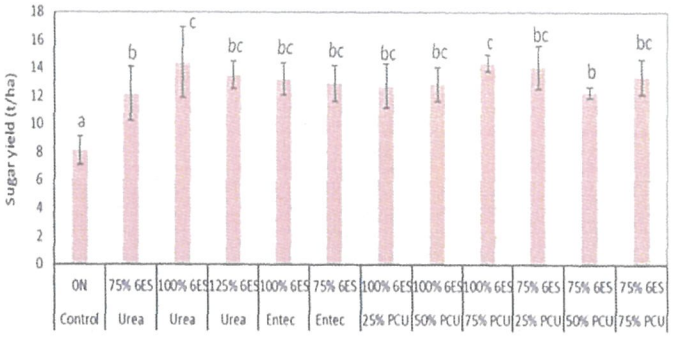


Figure 1. ***Sugar yield results from 2019 harvest of Lilypond Smartblend trial. (PCU = Agromaster®, U = urea, NI = Entec)***

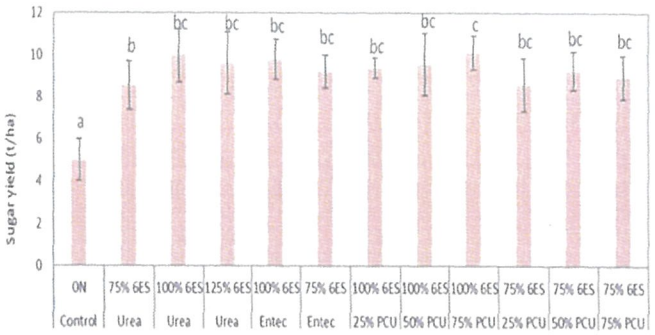


Figure 2. ***Sugar yield results from 2019 harvest of Lannercost Smartblend trial. (PCU = Agromaster®, U = urea, NI = Entec)***

REEF TRUST III 2016-2019

The Reef Trust III Program was initiated by the Australian Government in 2016 to improve water quality flowing off farms. Previous programs (Reef Rescue and Reef Programme) provided incentive grants to farmers to help facilitate changes in farming practices. The focus of Reef Trust III was to provide agricultural extension and support tools to help sustain change.

142 NUTRIENT MANAGEMENT PLANS

Practical tool with benefits for the grower

Accessible to all farm sizes

Consistent approach across region

Officers identify constraints on production as well as ways to optimise fertiliser use

Program Reach

52% of Herbert growers

285 growers

Confirmed Practice Change

111 sugar cane growers

28,546 hectares

25% DIN

Reduction in dissolved inorganic nitrogen (DIN) from cane farms

160 tonnes

Extension

1393 Extension hours

Group Events

- 25 training workshops & field days held
- Attended by 463 growers
- 11 soils and Back to Basics workshops
- 9 soil health video tutorials produced

Grants

20 GROWERS RECEIVED GRANTS

Total expenditure < 1.1 Million with grower contribution matching and exceeding grant value

Targeted to growers **adopting practices with lowest risk to water quality**

1 GROWER *received* an **innovation grant** to develop and trial a deep ripper concept

Australian Government | REEF TRUST | Wet Tropics Sugar Industry Partnership

2019 HERBERT HARVESTING DEMONSTRATION PROJECT

BY PHIL PATANE, HARVESTING ADOPTION OFFICER, SRA

The 2019 season saw the industry's first month long harvest demonstration round conducted in the Herbert region. The aim of the study was to put into dollar terms to the industry the benefits of using harvesting best practice.

The concept of the harvesting field demonstration was brought about by a small group of innovative growers and contractors in the Herbert region. The group had been involved in many harvesting trials but they wanted to observe the situation on a commercial basis. The key points that the group wanted addressed through the harvesting field demonstration included:

- Yield gain is possible without a spike in extraneous matter (EM)
- Growers and contractors identified increase in revenue (anecdotal)
- The clear message from a group that travelled to the Isis region was to demonstrate fiscal advantage (Show me the money)

Two Herbert harvesting contractors took part in the demonstration that compared their standard harvesting practices to harvest best practice (HBP). This was conducted through randomised and replicated treatments (standard compared to HBP) in which at the siding a full rake was collected per treatment so the grower could be paid according to the product he delivered.

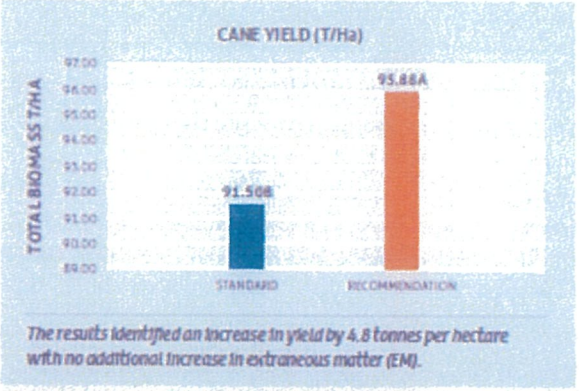
The demonstration involved a harvester alternating between current practice for that harvester and SRA harvesting best practice; altering fan speed and ground speed according to the condition of the crop. The harvester distance travelled in the paddock, tonnes of cane and CCS levels (individual fibre) were all measured to calculate the total tonnes of sugar per hectare produced for each practice.

The data collected allowed both contractors and growers to see if HBP delivered more tonnes of sugar per hectare, and therefore more revenue for the industry.

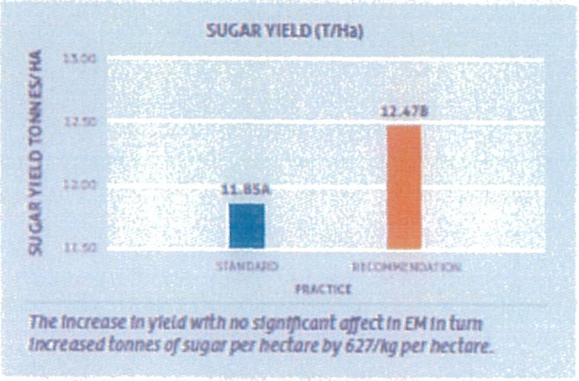
PER HECTARE	2019 HERBERT DEMONSTRATIONS		2017/2018 INDUSTRY TRIALS (95 TRIALS ACROSS THE AUSTRALIAN SUGAR CANE INDUSTRY)	
	Recommended Practice	Standard Practice	Recommended Practice	Standard Practice
Yield (Tonnes)	95.88	91.50	99.2	94.4
Sugar (Tonnes)	12.47	11.85	14.40	13.71
Grower Gross Benefit	-	$173	-	$181
Harvesting Costs	-	TBC	-	$61
Grower Net Benefit	-	TBC	-	$120

As the demonstration was a commercial operation the results were compared to the 95 replicated trials conducted by SRA in 2017 and 2018. It is interesting to note that the results for both Herbert demonstration round and the industry wide trials follow a similar trend.

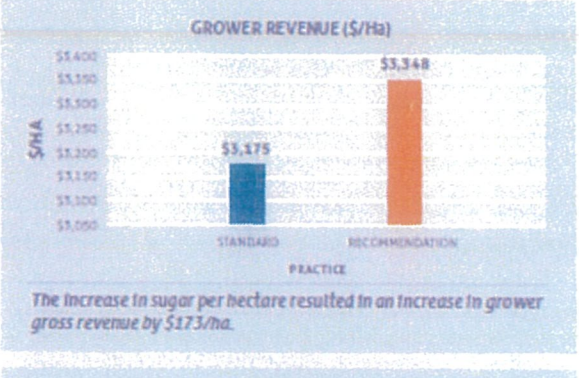
The next stage of the program is to conduct a harvesting cost analysis with both harvesting contractor groups to identify the "true cost" of harvesting. This will be reported on in a future edition of CaneConnection.



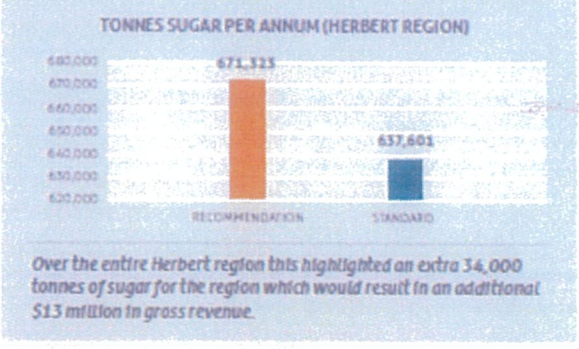
The results identified an increase in yield by 4.8 tonnes per hectare with no additional increase in extraneous matter (EM).



The increase in yield with no significant affect in EM in turn increased tonnes of sugar per hectare by 627/kg per hectare.



The increase in sugar per hectare resulted in an increase in grower gross revenue by $173/ha.



Over the entire Herbert region this highlighted an extra 34,000 tonnes of sugar for the region which would result in an additional $13 million in gross revenue.

SOIL HEALTH PROJECT

Walk & Talk root system demonstration

The SRA Soil Health Project of the Herbert and Burdekin regions grew sugarcane plants in 8 perspex pots to show the potential impact of soil constraints and improvements on sugarcane root systems. The systems consisted of:

1- Standard soil (control).
2- Soil where the top 60cm was compacted.
3- Soil treated with Pachymetra spores at 50,000 spores / kg soil.
4- Soil treated with Mill mud (high labile C).

One pot from each treatment had the soil washed out so the impact of these constraints and improvements on the root system could be easily seen. The standard soil (1) was the base-line used to show what the sugarcane plant and root system would look like without any constraints or improvements. The compacted soil (2) revealed a much smaller root system with horizontal branching and reduced cane growth. The Pachymetra infected soil (3) showed limited effects on the growth of the roots, due to high daytime temperature and lack of moisture stress which reduced the level of infection. The improved soil (4) exhibited the greatest root growth because of the positive impact of the increased labile C on the soil microbiological activity, soil structure, moisture retention and possibly nutrient cycling. The SRA soil health project team analysed the washed root system using WinRHIOZ™ software. More detailed results will be reported at the 2020 ASSCT conference.

