HERBERT SUGAR INDUSTRY REPORT 2021

HCPSL
Herbert Cane Productivity Services Ltd.

wilmar

CROP PERFORMANCE 2021

Late 2020 was extremely hot and dry with crops suffering severe moisture stress. The dry cycle was broken on Boxing Day evening with significant rainfall occurring throughout January of 2021. Constant rains fell up until mid-May with a little reprieve in June. Rains fell again in July, the week of the Ingham Show, slowing down the crop harvest and delaying the planting. August through to mid-October were relatively dry with the planting concluding the second week of October. The constant and significant rains throughout the year caused waterlogging of fields and periods of low sunlight for crop growth eventuating in low cane yields.

The cane harvest concluded on the 24th of November 2021. Although the crop of 3.8 million tonnes was somewhat disappointing, it was nevertheless remarkable given the poor growing conditions experienced in late 2020 - early 2021. The average district yield for 2021 was 69.1 tcph, with a district average CCS of 12.73. The low CCS could be attributed to the low solar radiation, rat damage and suckering of the cane crop.

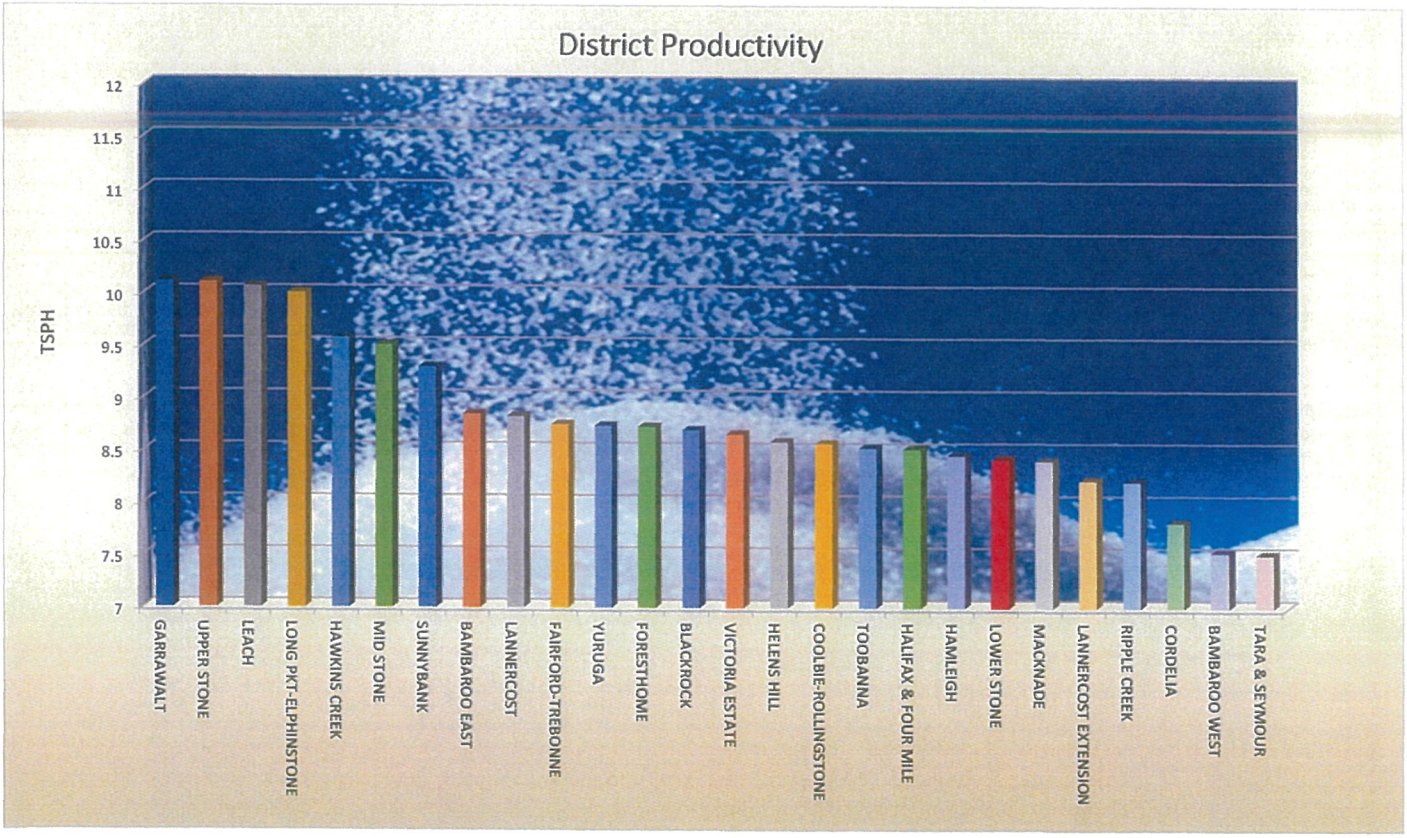
Climatic variation (especially wet weather conditions) has a significant impact on cane yield in the Herbert region, as well as the impact of disease incursions like orange rust and smut. The impact of these events has a rippling effect on productivity over a number of years and is a recurring issue for the industry to deal with.

HISTORICAL DATA

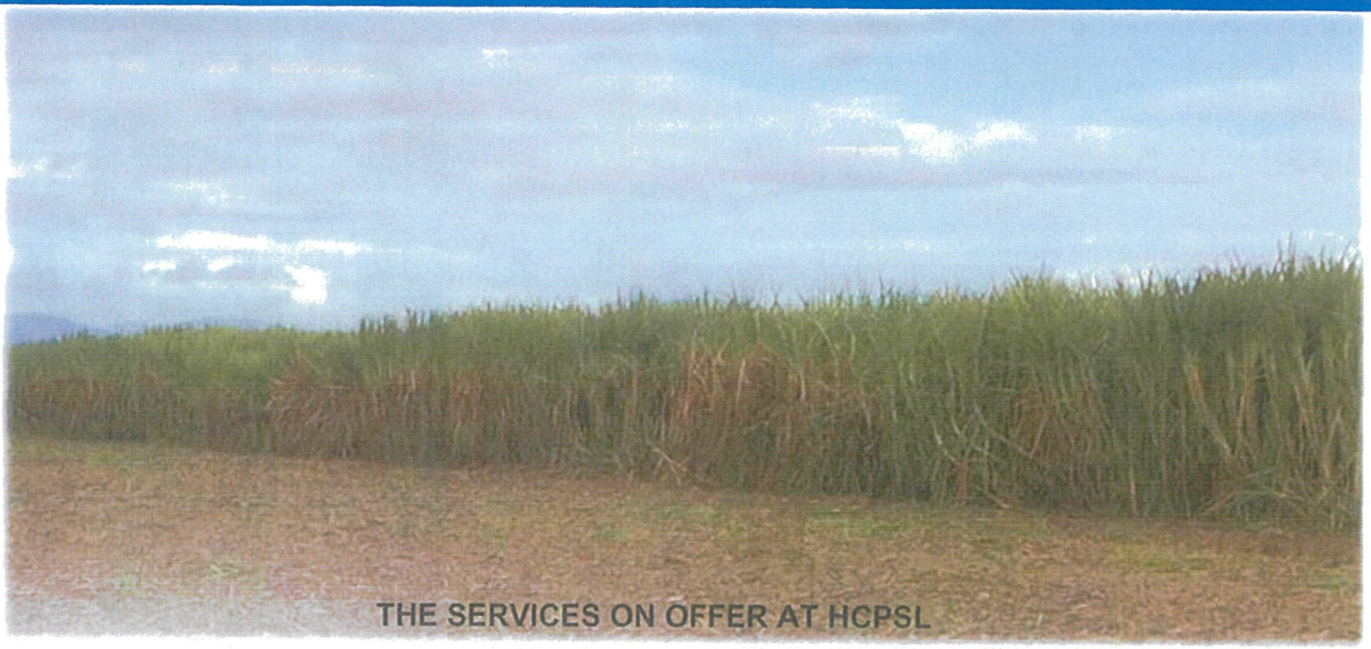
Year	Tonnes	Ha Harvested	CCS	Cane Yield	Sugar Yield
1994	3888137.31	46730.02	14.74	83.20	12.27
1995	4908214.85	50051.86	13.05	98.06	12.80
1996	5251285.67	53513.30	13.21	98.13	12.96
1997	5272421.61	57328.33	13.37	91.97	12.29
*1998	4191272.31	48669.90	11.46	86.12	9.87
1999	4151741.51	59955.95	12.73	69.25	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
2006	4900084.45	57658.50	12.62	84.98	10.72
2007	4287010.73	57136.66	13.84	75.00	10.38

Year	Tonnes	Ha Harvested	CCS	Cane Yield	Sugar Yield
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	4459593.58	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	57042.80	14.24	82.71	11.78
2019	4055701.57	58357.28	13.89	71.96	10.00
2020	4250399.37	55224.52	13.16	76.97	10.13
2021	3797258.00	54936.59	12.73	69.10	8.80

* Standover Left



HCPSL SERVICES



THE SERVICES ON OFFER AT HCPSL

Herbert Cane Productivity Services Limited (HCPSL) is a non-for-profit organisation established to provide agricultural technical services and support to the Herbert Sugarcane industry. The key focus of the company is to drive productivity and sustainability outcomes for the local industry.