Trial results for Soil Health demo plot harvested September 2019

All 3 sites were harvested within one week starting with Site 1 on the 16/09/2019, followed by site 2 on the 17/09/2019, and finally site 3 on the 21/09/2019. I would like to thank the harvesting contractors, SRA soil health and sugar loss project teams, Wilmar's laboratory, cane supply and transport staff and HCPSL for their involvement with trial harvesting, sampling and processing activities.

The preliminary harvest results for the plant cane crop includes:

Site 1- very little difference in CCS between farming systems treatments and slightly higher yield for the improved farming system.

Site 2 – similar cane yield and CCS values for both farming systems treatments.

Site 3 – Showed the CSS was higher in the conventional farming system whereas the cane yield was slightly higher in the improved farming system. There was greater variability in the harvest results at this site compared to site 1 and 2.

These results are based on mill ccs and bin weights. Extra sampling was conducted while the trials were being harvested to measure crop biomass and harvesting losses. Soil samples were collected after harvest to investigate changes in soil chemical, physical and biological properties and the economic performance of the different farming systems is also being evaluated.

Legume planting 2019/20 fallow

Ideal conditions resulting from an early finish to the harvest season and early effective rainfall resulted in a large increase in pre-mounding and legume planting over the December/January period with approximately 25–28% of fallow area being planted to legumes compared to 2-8% in more recent previous years. A large percentage of the plantings were of mixed species consisting of mainly Lab Lab (cv: Ronghi) and Cowpea (cv: Ebony, Calypso and Meringa). There were also plantings of Soybean (cv: Leichhardt) and Sunflower crops. Growers are reminded to monitor soil moisture levels at the end of the wet season as legumes can deplete soil moisture faster than a bare fallow or a grassy/weedy fallow.

Green waste trial (mulch)

A trial involving Green Waste Mulch from Townsville City Council was sub-surface applied at 25 tonne/ha on a Bambaroo property in December 2019. No results to report currently.

Sample collecting at the Soil Health Demo Site

Multi-species legumes planting at Stone just prior to rainfall

PROJECT CATALYST is a partnership between innovative Qld cane growers, Natural Resource Management (NRM) groups, the Australian Government, GBRF, WWF, and The Coca-Cola Foundation. It aims to support sugarcane growers and to promote innovative farming practices that will improve sustainability & water quality from sugarcane farms.

In 2016, HCPSL and Project Catalyst took on sixteen trials around the district that focused on several innovative farming practices. These included:

- Microbes and other solutions in a bottle
- Better use of mill by-products
- Mixed fallow species and legume fallow crops
- Bio-fertilisers
- EEF & precision agriculture of nutrients and amendments
- Impact of meat chickens in rotation with sugarcane
- Comparing micronized and standard lime sources and their effectiveness at shifting soil pH

These trials were initiated by the district growers involved with Project Catalyst. The above trials have either been concluded or will now move onto adoption practices. An overview of the trials is explained briefly below. If you have any further questions about the PC trial please feel free to call the HCPSL office or check out the Project Catalyst website at www.projectcatalyst.net.au

Results/Achievements to date briefly summarised

- **"Microbes or solutions in a bottle"**- Trials showed little to no effects when compared to conventional methods in both plant and ratoon. The grower stated that the price of the products to apply every year weren't working out economically with return investments at harvest time.
- **"Better use of mill by-products"** – Trial results show improved soil structure and sodicity and improved water quality outcomes. Yield, CCS and $$ can be achieved at the sweet spot rates of 50T/ha – 100T/ha banded.
- **"Mixed fallow species & legumes trial"** – Trial work is still on-going with clear success in better control of weeds and reduced erosion. There are opportunities to increase soil biodiversity, and great potential to decrease nutrient inputs for the plant cane crop without any yield or sugar loss, saving the growers $$ in chemical fertiliser inputs. These trials have been successful and will move into the adoption phase for growers to try. HCPSL has legume planting equipment for hire for anyone interested in trying this farming practice.
- **"Bio-fertilisers"** – Little to no differences in cane yield between inorganic and organic fertiliser treatments to date.
- **"Precision Agriculture with amendments"** – So far these trials have been successful and will move into the adoption phase.
- **"Impact of meat chickens in rotation with cane"** – Meat chicken business is successful, but still early days for this farming concept.
- **"Comparing micronized & standard lime sources"** – The trial work has indicated that standard agricultural lime is still the most cost effective and efficient way to improve soil pH. This trial will continue with HCPSL to monitor the lasting effects and economics of the liming products.

See tables below for results collected so far.

pH Table Results

		Lab results	*Note Lime was put down in July 2017				
		Starting pH value @ baseline soil sample 26/12/2016	pH meter reader Average for 13/11/2017	Average for 20/12/2017	Average for 30/01/2018	Average for 30/08/2018 After Harvest	Average for 28/10/2019 After Harvest
Treatment 1 Ag Lime	Centre of row for Ag Lime	5	5.62	5.97	6.00	6.35	6.02
Treatment 2 Kiln Dust 20% mix	Centre of row for Kiln Dust	5	5.32	5.12	5.40	5.58	5.93
Treatment 3 Prilled Lime	Centre of row for Prilled Lime	5	4.88	4.98	4.83	5.50	5.76

Costings Table

Product	Cost of Product per Tonne	Cost of product per ha	Ca % per product	kg of Ca per Tonne	Rate in kg of product per ha applied	kg of Ca applied per ha	$ paid per ha for Ca	Cost Ca per kg/Tonne	Price of product per ha over 5years
Ag Lime	$165.00	$660.00	40.80	408.00	4,000.00	1632.00	$4,035.49	$0.40	$825.00
Kiln Dust 20% Ag Lime 80%	$196.92	$787.68	40.00	400.00	4,000.00	1600.00	$3,250.05	$0.49	$984.60
Prilled Lime	$560.00	$196.00	36.00	360.00	350.00	126.00	$81.00	$0.64	$980.00

Four new trials starting in 2019/2020 with Project Catalyst in the Herbert District

- **Variable Rate of Imidacloprid** – Trial will test the effectiveness of zonal application of imidacloprid compared to a traditional blanket approach
- **Smarter Weed Control using Drone technology** – To use high resolution aerial imagery from drones to map weed infestation in cane and to apply herbicide using drone to treat the infestations
- **Capturing Runoff Waste with Carbon sausages** – Processed used car tyres become a near pure carbon source, when mixed with a product that has been proven by Griffith Uni to absorb pesticides, heavy metals and some nutrients in lab-based studies.
- **Variable Rate Phosphorus application** – Using Precision Ag to strategically target phosphorus needs in a sugarcane system.

The above four trials have been established late in 2019 so watch this space for future results.

The Herbert River Catchment Landcare Group undertook the following activities in 2019:

- Held the Hinchinbrook NRM forum in May, with over 45 attending the event at Lucinda. The forum focused on water quality, pest and weed management and the management of marine plastics.
- 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 caretaker 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.

HERBERT RP161

Tailored nutrient and farm management solutions for the Herbert catchment area

HCPSL, in partnership with Farmacist, commenced delivery of tailored whole farm nutrient and crop plans to Herbert growers under the banner of Herbert RP161 in May 2019.

The Herbert RP161 project assists Herbert growers to make more informed decisions concerning nutrient and farm management practices that will lead to positive productivity, profitability and environmental outcomes.

HCPSL project extension staff engaged with 53 farms in 2019 to deliver positive outcomes including improved nutrient uptake by the crop and minimised water quality impacts through tailored nutritional plans and improved farm management practices.

These outcomes have been achieved through improvements in crop nutrition, soil health, variety selection, pests and disease management, and management of soil constraints such as sodic, magnesic and saline soils.

In December 2019, Andrew Wood (Tanglewood Agricultural Services) joined HCPSL project staff to deliver a Farming 4 CASH® workshop for growers taking part in the Herbert RP161 project. The workshop focused on improving soil health to assist with better utilisation of applied nutrients by the crop.

Herbert RP161 continues in 2020 with the project taking on an extra 30 farms, taking the total to 80 participating farms.

HCPSL extension staff Shannon O'Brien demonstrates how nitrogen leaching occurs during a Farming 4 CASH® workshop

HCPSL extension staff Ellie McVeigh and Shannon O'Brien assist Herbert RP161 grower Sam Lamari to calibrate his fertiliser box

This project is funded through the Queensland Government Reef Water Quality Program and the Australian Government's Reef Trust.

GROWER AND INDUSTRY FORUMS

HCPSL Herbert Walk and Talk Day

The annual HCPSL Walk and Talk Day was held at the HCPSL / SRA site in Ingham on the 10th 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 to measure soil health parameters (SRA, HCPSL and DAF)
- Managing crop nutrition (HCPSL and WTSIP)
- Rotational cropping (DAF)
- Harvester losses (SRA)

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

Phil Patane (SRA) presenting at the Walk & Talk Day

HCPSL shed meetings

HCPSL conducted two rounds of shed meeting across the district during the year, with over 125 people attending.

The first round of shed meetings was conducted between the 26th to the 28th of March with the following topics being covered:

- New varieties (presented by HCPSL and SRA)
- Disease management, focusing on RSD and Pachymetra (presented by HCPSL)
- Clean seed distribution (presented by HCPSL)
- Crop ripeners (presented by Syngenta)

The second round of shed meetings was conducted between the 29th to the 31st of October with the following topics being covered:

- Feral pig management and new trespass legislation (presented by the Hinchinbrook Community Feral Pig Management Program, Nick Dametto MLA, Steven Andrew MLA and a member from the Queensland Police Stock Squad).
- Fallow management (presented by HCPSL)
- New 2,4-D regulations (presented by HCPSL)

Legume management workshops

HCPSL, Project Catalyst and the SRA Soil Health project conducted five shed meetings across the district, with over 75 growers attending.

The topics covered were:

- Plant species to plant
- The importance of inoculation and how to do it correctly
- Planting methods and equipment

The 1st Sugarcane Industry Regenerative Agriculture Forum

This forum was organised by five cane farmers (from across the state), agroecologist David Hardwick and HCPSL.

This forum originated from a discussion at the 2018 Biological farming conference where the organising group thought that growers were understanding the benefits of improving their soil health but were struggling with how to do this on their own farm.

It was decided that these five growers would host a forum where farmers would explain how they had transitioned, with agronomists, specialists and researchers there to answer any of the technical questions that the farmers weren't comfortable in answering.