Cane farmers from the Herbert cane growing region and the local miller (Wilmar) can be members of the company. The HCPSL Board is represented by its membership, with 3 grower and 3 miller members holding positions on the Company Board.

HCPSL consists of two technical service groups.

Core funded - Grower services team

This team delivers activities that are funded under the membership service fee:

- Provision of clean seed through the HCPSL "Clean" seed program consisting of access to cane from the "Clean" Seed plots, tissue culture program and hot water treatment facilities. This activity is resource hungry and constitutes a significant component of the HCPSL annual budget.
  HCPSL leases three farms in the Central Herbert, Lower Herbert and Stone River areas and has commercial arrangements with growers in the Ingham Line and Abergowrie areas to grow "Clean" Seed cane for members.
- Cane testing of material to be used for planting by growers for Ratoon Stunting Disease (RSD).
- Provision of basic crop agronomy advice.
- Provision of basic advice on pest and disease management.
- Provision of basic advice on fallow management.
- Provision of basic advice on herbicides and pesticides.
- Provision of variety management advice.
- Access to the HCPSL GPS basestation network.
- Laser levelling and dumpy level surveys.
- Access to services provided by the Hinchinbrook Community Feral Pig Management Program.
- Access to a biannual newsletter.
- Access to the HCPSL website.

As part of the core funding, HCPSL also funds variety development activities in the district supporting the HCPSL Ratoon Variety Trials (RVT), SRA and Wilmar plant breeding programs.

Externally funded - Technical services team

This team works on the following externally funded projects:

- Soil tests for nutrients and pathogens (like *Pachymetra* and nematodes).
- Irrigation water quality testing.
- Farm specific - Nutrient management plans.
- Farm specific -Pest and weed management plans.
- Group and mass media extension activities like:
  - Chemical use accreditation courses.
  - Training courses (like Farming 4 Cash™ and Back to Basics workshops)
  - Facebook site
- Electromagnetic soil mapping.
- Precision agriculture application maps.
- Drone mapping and other applications.
- Soil Health project activities.
- Harvesting development project activities.
- Environmental services and stewardship programs.
- Development activities associated with soil amendments, fertilisers, chemicals, etc.

Externally funded projects are funded by Governments, SRA, the CRC for Soils, Universities and private companies.

For more information concerning services offered by HCPSL please contact the Manager, Lawrence Di Bella on 0448084252 or 47761808.

Hot Water Treating Cane

THE WHO, WHAT, WHEN, WHERE & HOW OF THE 2022 HCPSL SEED PLOTS

HCPSL Macknade Plot

Address:	HCPSL Macknade Farm
Varieties Available:	Q183, Q200, Q208, KQ228, Q240, Q253, SRA6, SRA10, SRA14, WSRA24, SRA26, SRA28
Open Day:	Thursday 7.30 am
Billets:	Please call in advance so a billet harvester can be organised.
Staff Member:	Tony McClintock 0447 304 963

Ingham Line Plot (Zatta)

Address:	Yuruga Road
Varieties Available:	Q138, Q183, Q200, Q208, Q219, Q226, Q232, Q238, Q240, Q253, SRA5, SRA10, SRA14, SRA26, SRA28, WSRA24, QA07-2978
Open Day:	Tuesday 7.30 am
Billets:	Please call in advance so a billet harvester can be organised.
Staff Member:	Tony McClintock 0447 304 963

Abergowrie Plot (Erkkila)

Address:	Abergowrie Road
Varieties Available:	Q200, Q208, KQ228, Q231, Q232, Q240, Q250, Q253, SRA14, SRA26, SRA28, WSRA24
Open Day:	Wednesday 7.30 am
Billets:	Please call in advance so a billet harvester can be organised.
Staff Member:	Richard Hobbs 0400 544 301

HCPSL Stone River Plot

Address:	HCPSL Stone River Farm
Varieties Available:	Q138 (1st ratoon only), Q200, Q208, Q215, Q219, Q226, KQ228, Q231, Q232, Q238, MQ239, Q240, Q250, Q253, SRA5, SRA10, SRA14, SRA26, SRA28, WSRA24, QA07-2978
Open Day:	Monday 7.30 am
Billets:	Please call in advance so a billet harvester can be organised.
Staff Member:	Jason Caruso 0417 622 129

HCPSL Central Plot

Address:	Hamleigh Road
Varieties Available:	Q183(1st ratoon only), Q200, Q219 (1st ratoon only), Q208, Q231, Q232, Q240, Q242, Q250, Q253, SRA5, SRA6, SRA14, WSRA24, SRA26, SRA28, QA07-2978
Open Day:	Friday 7.30 am
Billets:	Please call in advance so a billet harvester can be organised.
Staff Member:	Jason Caruso 0417 622 129

Central Plot (Reinaudo)

Address:	Hamleigh Road
Varieties Available:	Q183, Q252, SRA5, SRA14, SRA26, SRA28, QA07-2978
Open Day:	Friday 7.30 am
Billets:	Please call in advance so a billet harvester can be organised.
Staff Member:	Jason Caruso 0417 622 129

Four Mile Plot (Kemp)

Address:	Legge's Road
Varieties Available:	Limited material available - SRA26, SRA28, QA07-2978
Open Day:	Monday 7.30 am
Staff Member:	Lawrence Di Bella 0448 084 252

THE HERBERT INDUSTRY THINK TANK

The purpose of the Think Tank session was to have a "big picture" thinking on the intent and look at ways and means to increase adoption of Approved Clean Seed within the district and disease management techniques.

The facilitated session hosted by HCPSL was designed to be a Think Tank that encouraged free-flowing discussion and generation of innovative ideas to address the underlying issue: *how do we encourage increased grower uptake of Approved Clean seed cane within the district.*

The Think Tank was facilitated from outside the industry to ensure no bias in the process. As well as facilitating the discussion, this 'Outputs Report' has been produced to provide detail on the outcomes of the session. The final report will be circulated to all Think Tank participants, and its contents will be considered by HCPSL and the industry advisory committee.

As the facilitator had no direct industry experience or technical expertise, two technical experts were invited to participate, as subject matter experts in disease management and clean seed cane. They included:

- Dr. Rob Magarey (SRA Pathologist) started his sugarcane pathology career in 1981 and has accumulated considerable knowledge of Australian diseases and has written field guides for both Australian and exotic diseases.
- Dr. Anthony Young (UQ Gatton Pathologist) has an extensive research career in the cane industry and is a senior lecturer in crop protection. He also has practical first-hand experience in researching Clean Seed Cane uptake for the northern NSW cane industry.

Attendees of the Think Tank session included:

- 2 x grower representatives from the HCPSL Board.
- 3 x representatives who are billet planting contractors (that operate in the district).
- 1 x representative from each of the following Productivity Zones - Ingham Line, Stone River, Abergowrie, and Central or Lower Herbert. These zones will represent the 4 of the zones and Herbert River CANEGROWERS sub-district branches.
- 1 x representative from the following Grower Collectives** (i.e. three (3) representatives in total) plus AgForce, HCQ, and ACFA.

***The representatives from the three Collective groups had one representative for the following Productivity Zones: Lower Herbert or Central, Wet Belt, or a nominated area. These Grower Collective groups agreed on which sub-district they will be sourcing their representatives.*

To date, HCPSL has undertaken key activities and initiatives to support an Approved Clean Seed cane program in the region. They have:

- Developed a tissue culture program
- Run or closely supervised Approved Clean Seed cane plots
- Managed cane treatment through the HCPSL hot water treatment plants.

Outcomes from the session will be considered by HCPSL and may be implemented provided they are practical and commercially viable.

A specialist group has been established called the HCPSL Advisory Committee, which will provide and deliver technical services specific to Approved Clean Seed adoption and disease management, particularly RSD.

The purpose of the HCPSL Advisory Committee will be to:

1. Review the ideas from the Think Tank.
2. Develop budget proposals (considering financial costs, staff resources, operational requirements, etc.) for the HCPSL Board to consider.
3. Provide updates on progress.

The Committee will consist of:

- 1 x HCPSL Grower Board Member (Committee Chair)
- The HCPSL Manager
- 1 x representative from each Grower Collective group that operates in the region.
- SRA Regional Manager

It is hoped that outcomes from the Think Tank will lead to improved adoption of Approved Clean Seed by Herbert growers.