This way growers looking at changing could pick bits from each grower's journey to develop a way forward for their own farming business. The forum was a great opportunity for growers to learn from fellow growers.

Each farm visited covered a specific theme, with two farmers talking about their journey and relevant specialists also present to answer any questions.

- Paddock Operations
- Cover Cropping
- Holistic Nutrient Management
- Soil Health

The event easily reached its cap of 100 growers, with growers from all over the state attending the event. The attendance cap was put in place to ensure that there was sufficient opportunity for discussion and to view firsthand equipment and farming systems.

The event was a huge success and it is proposed to hold the 2nd Forum on the 23rd and 24th of March 2020 in FNQ.

Growers at the HCPSL Macknade Shed Meetings

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 5 years and the alignment with **Target 85** objectives.

Year	Approved Seed sales (t)	Tissue culture sales (# of plants)	Cane hot water treated (t)
2015	842	3500	93
2016	1200	2500	73
2017	1169	-	104
2018	1183	200	90
2019	980	-	201

Growers are increasingly realising that quality seed cane is critical to maximise a variety's full yield potential. HCPSL staff undertook over 1600 seed inspections for growers in 2019 prior to planting. Data and trials both show that the use of clean seed can increase average farm yields by about 10 tonnes of cane/ha.

NEMATODES

HCPSL funded a nematode survey across the district in 2019. SRA Pathology staff supported the survey by the analysis of all soils sent.

The results from the survey clearly indicated that lesion nematodes (*Pratylenchus zeae)* were present in large numbers in almost all sugarcane fields surveyed. This is in agreement with previous works that found that root-lesion nematodes are the most common parasitic nematodes associated with sugarcane and can cause significant production loss.

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.

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.

RATS

Rats were down in 2019 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 neighboring farms simultaneously.

FERAL PIGS

Feral pig numbers and crop damage have increased in the past two years. The Hinchinbrook Community Feral Pig Management Program (HCFPMP) commenced 11 years ago, with the following partners - HCPSL, Hinchinbrook Shire Council (HSC), Forestry industry and Queensland Government, who currently fund the activities of the program.

Herbert Tonnes Pig Damage	
Years	Tonnes lost
2013-14	12599
2014-15	6044
2015-16	6373
2016-17	5576
2017-18	10837
2018-19	15299

The HCFPMP has been successful in getting numbers of feral pigs down with just over 500 feral pigs being taken out in 2019. It has been noted that feral pig damage increases in the years when cane standover occurs and prolonged wet seasons like 2018-19. Information on the program and issues pertaining to trespassing due to dogging activities was discussed at the HCPSL shed meetings in October 2019. Politicians Nick Dametto MLA and Steve Andrew MLA and a member of the Queensland Police Stock Squad presented at these meetings.

Inspecting Feral Pig Damage

Growers needing assistance with trapping and baiting activities are urged to contact - David Bacchiella, Feral Pig Management Officer with the HSC - 0458 764 660 or 07 47764607

EC Mapping - Many growers whilst improving their knowledge of soil health are getting a benefit from (Electrical Conductivity) EC mapping and some are now requesting mapping for their entire farm. These maps measure the soil electrical conductivity which is a function of several soil related properties. A detailed explanation of the soil properties that affect EC is in last year's 2018 productivity report. These maps do not change over time and are a permanent record. Patterns from ancient creeks and ridges are often evident in the maps. Some growers doing EC Mapping have been applying variable rate lime or gypsum using EC data and targeted soil tests as a basis for a prescription map. It is best to do larger areas at a time to get a better picture of the variation. HCPSL operates a fee for service for the Dual EM EC Mapping at $30 per hectare.

New Sled and DualEM 421S collecting EC data.

A field zonally variable rate gypsum application by Miriwinni Lime

Farming systems - Bed forming and legumes have had a huge increase in 2020 and there may have been greater adoption if moisture levels had been higher at the end of the year. Improved fallow management is now for many growers, part of an integrated approach to soil health. Understanding organic carbon (Mud/ Ash Compost) pH, *Pachymetra* and nematodes will lead to improved soil biology. Farming for soil health may over time help to maintain productivity with lower nitrogen inputs.

Yield monitoring has been done in the Herbert for some time now using the Solinftec yield monitors connected to some cane harvester's roller trains. This was before yield monitors became commercial. Although over the years HCPSL has obtained some useful data, it has now been decided to step back and discontinue the program. HCPSL will instead champion the commercial Yield Monitors out there and endeavour to gain access to the data through the growers and online applications like JD Link. However, some Solinftec monitors will be installed for special projects where yield data is essential and may be available on a user pays basis.

Drone - With the record levels of rain, many drone flights were undertaken over areas affected by water inundation during late 2018 and early 2019. This involved either taking photos of damaged cane for farmers or working with DAFF and using the drone as one method to quantify damage for disaster relief funding. HCPSL offers a fee for service for the drone at $100 per hour.

Satellite - Another method of assessing damage is by satellite images and NDVI maps which highlight when the cane is sick or dying from floodwaters. HCPSL processes satellite imagery in-house to create NDVI maps using free, 10 metre resolution imagery from the European Space Agency's Sentinel 2 satellites. NDVI (normalised difference vegetation index) is vegetation index which indicates the health/vigour of vegetation.

Base Stations – HCPSL owns and operates six GPS base stations. Working alongside these base stations is another seven repeaters which transmit into some difficult areas. All our base stations are surveyed in. In other words, they are to surveyor's standards or sub 2 centimetres. Some of the private base stations are averaged. In other words, their position is averaged over 24 hours. This can result in a positional accuracy of 10 centimetres. This creates issues when switching from one base to another. HCPSL is working with the owners of these private base stations to survey them in, so that all the District's AB lines are seamlessly interchangeable and data can be shared between farmer and contractor.

RTCM 3 is an open standard (non-proprietary) GPS language which has potential to add value to the Herbert Auto Steer GPS network. It is more stable and compact than the current CMR+ language and should result in a better signal overall with less dropouts. It has been talked about for some years simply to inform growers that a potential change is on the cards. A change to this language requires a setting change in the tractor screen to look for this new GPS data string. Testing will be done prior to any change and growers and GPS vendors will be advised well in advance. No changes will be made for 2020 although some testing may be carried out with select tractors.

New Repeater - Upper Stone has a new higher repeater site on a small hill at Brendan Lyons as an alternative to the one at Harragon's. More testing in 2020 will see how it performs.

Are my AB Lines Moving, is a question often asked. The simple answer is if you switch between any of HCPSL's base stations you won't notice any movement as they have been surveyed into surveyors standards. Growers sometimes have access to other base stations around the district and notice their AB Lines move 10 – 15 centimetres, so anything else in the district can't be guaranteed for repeatability.

GDA 2020 - Although we don't notice it, the ground under our feet is moving or drifting 7 cm per year. We don't notice because Australia itself is drifting. GDA stands for geodetic datum of Australia and HCPSL's base station network are surveyed in using the GDA 1994 datum, which has drifted over time. This technical problem is common to all GPS applications. The **GDA 2020** datum has just been released by GeoScience Australia. It allows for this continental drift and recalculates the surface of the earth every 10 or 20 odd years and is more accurate. The GDA 2020 datum is approximately 1.7 metres to the **North North-East** of the GDA 1994 datum. No change will be implemented until we understand the full implications on Precision Ag and this information is simply to keep growers up to date.

GPS BASESTATION FREQUENCIES

Name	2019 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
B Lyons	R1	Top Stone	6	463.6750
S Patane	R2	Lannercost	6	463.6750
N Reid	B	Pinnacle Hill	8	464.8500
M Pappin	R	Pappins Rd	8	464.8500

CANEGROWERS
HERBERT RIVER

CANEGROWERS Herbert River
INDUSTRY RECOVERY

During 2019 and early 2020 the Canegrowers Herbert River was able to appoint Industry Recovery Officers funded by the Federal Government through the Department of Agriculture Fisheries & Forestry. This funding enabled support to be provided to all Primary Producers in the district.

Assistance included one on one help with the completion of Special Disaster Assistance Recovery Grant applications.
Additionally, the office arranged for a number of Information and Training Workshops as follows:

- Climate/Weather Workshop
- Safety and Emergency Preparedness on farm workshops
- Mental Health Workshops run by The Australian Red Cross
- First Aid Courses – RTO Certified

One of the primary Registered Training Organisations which assisted with training and First Aid Workshops was SALT (Safety & Learning Techniques). Hereunder is some information which all landholders should consider, and which was incorporated into the learning workshops held.

SaLT
Safety and Learning Techniques

Do you know what your legal obligations are on your farm?
Do you employ people and engage contractors, including family members?

The Queensland Work Health and Safety Act and Regulations outline the requirements to keep everyone safe by having a safe work environment.

Some of the areas to consider at your workplace:

- Hazardous chemicals
  - Stored correctly, no ignition sources?
  - Everyone trained in the correct use?
  - Do you need PPE?
- Confined Spaces
  - Do you enter into any tanks or other confined space?
  - Everyone trained in the correct entry procedures?
  - Could they be overcome by gases or fumes?
- Machinery and Equipment
  - Are the operators licenced? – including forklift
  - Is everyone instructed on how to use them?
- Risk Assessment
  - How to identify risks and put in place effective controls to keep safe.
  - The preferred controls are to eliminate the risk.

There are tough penalties for not complying, not to mention the emotional toll accidents have on families and communities.
For more information: *Worksafe QLD www.worksafe.qld.gov.au*
Safety and Learning Techniques www.saltinfo.com.au

SMARTCANE BMP
HERBERT RIVER

CANEGROWERS
HERBERT RIVER

BMP AND YOU!

It is now over 6 years since BMP was first launched and the number of accredited growers across the State is growing every month. There are now over 500 businesses accredited and further growers are well on the way to achieving accreditation soon.

There are many Herbert River growers who have reached a milestone with the expiry of their first 5 years of BMP accreditation. A number of these growers are currently collating their records to prepare for an audit by BMP personnel which will enable re-accreditation for a further 5 years.

The Herbert currently has 98 farming businesses accredited covering an area of 24,882 ha which is approximately 38% of the total Herbert River cane farming area.

Record keeping can be a major hurdle for many growers and the Canegrowers Office has some resources and one on one help to assist growers in getting this started including manual and electronic templates and record keeping workshops. The local productivity services staff also assist growers with the provision of Integrated Weed Management Plans, Soil Testing services, information and Nutrient Management Plans which although not currently compulsory are considered extremely beneficial for most growers.

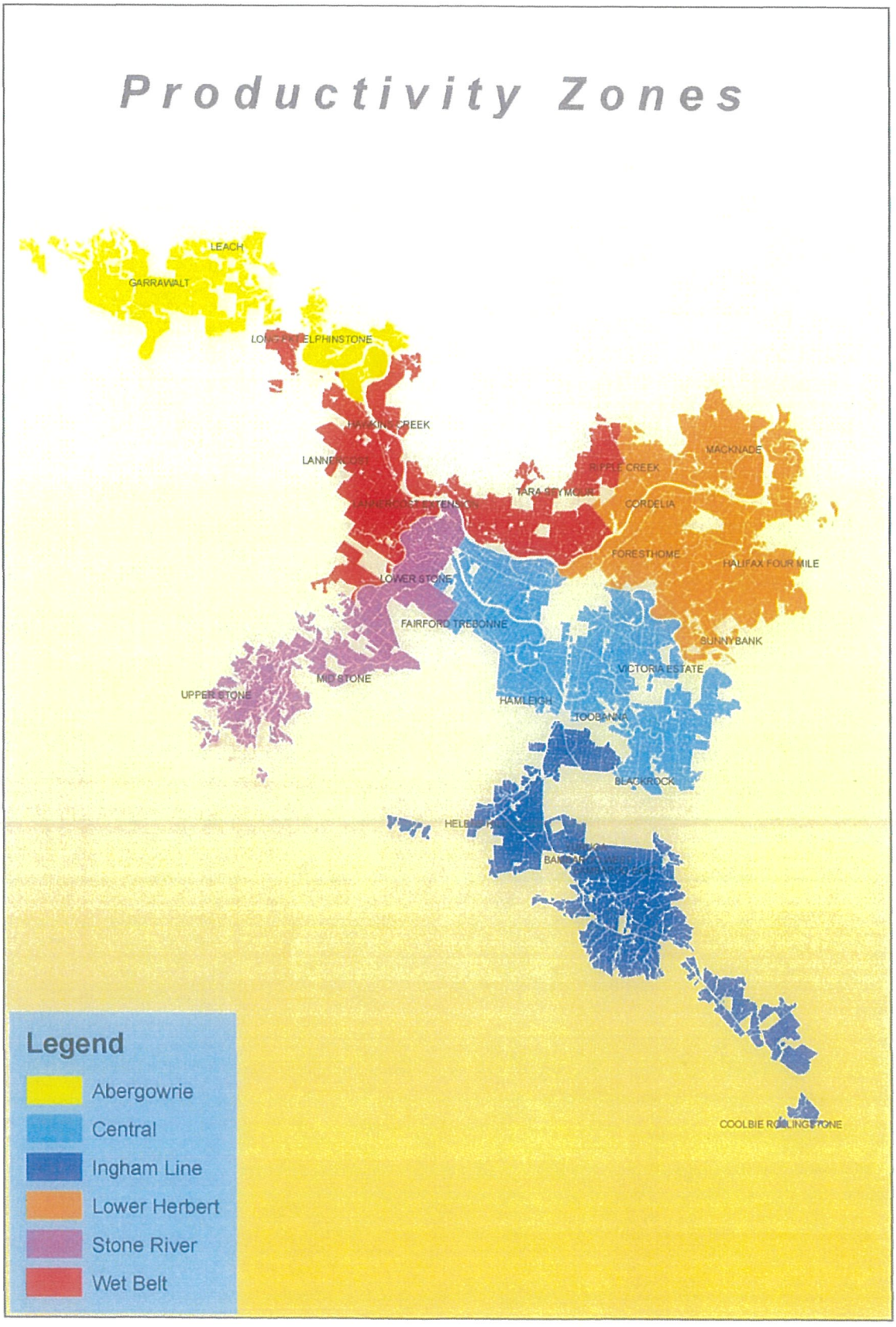
Hereunder is a brief summary of data/information to collate to enable BMP audit and accreditation to proceed. Please call the Canegrowers HR office on 47765350 for further information.

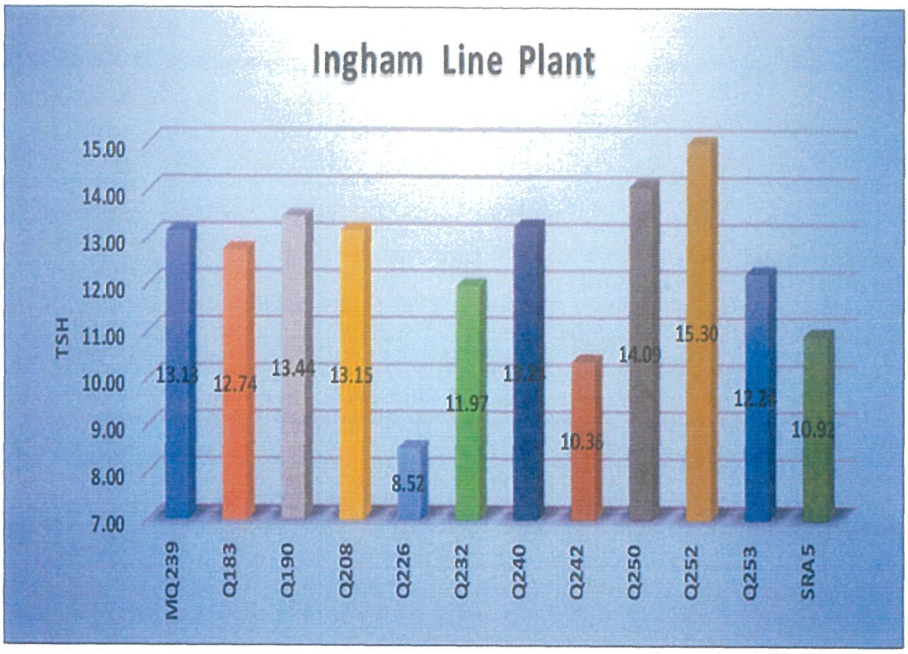
Three Modules for Completion

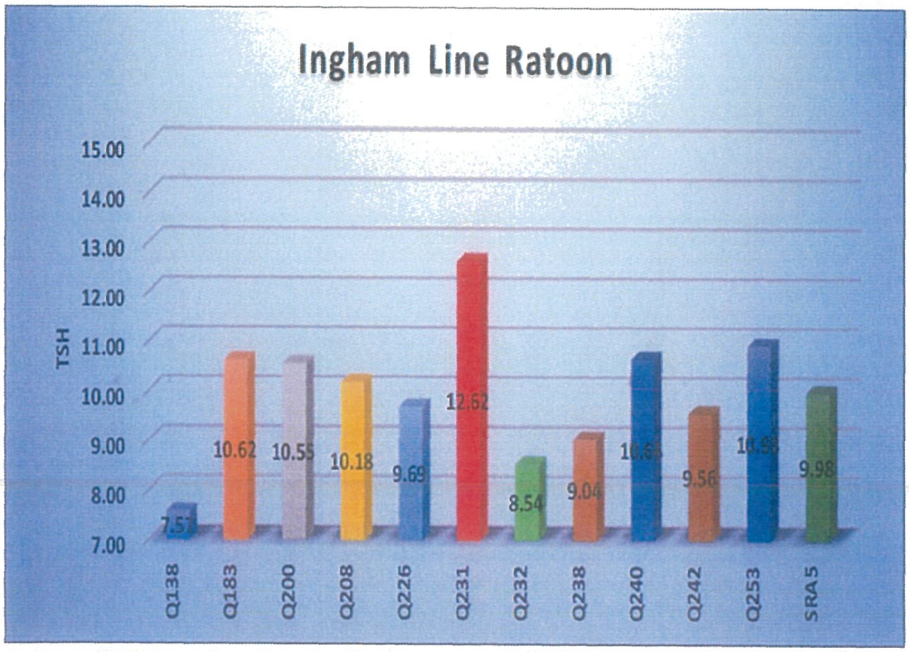
1. Drainage
Farm map showing drainage features & Sediment Trap (if applicable)
including any sub-surface drainage

2. Soil Health & Nutrient Management
GPS equipment or verification by planting contractor
Cultivation Record/Strategy for preparing land for planting
Soil test with results and recommendations.
Application Records including for Ameliorants (e.g. Lime, Mill Mud if applicable)
Subsurface fertiliser equipment or verification
Harvest records (Wilmar Field Book)

3. Weed Pest & Disease Management
Application records for control of Cane Grubs (if applicable)
Application records for control of Rats (if applicable)
Weed management plan (HCPSL)
Chemical/Herbicide application records (Fallow, Pre-emerge after Planting & spraying in Ratoons)
Invoice/receipt of clean seed purchase and/or HWT
Chemical Storage on farm - Current Safety Data Sheets for all chemicals stored by specific chemical name, Personal Protective Equipment, signage, ventilated, bunded, lockable, water sources nearby
Chemcert or ACDC licences for spraying
Drummuster receipt


Productivity Zones
LEACH
GARRAWALT
MACKNADE
CORDELIA
FORESTHOME
HALIFAX FOUR MILE
LOWER STONE
FAIRFORD TREBONNE
SUNNYBANK
VICTORIA ESTATE
MID STONE
UPPER STONE
HAMLEIGH
TOOBANNA
BLACKROCK
COOLBIE ROLLINGSTONE
Legend
Abergowrie
Central
Ingham Line
Lower Herbert
Stone River
Wet Belt