HERBERT SUGAR INDUSTRY AWARDS PRESENTED IN 2021

Award	Recipient
Grower of the Year (Sponsored by Wilmar Sugar)	**Pedruzzi Farming**
Young Grower of the Year (Sponsored by Wilmar Sugar)	**Adrian Astorquia**
Mangrove Jack Award (Sponsored by Herbert River Catchment Group)	**Cane 2 Creek Project**
Harvesting Efficiency Award (Sponsored by Sugar Research Australia)	**Morelli Harvesting**
Innovation Award (Sponsored by Rabobank)	**Pace Farming**
Farm Presentation for Harvesting Award (Sponsored by Honeycombes)	**The Enzo Motti Discretionary Trust**
Improved Farm Layout Award (Sponsored by Canegrowers Herbert River)	**Mizzi Farming**
Consistent High Productivity (Sponsored by QSL)	**Celotto A & A Family Trust** **Pedruzzi T** **Mammarella Farming** **CBF Nominees** **Boscato R** **Covell A**
R&D On-farm Co-operation (Sponsored by HCPSL)	**RFC Agri Services** **Irlam G & G** **Kemp I** **Jenallynn Holdings Pty Ltd** **Lyon R** **G & C Harvesting**
Lifetime Achievement Award (Sponsored by HCPSL)	**Piera Zatta**

Grower and Industry forums

With National and State restrictions on people movement due to COVID-19, the Herbert district saw no cases during 2021. This allowed the industry to undertake shed meetings, the HCPSL Herbert Walk and Talk and other such industry forums during 2021 under strict COVID-19 protocols set by the Queensland Department of Health. The following activities were undertaken:

HCPSL March Shed meetings

The March shed meetings were focused on:

- Farm productivity.
- RSD management.
- Uptake of Approved Clean seed

HCPSL staff provided attendants a report on the productivity of their own individual farms compared to their sub-district average. The CAPA (Cane Area Productivity Analysis) report ranked neighbouring farms for CCS, cane and sugar yield. There was considerable discussion between growers concerning productivity drivers and ways to improve cane yields on their farms.

Dr Rob Magarey (SRA Pathologist) presented information on RSD management and recent R&D activities.

Six meetings were held throughout the district with approximately 120 growers attending.

The HCPSL Walk and Talk Day

The 2021 HCPSL Walk and Talk Day was held at the Ingham Show grounds on the 13th. April 2021. The day was well attended with over 150 attending the event.

The following presentations were undertaken:

- Nematodes and managing them in a sugarcane farming system.
- Varieties and their management.
- Cultivate Farms project update
- Project CaNE project update
- Better management of mill by-products and nutrient management concerning their use

The annual Herbert industry awards were also presented on the day. Because the 2020 event was cancelled due to the COVID-19 shutdown, the 2020 and 2021 awards were presented on the day.

Walking the Landscape workshops in the lower Herbert

Growers and stakeholders got together in March last year to explore the catchments of the lower Herbert, without getting their feet wet! The two days of Walking the Landscape workshops enabled participants to share their knowledge of the area, such as how water moves during different rainfall events, the soils, waterways and values for agriculture and fish production. The workshops helped develop a mutual understanding of how the lower Herbert catchments works and identified actions that could be taken to improve water quality and fish habitat in the lower Herbert.

Approximately 27 people attended each day including sugarcane growers, community members, researchers, extension officers, Hinchinbrook Shire Council, Terrain NRM, OzFish and government staff. Six sub-catchment areas in the lower Herbert were explored in detail, with growers enthusiastically sharing their knowledge of the landscape surrounding their farms.

Catchment water quality was discussed during the workshops, with opportunities identified for treatment systems, wetlands, streambank restoration and riparian revegetation. Sites for additional water quality monitoring were also suggested. This all aimed to complement existing best management practice extension projects in the lower Herbert.

Numerous potential barriers to fish passage, such as culverts, weirs and weed chokes, were also identified for further ground-truthing and possible remediation, as part of the Terrain NRM fish homes and highways project.

Walking the Landscape workshops also contribute to the Catchment stories (Department of Environment and Science) (des.qld.gov.au)

The workshops were an initiative of the Herbert River Catchment Landcare Group and Terrain NRM, delivered in partnership with Department of Environment and Science (Queensland Wetlands Program), DAF, HCPSL and Hinchinbrook Shire Council. They were jointly funded by the DAF Enhanced Extension Coordination project (Queensland Reef Water Quality Program) and Australian Government's Reef Trust project.

Project CaNE™
Providing growers with agronomic support and tailored solutions to help them improve productivity, profitability, and environmental outcomes on their

In 2021, HCPSL commenced Project CaNE™. Over three years, the project aims to deliver tailored nutrient plans (CaNE Plan™), interactive workshops and grower activities (Back to Basics™, Farming 4 CASH® and Cultivating CaNE™ grower groups), production and economic analysis of various practise changes (on-farm demonstrations, including the Clear as Mud™ program) and the monitoring of water quality across the Herbert region. Funded by a partnership between the Australian Government's Reef Trust and the Great Barrier Reef Foundation, HCPSL has put together a team of extension agronomists and support staff, and developed partnerships with TropWATER and DAF Qld, to provide growers with expertise in crop agronomy, agricultural economics, and water quality monitoring.

Based on SIX Easy Steps, a CaNE Plan™ is an easy to use, paper-based, reef regulation compliant and can be used toward BMP accreditation. HCPSL will deliver CaNE Plans™ to 150 farms over the life of the project. Each CaNE Plan™ is a whole farm nutrient management tool that provides growers with a one-stop solution to evaluating, managing, and recording on-farm nutrient applications. HCPSL has already delivered 70 CaNE Plans™ in 2021 and has a waiting list of growers eager to develop plans in 2022.

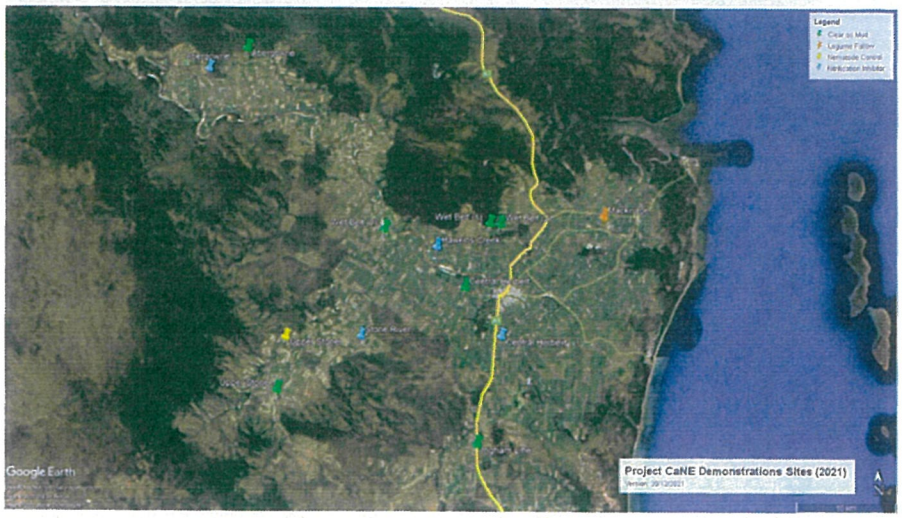
Growers who join the project have the opportunity to participate in the Farming 4 CASH® and Back 2 Basics™ Workshops. Three workshops have already been delivered with six more planned for 2022. The Back to Basics™ workshops include hands on activities and are interactive workshops that are tailored specifically for growers and their needs. The Farming 4 CASH® workshops are also designed to be grower friendly with a range of topics based on assisting growers to build farming systems that benefit improvements in productivity, profitability, and water quality.

Nine Cultivating CaNE™ grower groups were held in 2021. These grower group gatherings saw growers, researchers, agronomists, and industry stakeholders discuss topics such mill by-products and water quality monitoring. Grower groups also aim to facilitate grower-to-grower discussions and learnings related to farming systems and water quality. Grower group activities are already being planned for 2022 and all growers and industry stakeholders will be encouraged to participate.

In 2021, Project CaNE™ established 13 on-farm demonstration sites across the Herbert. These sites aim to demonstrate the benefits of legume fallows, nitrogen stabiliser products and strategic applications of mill by-products (Clear as Mud™). The Clear as Mud™ program consists of seven demonstration sites that will monitor and assess benefits to productivity, profitability, and water quality over the life of the project.

HCPSL has partnered with TropWATER to establish 11 water quality monitoring sites across the Herbert. These sites were established in the second half of 2021 in consultation with growers and industry stakeholders. The sites will deliver real-time information to project partners and growers over the next three years.

Project CaNE™ is funded by the partnership between the Australian Government's Reef Trust and the Great Barrier Reef Foundation.



A map of the Herbert region showing the 13 on-farm demonstration sites established in 2021.

The team from TropWATER discussing water quality monitoring with growers at one of the 11 sites established in 2021

Project Extension Agronomist Jarrod Sartor goes over a CaNE Plan™ with growers at the project launch.

The HCPSL 2021 Project CaNE™ team.

Dr Andrew Wood joins Project CaNE™ team members (left to right) Adam Royle, Graeme Holzberger and Ellie McVeigh to deliver a series of Back to Basics™ workshops in November 2021

Grower's test their soil's pH during a Back to Basics™ workshop in the Bambaroo area in November 2021.

Mill by-product being applied to a Clear as Mud™ demonstration site in 2021

PROJECT CATALYST

Project Catalyst is a pioneering partnership between more than 150 innovative Queensland cane growers progressively improving farming performance and environmental outcomes, jointly supported by the Great Barrier Reef Foundation, The Coca-Cola Foundation, and WWF Australia.

Project Catalyst (PC) initial focus has been innovative farm practices and over the last five years, HCPSL with PC have trialled several different projects. The latest innovative trials PC is investigating are all based around precision agriculture and either zonal or variable rates of products.

The 1st trial established in 2020 is the "Zonal application of Imidacloprid" trial. With a shifting market around imidacloprid products, the grower has been considering options for more cost-effective approaches to cane grub management. By knowing their soil profiles across the farm historically seeing grub damage along creek edges and the sandy profiles, the grower is confident he can target his insecticide application to these specific zones. By using EM mapping and the Herbert region soil maps, a prescription was made to apply the Imidacloprid where the grower thought they needed it. This allowed them to get the best economic outcomes by reducing the amount of product needed and still feeling confident they had managed their grub issues effectively. The trial is in its second year, with first year results having an encouraging outlook. Grub counts and drone flight were used to monitor for grub damage, finding no evidence of grubs, yield was consistent across the block and the water samples collected suggested an improvement of the zonally applied compared to standard applications.

Water Sample Results

Sample Description	Sample Date	IMIDACLOPRID µg/L	Rainfall ml
Standard Confidor	29/12/2020	0.04	75
Zonal Confidor	29/12/2020	0.05	75
Standard Confidor	12/01/2021	0.33	128
Zonal Confidor	12/01/2021	0.15	128
Zonal Confidor	12/01/2021	0.03	128
Standard Confidor	12/01/2021	1.02	128
Standard Confidor	19/01/2021	0.32	26
Zonal Confidor	19/01/2021	0.49	26
Zonal Confidor	19/01/2021	1.77	26
Standard Confidor	19/01/2021	0.38	26

Drone footage and trial design for "Zonal application of Imidacloprid"

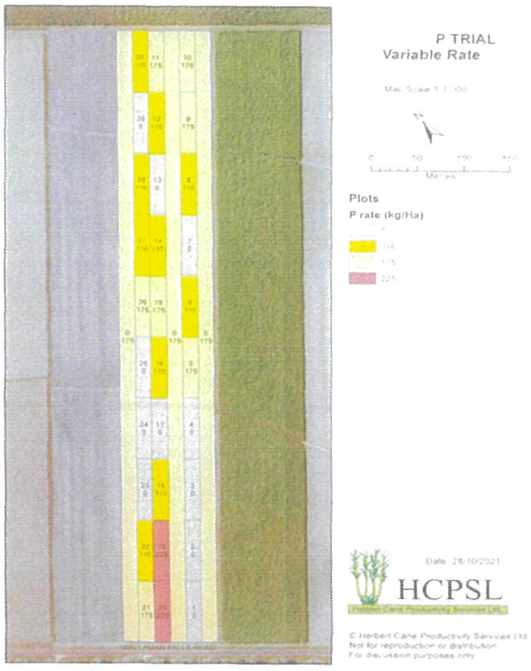
The trial will run again this season to backup first season results, though the growers are very happy with the outcomes and have applied this principal across their farms. Economical outcomes have been the biggest gain for this innovative practice with the added benefits of positive environmental outcomes.

Australian Government · Reef Trust · Great Barrier Reef Foundation · The Coca-Cola Foundation · WWF

PROJECT CATALYST

The 2nd trial PC are collecting data around is the "Variable Rates of Phosphorus trial" This trial was initially established in 2020 but came up against several environmental challenges, ranging between drought in the early germination period and then flooding, causing the trial to be re-established last year. The idea behind the trial is that phosphorus, being an important element of germination and cane growth, can be quite variable across a block causing uneven yield and poor nutrient use efficiency (NUE). By targeting phosphorus application zones identified using EM mapping and yield maps, the grower believes that he will gain yield and economic benefits from this approach.

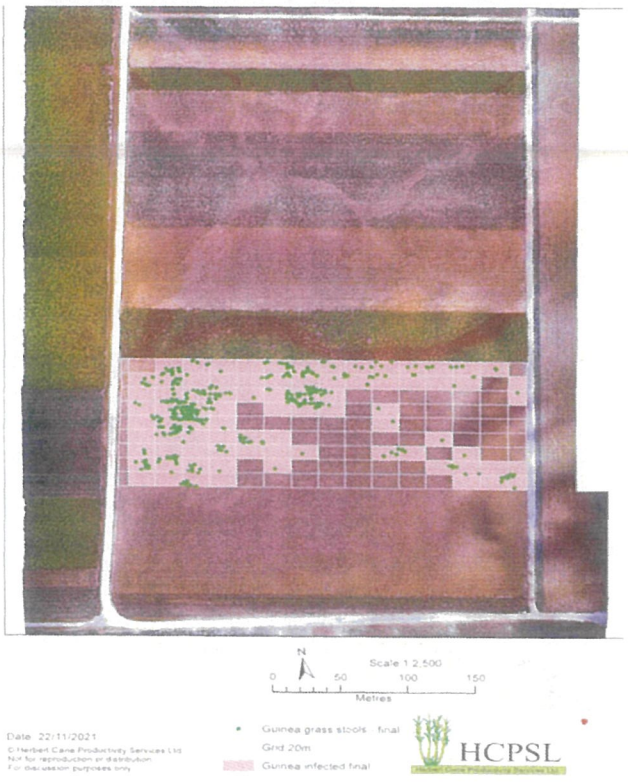
Trial Design



Phosphorus Variable Outcomes

Sample Name	Paddock Name	Phosphorus per kg/ha
GPS 1	P2	0
GPS 2	P2	0
GPS 3	P2	0
GPS 4	P2	0
GPS 5	P2	15
GPS 6	P2	10
GPS 7	P2	0
GPS 8	P2	10
GPS 9	P2	15
GPS 10	P2	15
GPS 11	P4	15
GPS 12	P4	10
GPS 13	P4	0
GPS 14	P4	10
GPS 15	P4	15
GPS 17	P4	0
GPS 16	P4	10
GPS 18	P4	10
GPS19	P4	20
GPS 20	P4	20
GPS 21	P5	15
GPS 22	P5	10
GPS 23	P5	0
GPS 24	P5	0
GPS 25	P5	0
GPS 26	P5	15
GPS 27	P5	10
GPS 28	P5	10
GPS 29	P5	0
GPS 30	P5	10

The variable rates of phosphorus were applied to the block last year and will be compared to the standard rate of phosphorus that the randomized soil test results suggested. At harvest time results will be taken to the mill for comparisons as well as economic evaluations of the practice.



Prescription of areas for spraying

The 3rd innovative trial PC is running is an extension of a previous trial where drones were used to identify vines in mature cane. There were some initial problems with the first trial, the main one being that small weeds and vines were missed in the initial scout for weeds due to the mature cane having a closed canopy and the drone not being able to see these smaller infestations. The idea from the grower after the initial trial was to then try the drone in smaller cane where the inter-row was still visible, and the canopy was still open. The grower also wanted to try targeting guinea grass in the next trial.

The trial is still having issues with the drone imagery not being able to pick up all guinea grass stool when compared to ground truthing. Though the idea is still sound, by upgrading the drone camera and imagery processing the trial could still be classed as successful. Other components to this trial is comparing different herbicides and rates to see what is most successful at eliminating Guinea grass from the field. Ground truthing to rate the success of the herbicide will be done in Feb 2022.

Project Catalyst will continue to follow these trials, as well as help other growers adopt these new innovative practices into their farming systems. If you would like to know more about becoming a Project Catalyst grower and receiving agronomic support, please feel free to enquire by calling Herbert Cane Productivity Services (HCPSL) on 4776 1808.

As part of our ongoing drive to support next-gen farmers, HCPSL has partnered with Cultivate Farms over the past 18 months, to provide farmers in the Great Barrier Reef region the tools and resources to find a pathway to ownership or scale an existing farming enterprise.

Cultivate Farms aims to provide the next generation of farming families with new pathways to farm ownership. Previously, capital has been a major barrier preventing aspiring farmers from owning their own property. Cultivate Farms aims to challenge traditional pathways of farm ownership, allowing aspiring farmers the opportunity to own their own farm.

During the project HCPSL hosted a range of events for both aspiring growers, and growers looking to age on-farm. These events aimed to highlight non-traditional farm ownership options to aspiring and aging growers across the Herbert district.