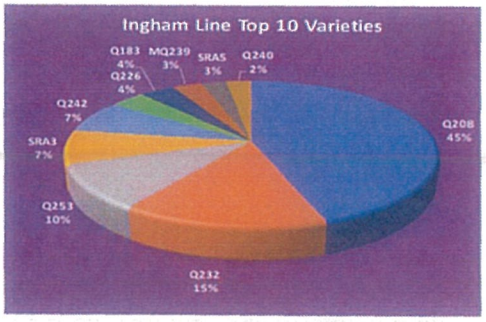


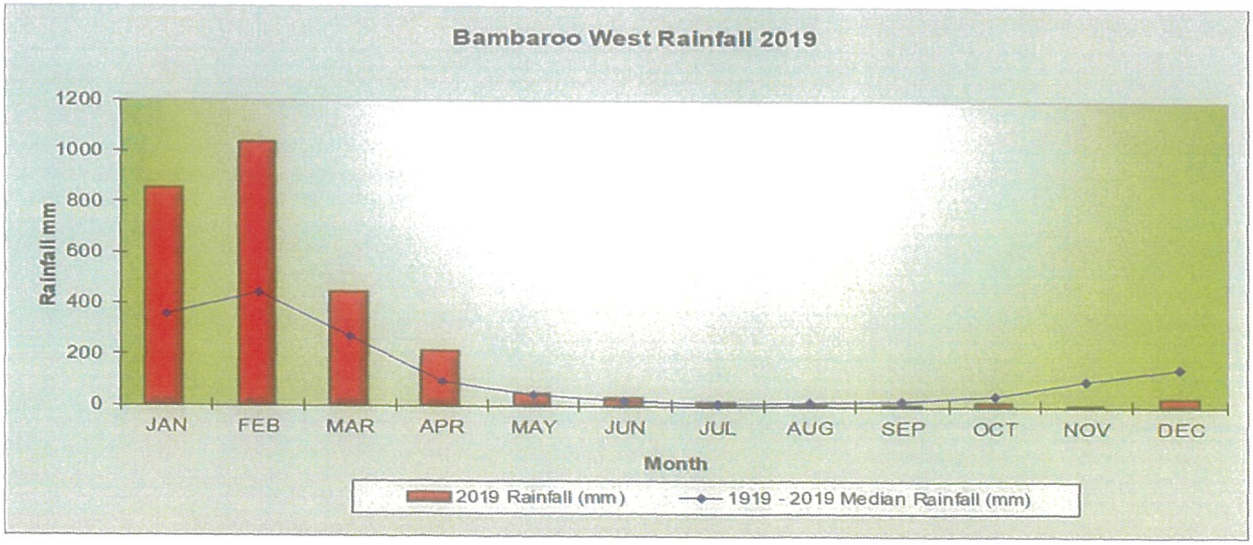
Ingham Line encompasses the subdistricts of Coolbie Rollingstone, Bambaroo East, Bambaroo West, Yuruga and Helen's Hill. The 2018/2019 growing season saw a dramatic shift from excessively dry at the end of 2018 to an almost instant excessive wet at the start of 2019. Not only did this make it challenging for varieties to germinate and grow, it then made it difficult to find blocks dry enough to plant when the planting season started.

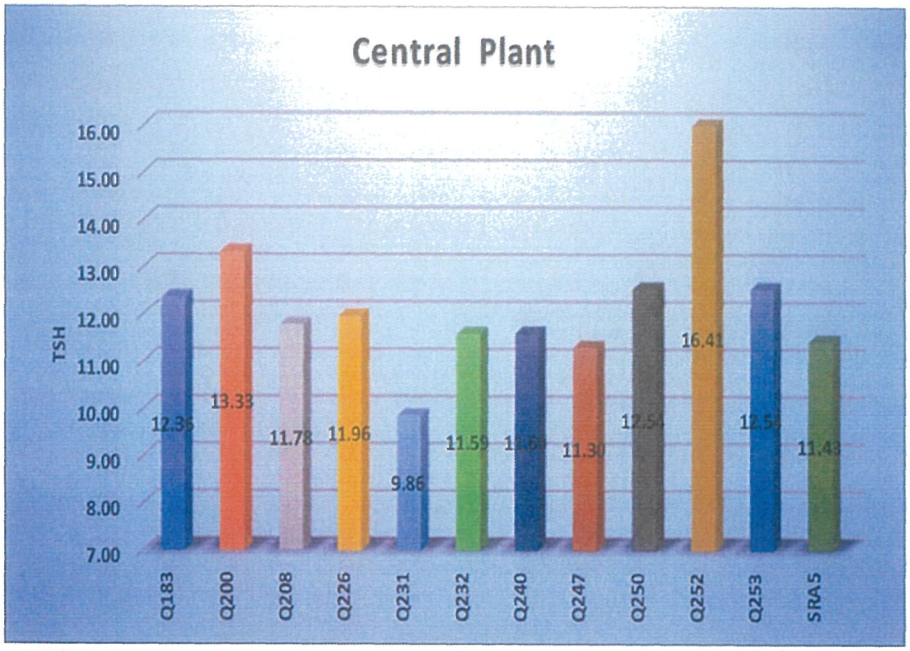
Q208Ⓓ and Q253Ⓓ appeared to handle the drier start better than most, and in some areas, Q232Ⓓ as well. Q253Ⓓ had a difficult year again with RSD being found in some (not all) blocks. Q253Ⓓ has still shown popularity with growers however at this point of time.

SRA10Ⓓ and SRA14Ⓓ were approved for release in the Herbert in 2018, however, due to HCPSL's low supply in 2018, were not picked up from the plots until 2019. Thus, field observations were very few. Towards the end of 2019, observations by a couple of growers in the Ingham Line subdistrict had indicated smut whips being visible in SRA14Ⓓ plant cane, all observations occurring in dry blocks. The dry end to 2019 would be the main driver for this with SRA14Ⓓ not handling dry stress well. No smut whips were observed in SRA14Ⓓ in blocks with some moisture on the same farms.

SRA3 has been completely removed from the approved list due to its varying levels of smut whips and can no longer be planted. Existing blocks can be ratooned.



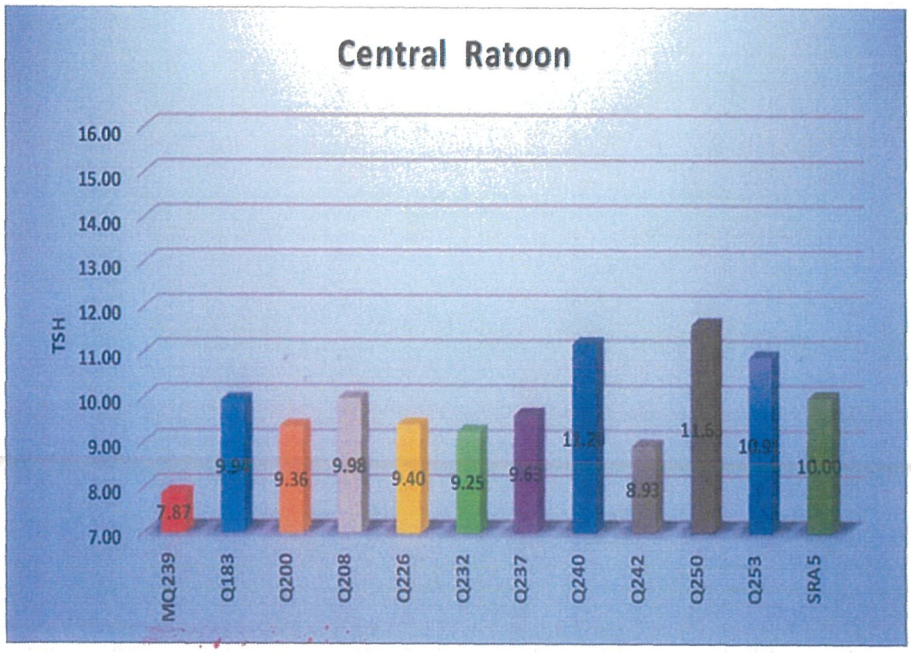


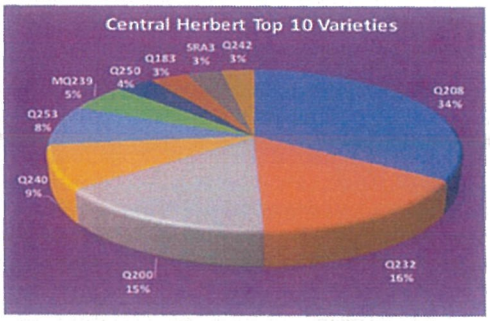


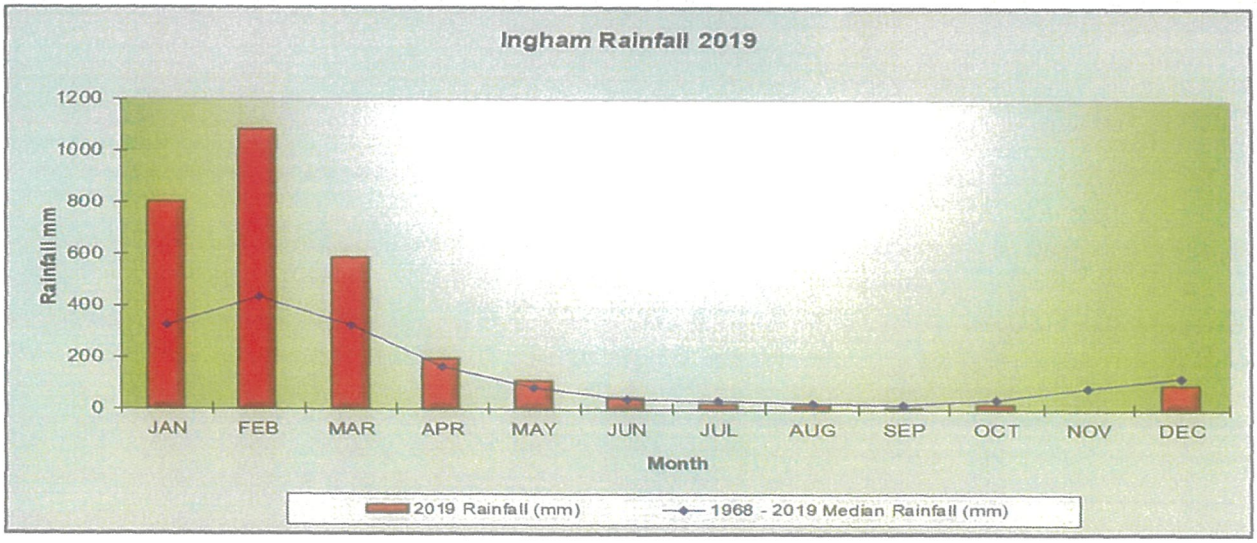
Central Herbert encompasses the subdistricts of Blackrock, Toobanna, Hamleigh, Fairford Trebonne and Victoria Estate. The start of 2019 experienced exceeding rainfall conditions, resulting in localised flooding to a small number of farms (flooding not as widespread as the flooding early in 2018). The excessive wet interfered with the commencement of the planting season, with planting in the wetter zones taking off around June/July. This resulted in the planting window narrowing, forcing some growers to finish planting in October.