Throughout the project, aspiring farmers in the Herbert were given the opportunity to participate in a farm ownership 'incubator' program called Cultivator. Cultivator offered Herbert farmers the opportunity to improve their farm management skills and develop a farm investment proposal. Through the project, multiple Reef Catchment Cultivator Scholarships were offered to aspiring, next-generation farmers (valued at $2000).

By partnering with Cultivate Farms, HCPSL aims to encourage aspiring and innovative, existing, and new growers into the Herbert Cane Industry.

For further information about Cultivate Farms go to www.cultivatefarms.com or www.hcpsl.com/current-projects/cultivate-farms/

Lawrence Di Bella (HCPSL), Sam Marwood (CEO Cultivate Farms) and Ellie McVeigh (HCPSL) at an information session for Aspiring Growers

Aspiring Herbert Growers at an information session for Cultivate Farms

EM Mapping

Apparent electromagnetic conductivity (EC_a or often referred to as EM) mapping of soils is one way to identify changes in soils across a field. The variation in soil EM values is related to various characteristics of the soil, primarily salinity and/or soil moisture, but when these are low (salinity) or uniform (moisture) other characteristics have a greater effect, such as texture, bulk density, organic matter, and cation exchange capacity.

This information allows for targeted soil sampling, that is, taking soil samples in places showing different EM readings with the intent of determining what is driving the in-field variation in the EM readings. Once the results of the soil samples are received, that information can be, up to a point, extrapolated across the field to help understand variability in soils and crop yield.

Once variability is understood, measures can be taken to improve crop performance, including the use of soil ameliorants such as lime or gypsum with variable rate technology, that is, to put a greater proportion of product where it is most needed and less where it is not needed as much. This leads to a more effective and efficient use of the products. If you are interested in undertaking EM mapping on your farm, contact Rod Nielson (HCPSL Officer) on 4776 1808.

Variable Rate Systems

HCPSL is able to produce variable rate maps to be used in VR enabled fertiliser spreaders, or other product spreaders. Currently we have created VR maps for ameliorants (lime and gypsum, based on EM maps and soil sampling), an imidacloprid trial (ongoing, based on EM mapping and soil mapping) and nutrient trials, looking at different rates of different fertiliser blends.

Image 1 is part of a VR map created for a nutrient trial. The fertiliser box had two compartments, both with variable rate control. As can be seen in Image 1, the treatments are colour coded, several with two products. For example, the green plots have Urea and Agromaster, that is, straight Urea in the front box and Agromaster in the rear box. The different application rates are the numbers, Urea is the top number and Agromaster is the third number. The zeros are for other products. The size of the trial plots is 6 rows by 20 metres. Looking at just the green plots, the change in application rates can be seen.

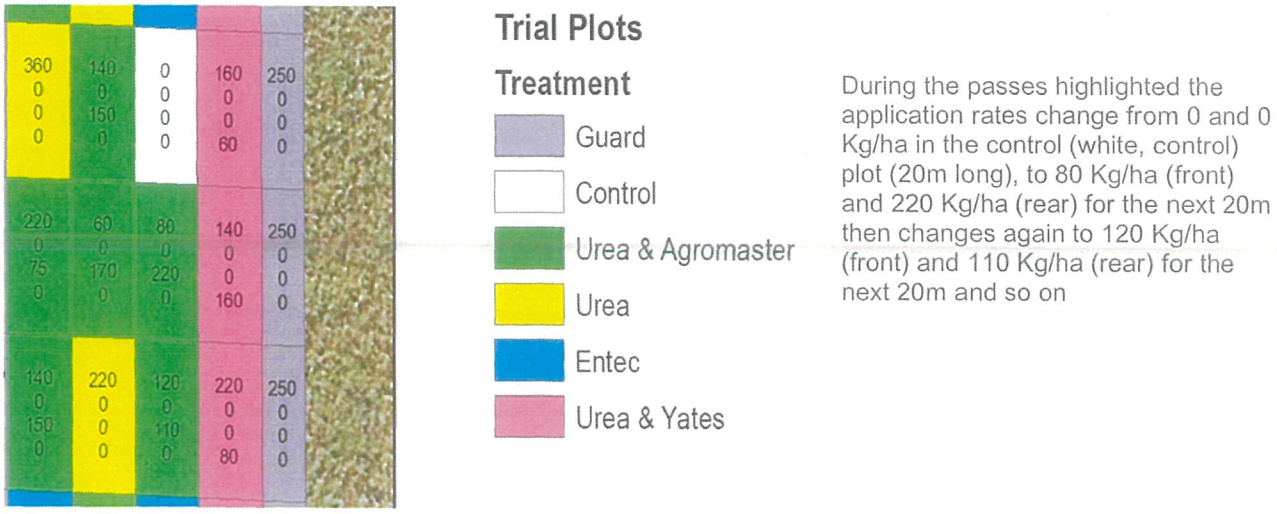


Image 1. An example of a variable rate nutrient map.

Variable rate maps can be created for any VR controller that accepts an ESRI shapefile as input data … which is just about all of them. Once infield management zones have been created, product rate information is added to the map in the areas identified, at different rates. The shapefile is added to the VR controller on the tractor, and after setting up the controller, which is outside of the scope of HCPSL's expertise, product can be applied at varying rates across the field.

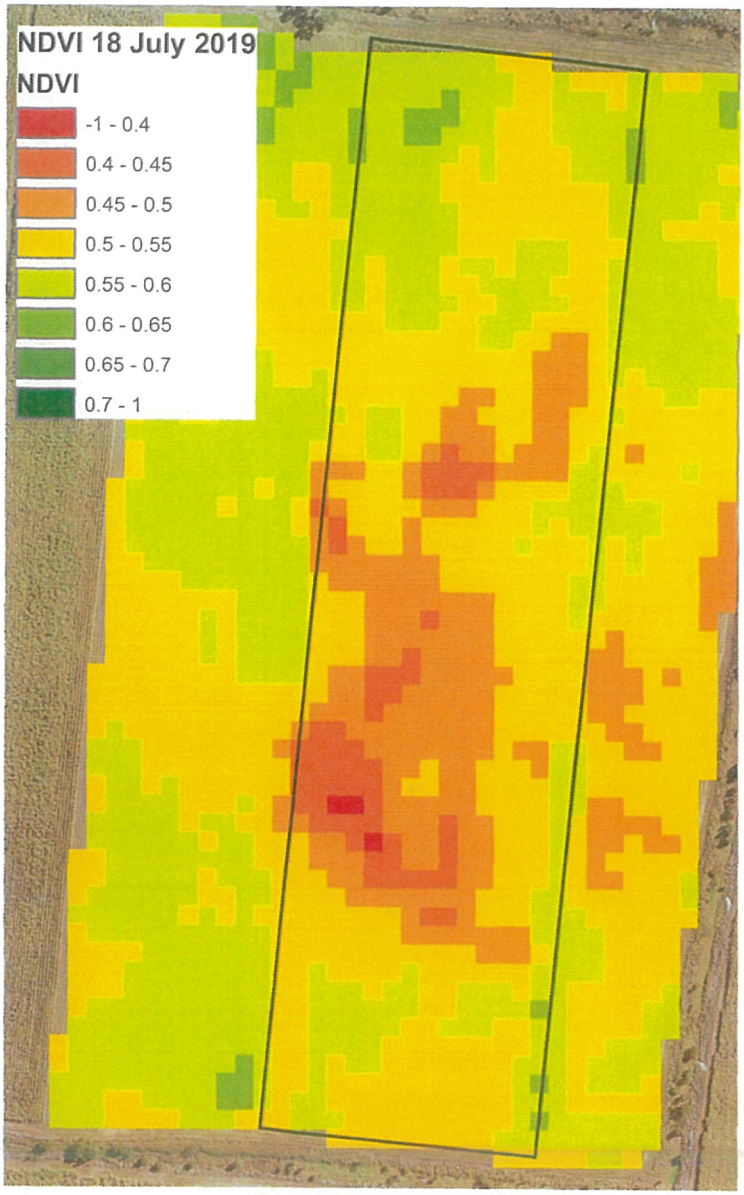


Image 2. NDVI showing a field with poor crop health in the centre of the field

Satellite Imagery

Since the European Space Agency announced that it would allow free access to satellite imagery from the Sentinel 2 earth observation satellites, HCPSL has been using this imagery to gain an extra insight into the sugar cane crop at an overview scale. In 2018 and 2019 the vegetation health indices NDVI and GNDVI were used to identify the extent of flooding, particularly throughout the lower Herbert district.

At a farm and paddock scale, NDVI has been used as a verification of in-field area of poor plant growth after an issue has been identified. Several times a grower has mentioned to a HCPSL agronomist that the cane in a certain part of a paddock never seems to grow very well.

A review of the NDVI imagery over several years often provided a confirmation of this and usually becomes a precursor to EM mapping and targeted soil testing. This then often leads to a variable rate application of ameliorants to the paddock in question, placing greater amounts of the prescribed product where it is needed most, rather than at an even rate across the field.

Please contact Rod Nielson at HCPSL on 4776 1808 if you would like to access images for your farm.

Weather Stations

The number of private weather stations in the Herbert, delivering weather information onto the internet continues to increase. At last count the Herbert has more than 90.

Information can be accessed via the internet at https://www.wunderground.com/wundermap or on your smartphone using the Wunderground app.

A weather station at the HCPSL Macknade Farm

RATOON STUNTING DISEASE (RSD)

RSD is a significant concern across the district with 7% of fields inspected (down from 9% in 2020) for use as plant source infected with the disease. Yield losses up to 40% can be experienced in some varieties, so the disease can have a significant impact on crop viability and ratoon length.

RATOON STUNTING DISEASE (RSD) and CHLOROTIC STREAK DISEASE (CSD) THROUGH "CLEAN" SEED USE.

The district continues to manage RSD and CSD through the HCPSL Approved "Clean" Seed plot and plant tissue culture programs. HCPSL offers farmers the opportunity to obtain "Clean" Seed from its plots, tissue cultured cane plants and hot water treatment of cane. Data and trials both show that the use of clean seed can increase average farm yields by 10 to 13% of tonnes of cane/ha.

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)
2019	980	-	110
2020	1088	9400	100
2021	1482	17000	138

HCPSL staff undertook over 3281 seed inspections for growers in 2021 prior to planting.

Get "Clean" seed cane from HCPSL annually - this is the simplest and easiest way to increase cane yields on your farm.

Don't assume the cane you get from your neighbour is disease free. Get it tested before you use it!

NEMATODES

HCPSL funded a nematode survey across the district in 2019-20. SRA Pathology staff supported the survey by analysing the 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. The survey results confirm previous research findings that root-lesion nematodes are the most common parasitic nematodes associated with sugarcane and can cause significant production loss.

Nematodes can be managed in a sugarcane farming system through the following ways:

- Variety selection
- High carbon inputs - Research undertaken in the past four years in the Herbert, through Project Catalyst and the CRC for Soils also found that high carbon inputs to the soil (like some cover crops) can significantly increase the numbers of beneficial nematodes, which in turn prey on the parasitic nematodes.
- Use of nematicides like Nimitz™. HCPSL established a number of demonstration sites across the district in 2021, which will be harvested in 2022.

HCPSL offers a soil testing service to assess soils for the incidence of nematodes.

PACHYMETRA ROOT ROT

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* at present is the use of resistant varieties.

In 2021, 101 *Pachymetra* soil samples were sent away to the SRA Tully lab for analysis through the HCPSL office.

A significant number of samples have *Pachymetra* levels above the economic threshold where yield losses can be expected and this is very concerning.

HCPSL offers a soil testing service to assess soils for the incidence of *Pachymetra.*

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

There was an explosion in rat population numbers especially after September 2021, with significant damage to crops for harvest. The worst impacted sub-districts were Abergowrie, the Wet and Central Zones.

The rat population explosion can be attributed to increases in general population numbers and the large availability of weed seed, due to low yielding cane crops not providing adequate ground cover.

The most severely impacted varieties were Q208 and Q250. In a HCPSL RVT trial in the Abergowrie area, the new SRA variety SRA31 was so severely impacted that there was no millable stalks left in the trial.

Approximately 150ha were aerial baited to manage rats in standing crops of cane between September and October 2021.

Severe rat damage in the Abergowrie area

HCPSL Directors with the Lannercost Feral Pig Action Group

Feral pig caught on an outdoor camera in the Lannercost Area

FERAL PIGS

The Hinchinbrook Community Feral Pig Management Program (HCFPMP) has been successful in getting numbers of feral pigs down with just over 1000 feral pigs being taken out in 2021.

The program has now been operating for 13 years. The cane industry through HCPSL, Hinchinbrook Shire Council (HSC), Forestry industry and Queensland Government currently fund the activities of the program.

The HCFPMP utilises trapping, aerial shooting and 1080 baiting to manage feral pig numbers. Dogging has been found to be less effective and tends to disperse pigs across a landscape with very limited effect.

Approximately 60% of the feral pigs euthanised by the program has been through 1080 baiting activities.

Aerial shooting along the coastline adjacent to Halifax Bay National Park euthanised 40 pigs in June, 45 pigs in July and 113 pigs in December 2021.

Growers are advised to get actively involved and assist with the baiting and trapping program. 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

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
2018-19	15299
2019-20	11580
2020-21	8437

VARIETY PERFORMANCE & RECOMMENDATIONS

This section of the report is compiled using mill area data, HCPSL staff observations and trial data. Disease ratings were provided by SRA.

It must be noted that the SRA and/or Wilmar plant breeding programs are responsible for breeding of sugarcane varieties.

VARIETY RECOMMENDATIONS

KEY:

Green = Variety is recommended for most situations

Yellow = These are niche varieties for specific situations

Red = These are varieties that have a very specific niche, however, have significant constraining factors which need to be addressed or considered (like low CCS, disease concerns or may ratoon poorly under some situations if not managed appropriately).

SRA BRED VARIETIES

Q138

The variety is only recommended for sodic and saline soils. Good germination and establishment. The variety has excellent trash cover and resistant to *Pachymetra*. The variety is susceptible to Smut, however field incidence is generally low.

Q183

This variety is resistant to *Pachymetra*, however is susceptible to Pokkah Boeng (usually noted when the cane is rapidly growing between December and March). The variety is recommended for soils that have good moisture holding capacity and not prone to flooding. The variety is a fast germinator and can become brittle when actively growing. This variety seldom flowers and will respond well to crop ripeners. It is not recommended to apply Auslox herbicide to this variety as it is highly susceptible. The variety provides a thick trash cover in ratoons, and it has been noted that varieties that follow after this variety in a farming system appear to experience higher yields (the reason is unsure however the *Pachymetra* resistance, good trash cover and possible allelopathic effects maybe at play).

Q200

Suited soil types for this variety are Terrace Loamy, Clay and Clay loams. Soils with good calcium levels are recommended to ensure the success of this variety. The variety is a strong ratooner where soil calcium levels are adequate. The variety can have good CCS throughout the year but is usually best as a late harvested variety. The variety is tolerant to most herbicides and RSD when compared to other varieties.

Q208

Is a major variety in the Herbert and across the Australian industry. The variety is suited to most soils, with good CCS throughout the harvest season (especially early in the year). Germination and establishment of this variety can be slow and variable during the cooler months and when planting material is greater than 12 months old. Reliable ratooner under most situations. The variety is tolerant to most herbicides and RSD when compared to other varieties. The variety is highly susceptible to rat and feral pig damage because of its open and free trashing characteristics.

Q215

A niche variety, nicknamed the "Yuruga Special" being suited for sodic soils and some of the lighter clays. The variety performs best in the Yuruga, Lannercost and Seymour areas. Reliable germinator after planting and is a strong ratooner, with CCS being mid-late. High levels of smut have been observed from time to time with this variety.

Q219

This variety is a niche variety suited to waterlogging soils especially in the Hamleigh area, parts of Foresthome and Kandeer areas. The variety is nicknamed "Barbed Wire Cane" because eyes can shoot and can be hard when physical contact is made. These large eyes can be problematic at planting and may break off leading to poor germination and establishment. The variety is resistant to *Pachymetra* and Red Rot, with mid-late CCS.

Q226

This is a niche variety suited to sodic soils. This variety usually flowers heavily early in the season, reducing its potential to continue to grow during the harvest season. It has been observed that the variety can be "lazy" lodging and stool tipping early in the harvest season.

Q231

The variety has many thin stalks with a large stool. The variety has thin leaves, usual top and lots of trash making it difficult to clean with the harvester when conditions are moist. This variety is resistant to *Pachymetra* root rot. The variety is generally suited to soils that hold moisture. Other positive attributes are fast germination, responds well to crop ripeners, has good trash cover and a strong ratooner. The variety is very sensitive to Balance™ (herbicide). To maximise cane yield, ensure calcium requirements are met because the variety responds well to liming. Red Stripe Top Rot has been observed in this variety.

Q232

This variety is best suited to the heavy and sodic duplex soils of the Bambaroo, Hamleigh, Stone River, Seymour, Hawkins Creek, Foresthome, Kandeer and Lannercost. The variety flowers heavily early. CCS has been observed to be best mid-season. In commercial crops it has been observed that the variety can be prone to stool tipping, especially at high nitrogen rates. This variety is very sensitive to Flame™ (herbicide). Red Stripe Top Rot has been observed in this variety.5

Q237

This variety has fallen out of popularity because of its susceptibility to Smut and *Pachymetra*. The variety has early- mid season CCS. It is not being recommended because there are better variety options to consider.