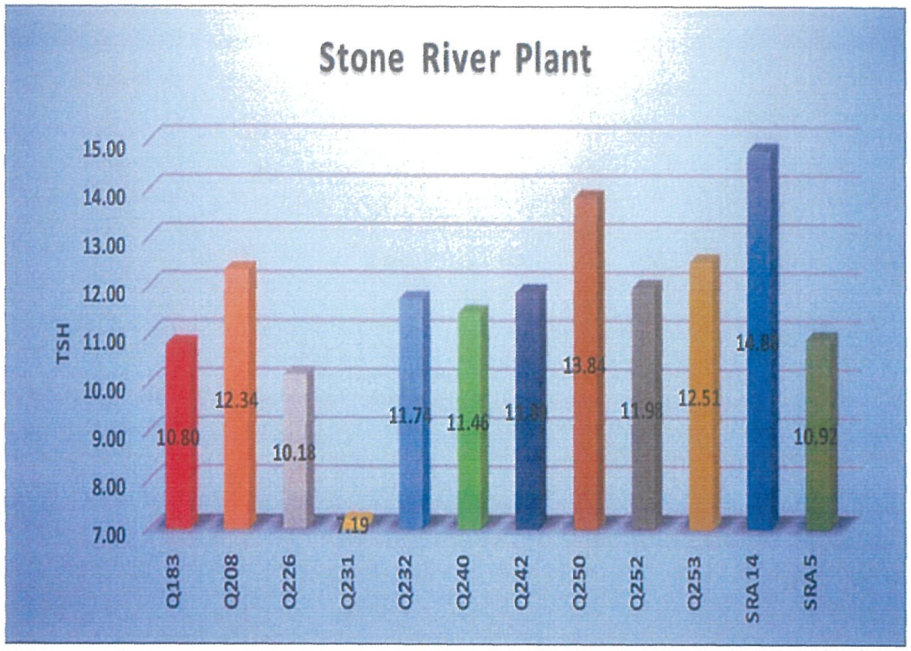
During the season, some growers had expressed disappointment with the performance of Q250Φ, with sugar levels not meeting expectations. Q253Φ again had RSD detections not in all blocks), and in some cases, struggled with the hot water treating. Q240Φ on the other hand, showed improved performance again over the previous crop (most cases), and SRA14Φ proved very popular in uptake from the plots. This variety, as well as SRA10Φ, will struggle in the drier conditions and can have the tendency to show smut whips under moisture stress.

SRA3 is no longer allowed to be planted as it has been removed from the approved list, due to the presence of smut whips in some blocks. However, existing blocks can be ratooned.







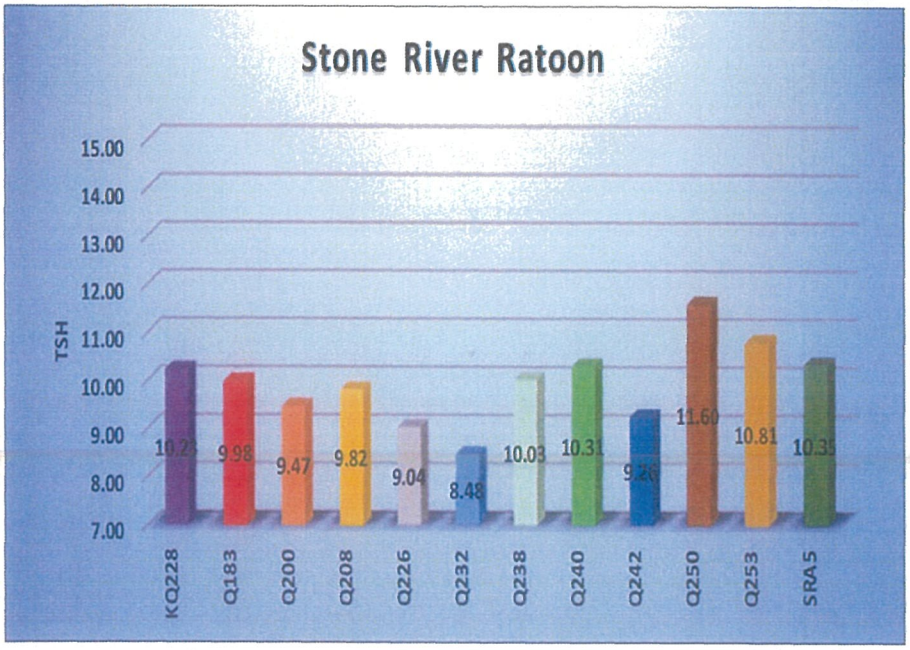


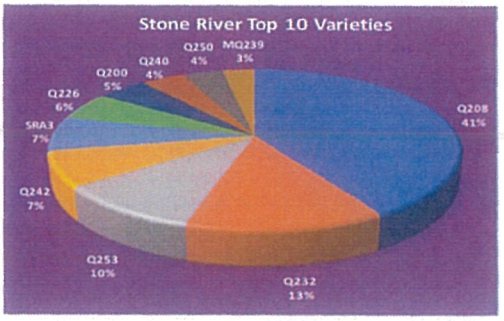
Stone River encompasses the subdistricts of Upper, Mid and Lower Stone.

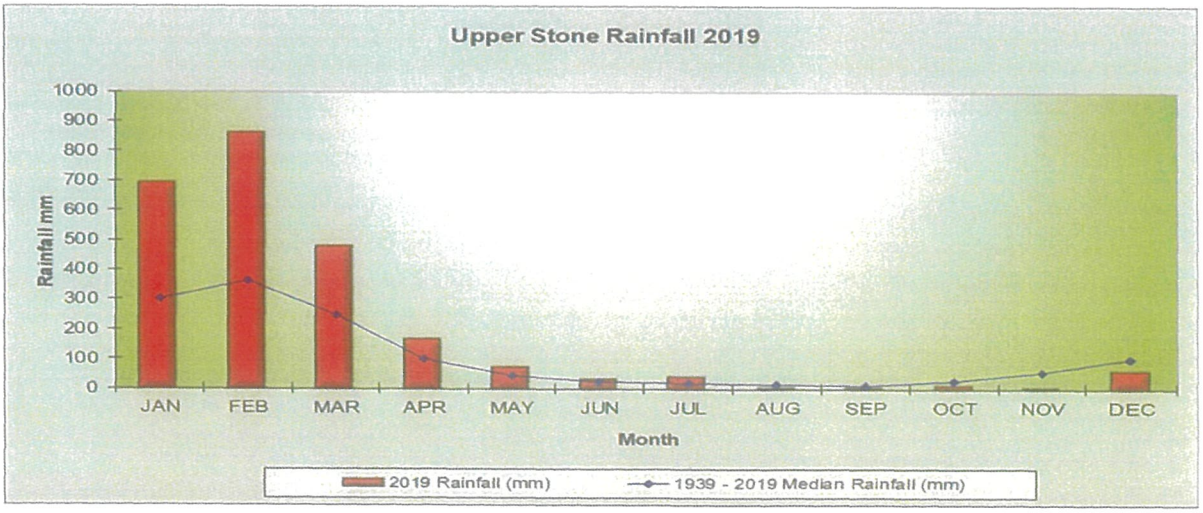
As with the other subdistricts, the 2018/2019 growing season experienced an excessive dry followed by an excessive wet. The early dry impacted germinations on the wetter varieties in particular, (including Q240Φ and Q250Φ), with germinations being low. The following excessive wet then made it difficult for weed control with ground applications.

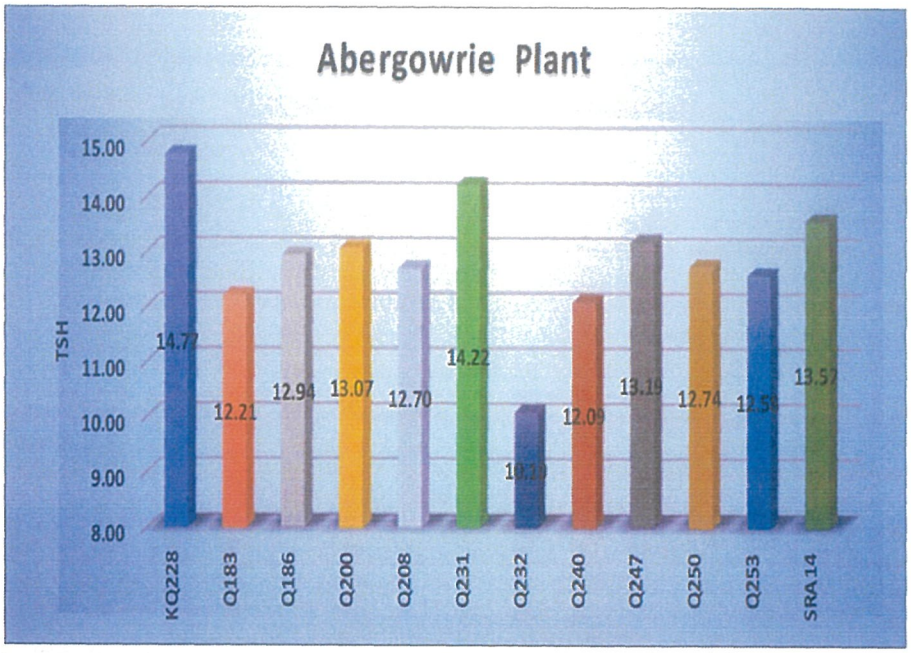
Q253Φ still showed some dominance in choice for planting in 2019, despite some blocks still having RSD detections. In some cases, Q253Φ has again shown stress with hot water treating in some cases, with germinations suffering. As happened in 2018, Q232Φ and Q242Φ flowered early again in 2019 across the district.

2019 saw the removal of SRA3 from the approved list, due to displays of high levels of smut in some blocks. Ratoon blocks can be ratooned however. With the release of SRA10Φ and SRA14Φ, bearing in mind that these are better ground and wetland varieties, both can have a tendency to display smut whips in drier conditions.