Q238

This variety is suited to well drained soils of the Ingham Line and Stone River areas. It is not recommended for soils that waterlog because it is highly susceptible to Chlorotic Streak Disease (CSD). The variety is resistant to *Pachymetra* and Smut. It has also been observed to be sensitive to the following herbicides: Duiron, Velpar™ and Flame™. The variety has average CCS all season.

VARIETY PERFORMANCE & RECOMMENDATIONS

Q240

This is a high yielding variety for soils with good moisture holding capacity across the district. The variety is a very strong ratooner. CCS can be variable and not consistent. It is recommended to harvest this variety early to mid-season, with crop ripeners being considered to improve CCS. The variety is resistant to Smut and germinates well after planting. The variety is sensitive to Balance™, Bobcat Imaxx™ and Flame™, so care is needed when using these herbicides.

Q242

This variety performs best on sandy dry soils throughout the Stone and Ingham Line areas. The variety is a high yielding low CCS variety, with the variety responding to crop ripeners. The variety is highly susceptible to Symphylla and RSD.

Q247

This is a minor variety in the Herbert suited to soils with moisture, especially alluvial soils in the District. The variety has a "wine glass" growth habit, especially early in its growth stages. The variety has mid to late average CCS. The variety is resistant to *Pachymetra*. It has been observed to have slow germination in both plant and ratoons. The variety is not suited to dry sandy soils. Red Stripe Top Rot has been observed in this variety, but to a lesser extent than Q231.

Q250

This variety has very good early to mid CCS. The variety is suited to soils with moderate to good fertility across the district. It has been noted that ratoon crops decline after third ratoon. It appears that this variety has a high calcium requirement, so it is essential to lime the variety to maintain its full yield potential. When planting, use material that is less than 12 months of age for better germination and establishment.

Q252

This a niche variety with good cane yields in plant and first ratoon crops. Decline in cane yield in older ratoons has been observed. The variety should be harvested after August because it has been noted that ratooning during cooler months can be variable. To improve ratoonability of the variety, it is recommended to set basecutter slightly higher than usual. The variety is intermediate for Smut and *Pachymetra*.

Q253

This is now a major variety of the Herbert with good cane yield and average CCS. The variety is suited to most soils, excluding the very fertile soils on the Abergowrie Flats and some alluvial areas along riverbanks. The biggest issue with the variety is its susceptibility to RSD. Good hygiene and regularly obtaining Approved Clean Seed is essential to maintain crop yields. The optimum time to harvest is mid-season, however the variety can be harvested early. The variety tends to sucker late in the season, especially on fertile soils. Brown rust is a common occurrence with the variety and commonly occurs between October and December. The variety is susceptible to crop damage with Balance™ and Amitron™ being applied as a combo mix.

SRA5

This is a niche variety, and in many cases, there will be better variety options than using this variety. The variety is high yielding and has low CCS. The variety does respond to crop ripeners. Poor germination can occur when the planting material has large eyes present.

SRA6

This is a niche variety suited to soils with good moisture holding capacity. Plant crops are generally not high yielding when compared to other varieties, however the variety is a strong ratooner. The variety is generally short in stature but has a very high tiller count. Stalks are usually dense and little piping is found. The variety is *Pachymetra* resistant. This variety will be available to Herbert growers from the HCPSL Approved Seed plots in 2022. The variety is susceptible to crop damage with Balance™.

SRA10

This is a niche variety for better class soils in the district. The variety has early – mid CCS, however yields can be lower than expected. Even though the variety has good early CCS, avoid harvesting until August (when conditions warm up) because ratooning may be impacted. The variety has soft eyes causing damage at planting, so to prevent poor striking at planting, seeding rates should be increased. The variety should be harvested with a basecutter slightly higher than usual to give the variety the best opportunity to ratoon.

SRA14

This variety is suited to most soils, excluding highly fertile alluvial (like those found on the River flats). This variety has mid-late CCS. CCS can be lower than the mill average, so management of this through crop ripeners and nutrient management should be considered. The variety is relatively free trashing with a moderately thick barrel and prominent eyes. The prominent eyes can be knocked off at planting leading to variable germination and crop establishment. The variety has been nicknamed "Q200 on steroids" because the stalk colour is similar. The variety can have high levels of smut present, especially in ratoon crops.

SRA26

This variety was released to Herbert growers in 2021. The variety appears to be suited to a range of soil types, however caution is required on heavy waterlogged soils and soils prone to drying out. The variety has good CCS all season (especially late). The variety has tight clinging trash, especially crops less than 12 months old. The variety has lots of hairy mary present on the leaf sheath. The variety is resistant to *Pachymetra*, Smut, Leaf Scald and Red Rot. Chlorotic Streak Disease (CSD) has been observed in the variety, hence the caution for heavy clay soils.

SRA28

This variety appears to be suited to most soils (especially those with good moisture holding capacity). The variety will be made available to Herbert growers in 2022 from the HCPSL Approved Clean seed plots. The variety has mid-late season CCS, however can sucker heavy late season on some soils. Plant cane germination can be slow, especially during cooler months. Seed cane less than 12 months of age would be preferential to ensure good plant cane germination and establishment. It is also recommended that minimal soil cover should be applied over the sett at planting (especially when mound planting). The variety is resistant to *Pachymetra*, Leaf Scald and Red Rot and intermediate-resistant to Smut.

wilmar

WILMAR BRED VARIETIES

KQ228

This variety has early CCS and is suited to well drained alluvial soils in the Herbert (especially in the Abergowrie area). The variety can flower profusely and may pithy when grown in the wrong situation. The variety is susceptible to cane grubs, CSD and has a low tolerance to *Pachymetra*. Germination and establishment are good, with ratoons fading away on non-suited soils.

WSRA24

This variety was approved in the Herbert in 2019. The variety was bred by Wilmar and selected by SRA. The variety has thick large green stalks, but a low tiller count. Cane yields are good in plant and first ratoons but may decline after second ratoons on some soils. The variety has average to low CCS; this could be managed through the use of crop ripeners. This variety has performed best on well drained fertile soils, however there may be better variety options on this soil type. It is recommended that growers go cautiously and do not plant large areas of this variety, to enable further observations to be made.

MQ239

This is a niche variety that is generally more suited to clay soils in the Trebonne, Foresthome, Seymour, Hawkins Creek and Lannercost areas that hold moisture. Failing ratoons have been noticed on heavy dry clays and these areas should be avoided. If you have a block subjected to flooding, remains wet for considerable periods of time and there are little other variety options, this variety may be considered. CCS is generally lower than the mill average all season.

Sugar Research Australia

SRA Variety Development Update

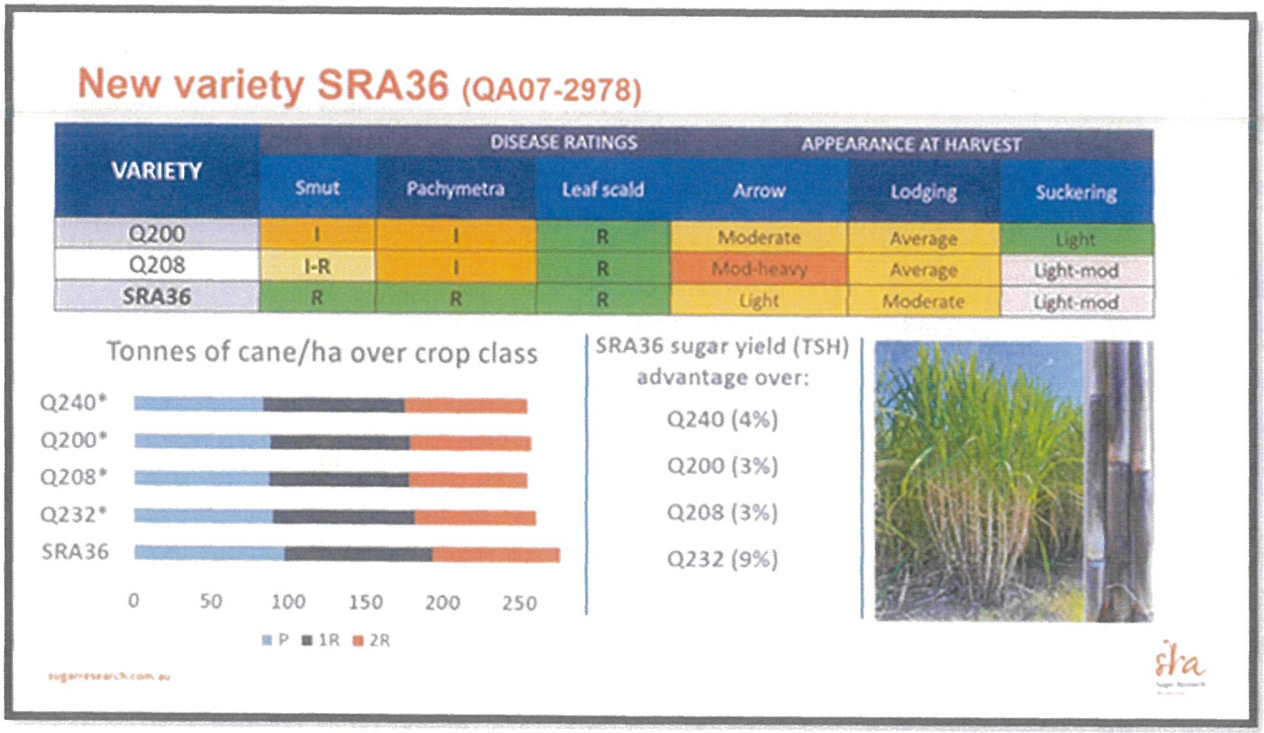
The first quarter of 2022 is quite active for the SRA Variety Development Team in the Herbert. In the field, the team is sampling all blocks at the SRA Ingham farm and off station trials for ratoon stunting disease (RSD). This activity, along with hot water treatment and the use of tissue culture ensure that all planting materials meet the standard of hygiene required to control of RSD. Control of RSD is only possible through good management practices such as fallow management (elimination of volunteers), purchase of clean seed and sterilization of equipment. The SRA plant breeding program is the starting point for all material in Approved seed plots so additional steps are taken to minimise the risk of introducing disease. The detailed sampling procedure results in plant breeding being responsible for almost a quarter of all RSD tests conducted for the sugarcane industry.