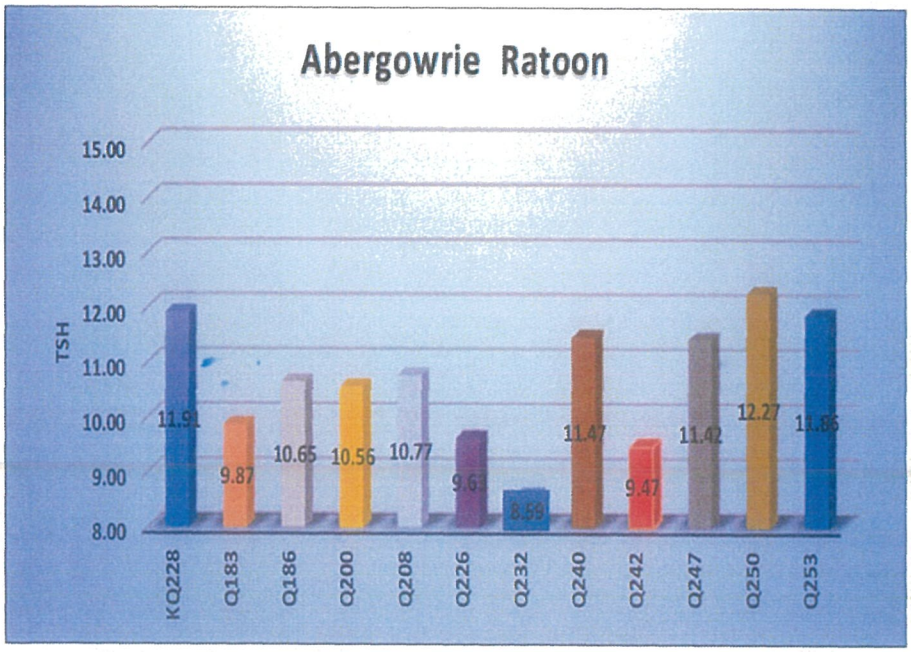


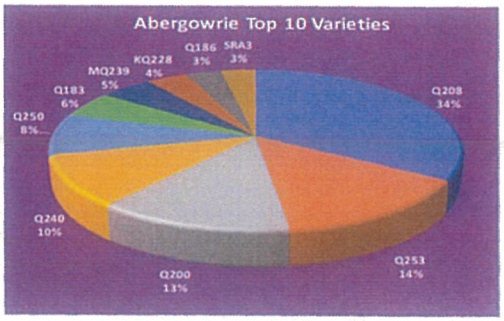
Abergowrie encompasses the subdistricts of Elphinstone Long Pocket, Leach and Garrawalt.

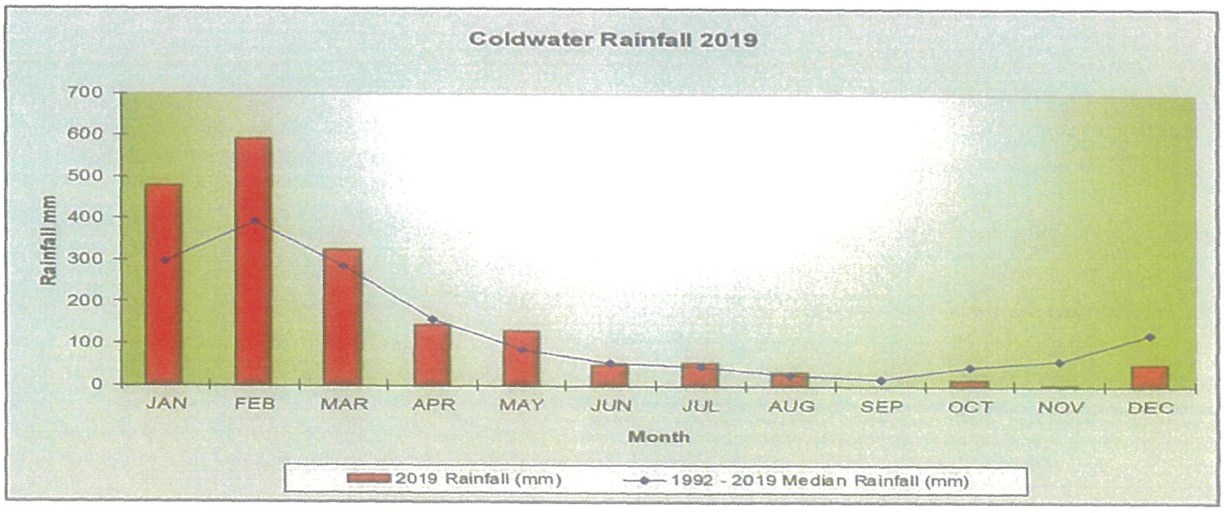
Like the other subdistricts, the excessive wet start to the season interfered with the commencement of the planting season, forcing growers and contractors to start planting later, and finish in October.

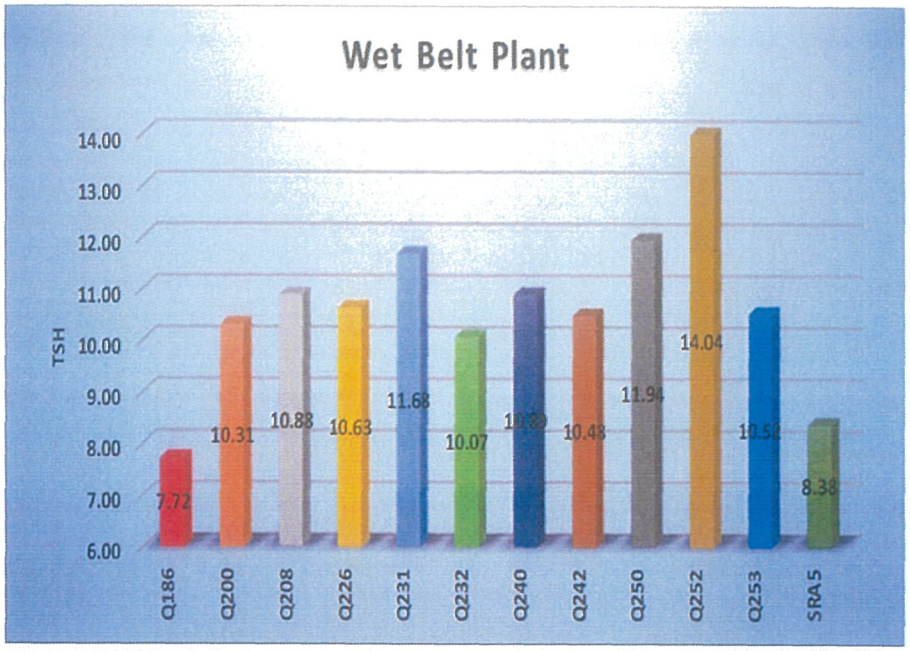
Released intentionally for the Abergowrie subdistrict, SRA10[Ф] and SRA14[Ф] were picked up by a handful of growers, although Q253[Ф] still proves to be one of the more popular varieties currently. Growers across the Herbert River district are starting to focus on their hygiene practices particularly when they are handling Q253[Ф]. Q240[Ф] and KQ228[Ф] are amongst other varieties still showing some popularity in Abergowrie.

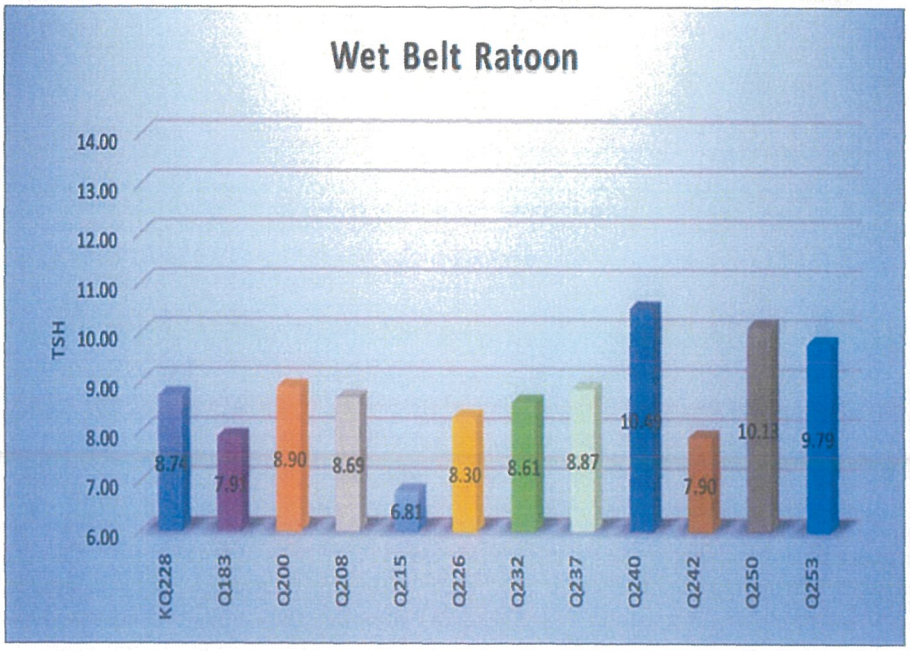
As of 2019, SRA3 is no longer allowed to be planted, having been removed from the approved list. However, existing blocks can be ratooned.











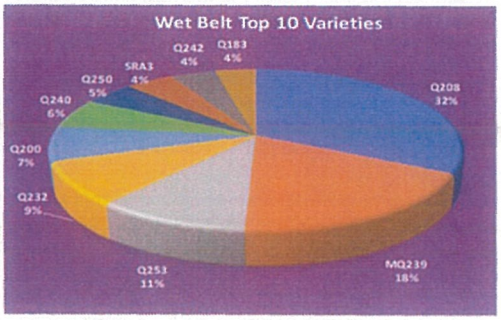
Wet Belt encompasses the subdistricts of Tara Seymour, Hawkins Creek, Lannercost and Lannercost Extension.

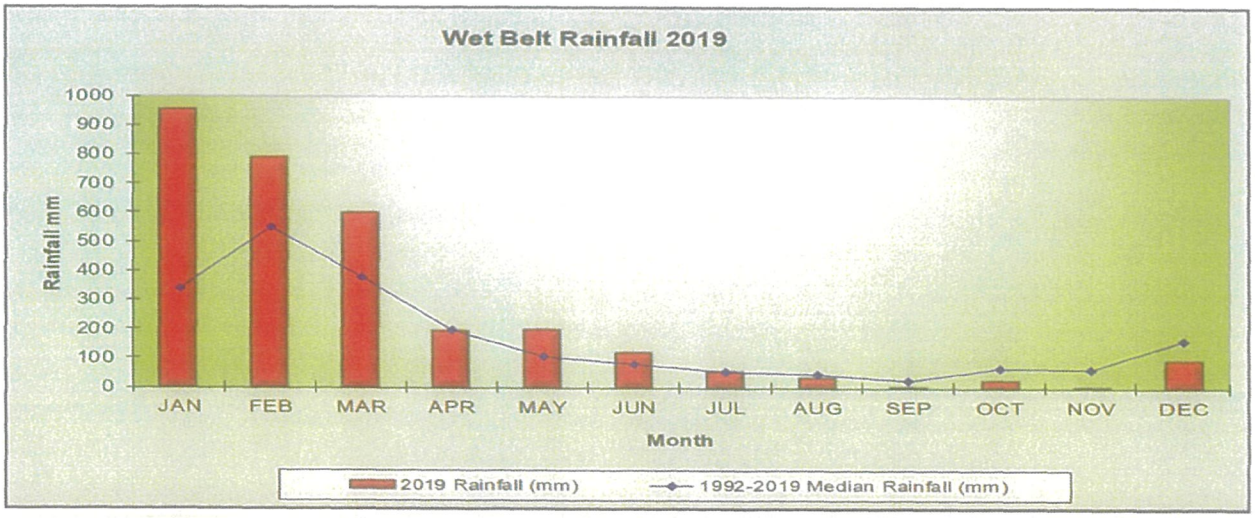
Whilst the excessive dry at the end of the season may have impacted germinations on some varieties, it may have also had an impact on their performance, particularly Q250Ⓓ. During the 2019 season, growers were disappointed in some cases with the sugar levels of Q250, whilst the performance of Q240Ⓓ appeared to improve in most cases on the previous year.

SRA10Ⓓ and SRA14Ⓓ uptake was pretty strong in the subdistrict, with both varieties being more suited to the better, wetter ground. KQ228Ⓓ and MQ239Ⓓ demand has also picked up slightly.

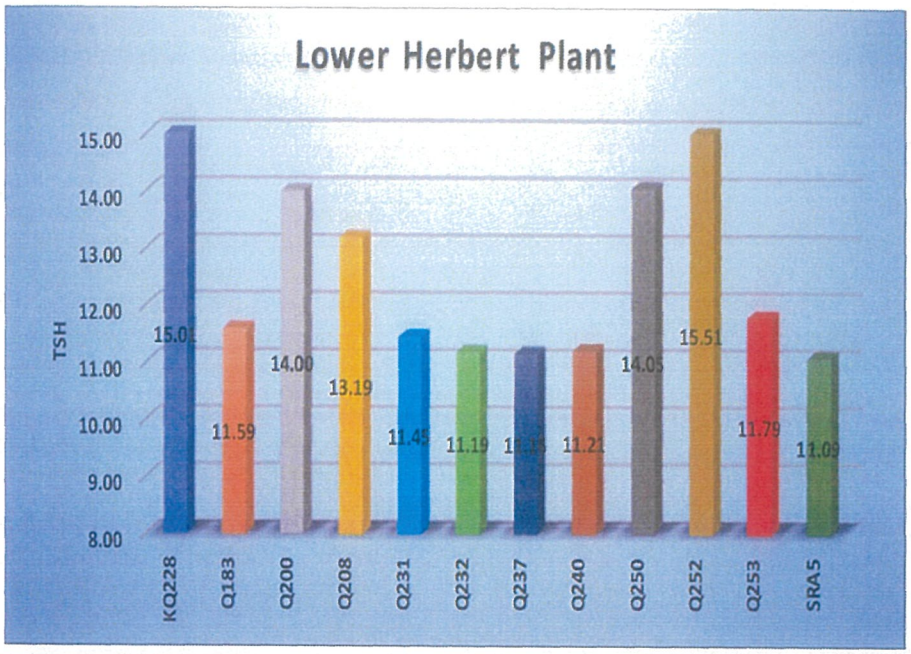
Even though RSD and hot water treating troubled Q253Ⓓ in some blocks again in the 2018/2019 season, Q253Ⓓ still has a lot of interest with growers. Reasonable sugar was still observed in some cases around mid season, and growers across the Herbert district are becoming more careful dealing with the variety hygiene wise.

In 2019, it was decided to remove SRA3 from the approved list, only allowing the variety to be ratooned.





LOWER HERBERT

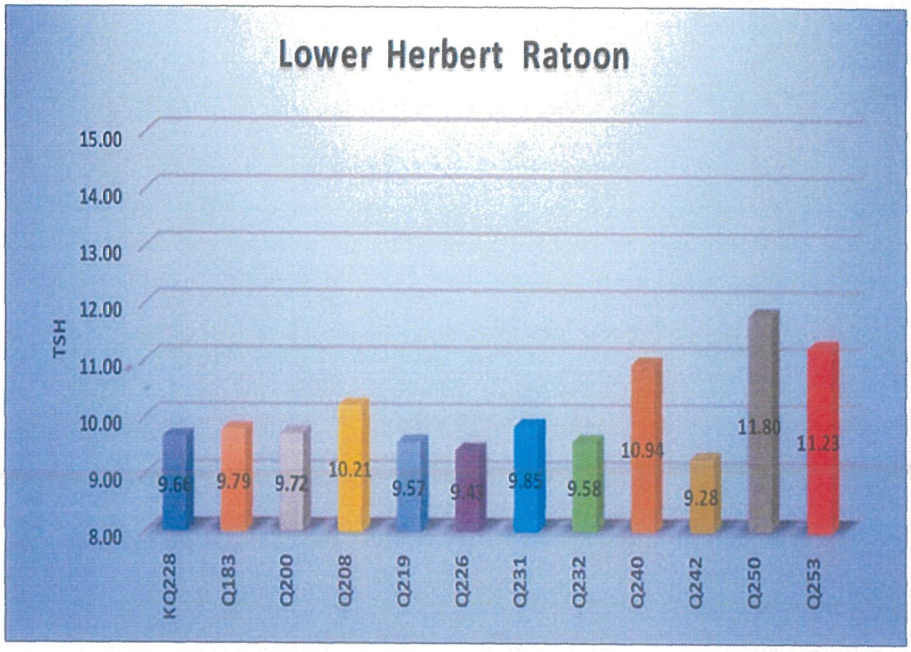


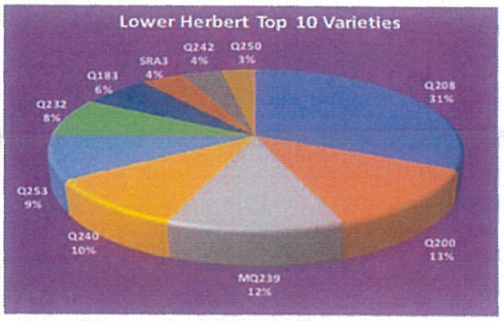
Lower Herbert encompasses the subdistricts of Ripple Creek, Macknade, Halifax Fourmile, Cordelia, Foresthome and Sunnybank. Like the Central subdistrict, along with the excessive wet start to the year, localised flooding was experienced on a small number of farms in the Lower Herbert subdistrict, with flooding effects being felt. The excessive dry during the end of 2018 also affected early crop growth, and the excessive wet caused disruptions to the commencement of planting.

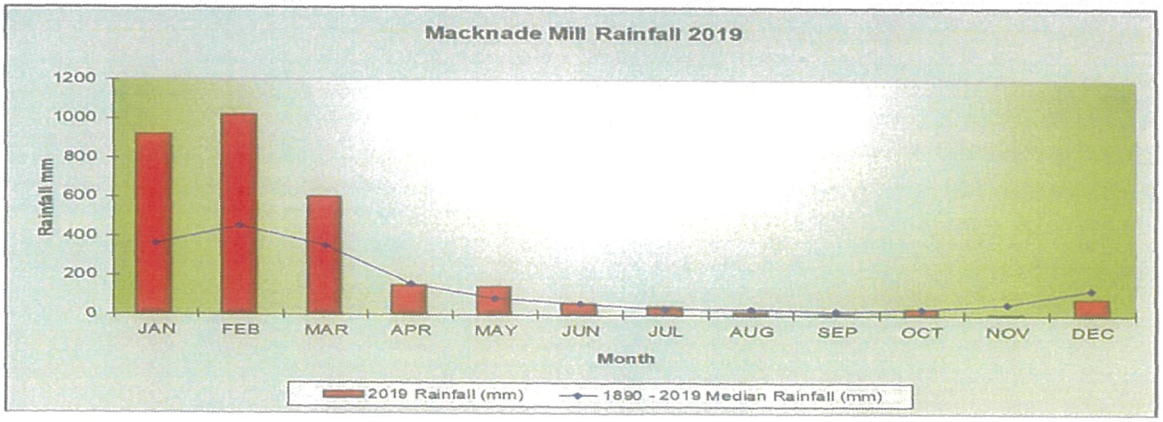
As with the other wet zone subdistricts, SRA10[Ф] and SRA14[Ф] were rapidly picked up. Even though both have potential to perform reasonably well in the Lower Herbert, both varieties have already been observed to have displayed smut whips in this subdistrict, especially in the sandy soils of the area, where dry stress is possible. Demand for MQ239[Ф] at a low level continued in this subdistrict in 2019. Q232[Ф] and Q242[Ф] again displayed early flowering in 2019 across the district.

Despite its issues with RSD and hot water treating, Q253[Ф] has maintained its popularity with growers, with growers becoming more aware on how to handle the variety from a hygiene perspective. Q250[Ф] proved to be less popular with some growers, with sugar being down on expectations in some cases.

Growers should note that in 2019, SRA3 was removed from the approved list, and whilst it can still be ratooned, it can no longer be planted.







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