During this time the introgression fuzz and seedlings are planted out at the HCPSL Macknade research station. Introgression consists of the crosses between sugarcane wild relatives and commercial varieties to broaden the genetic pool.

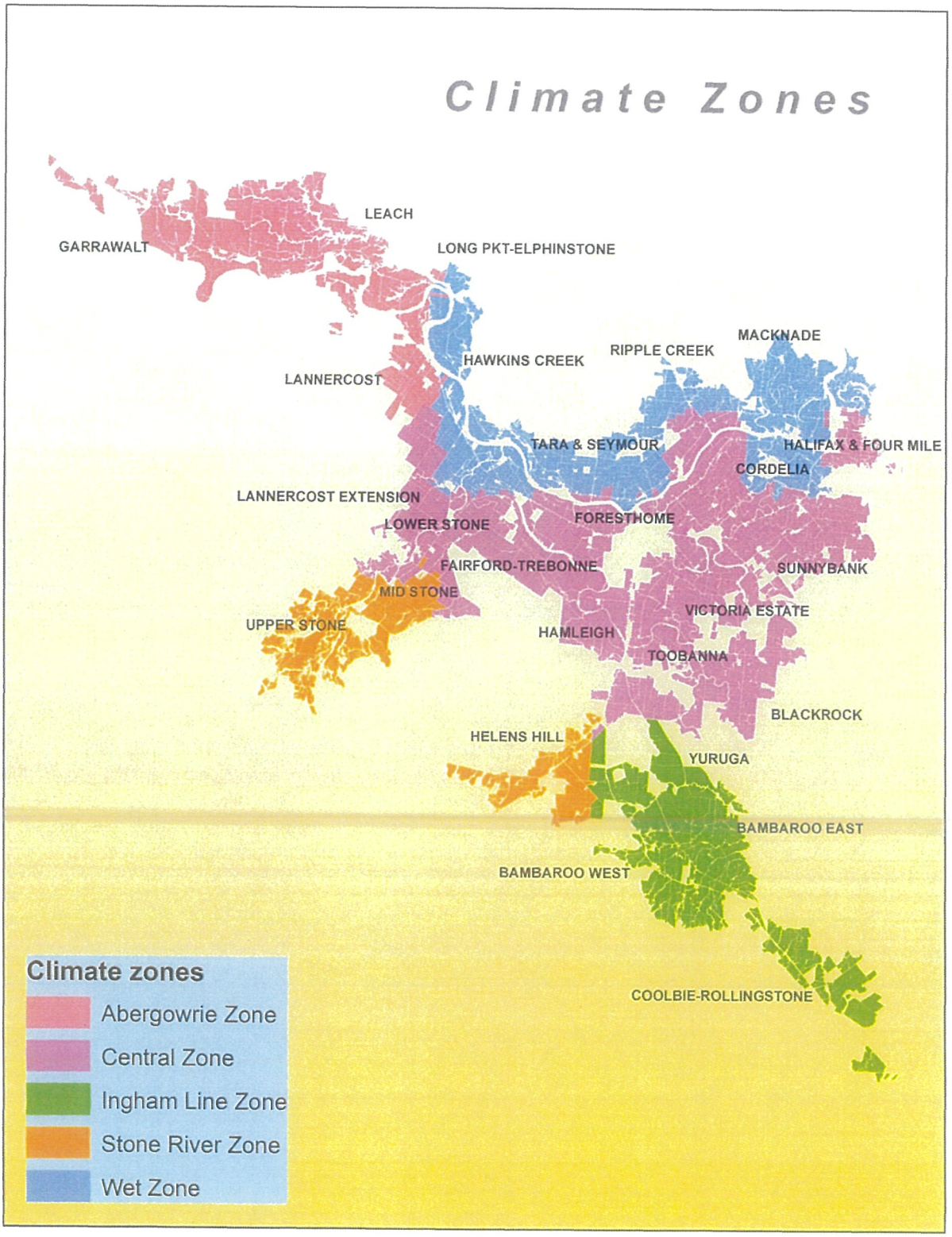
This year, the Regional Variety Committee (RVC) meeting will occur on the 5th of April. At the meeting, advanced clones including six new Accelerated clones will be presented. **SRA36 (QA07-2978)** as a new variety will also be announced.

The current recently released WSRA24, SRA26, SRA28, SRA31 and SRA36 have higher resistance to all major regional diseases, particularly smut. This will minimise the impact of the diseases on district productivity.

The SRA Herbert NIR-Spectracane/juice laboratory is fully operative. All Herbert trials have been processed locally and produced high-quality results for the 2021 harvest season. Now we are cooperating with the SRA Industry Service team to produce CCS maturity curves of new varieties to generate information on harvest timing.



CLIMATE ZONES



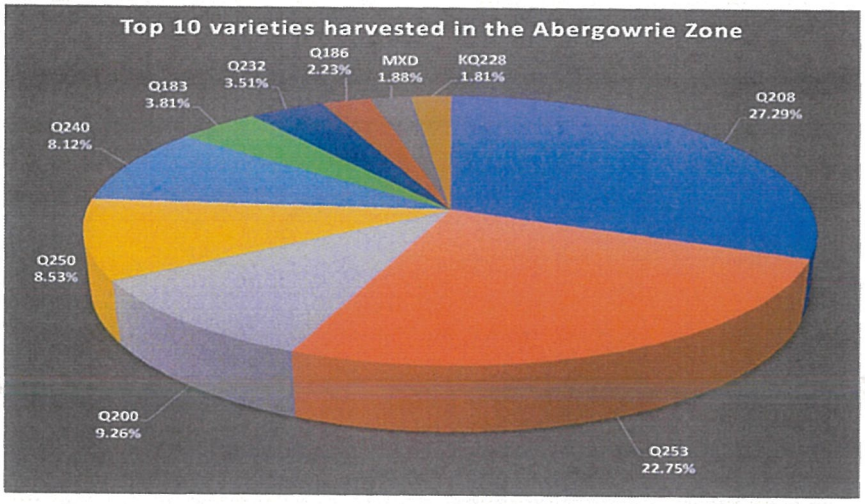
CLIMATE ZONES

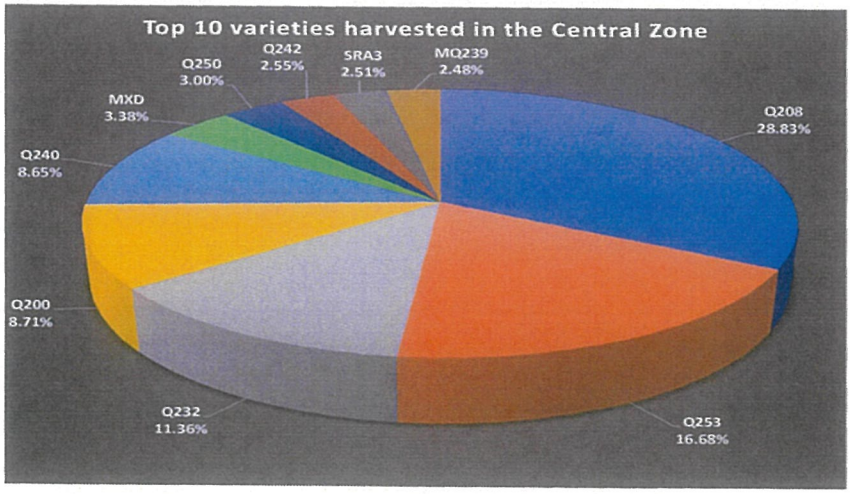
Research undertaken identified five climate zones existing in the Herbert cane growing region. These geographic areas are as follows:

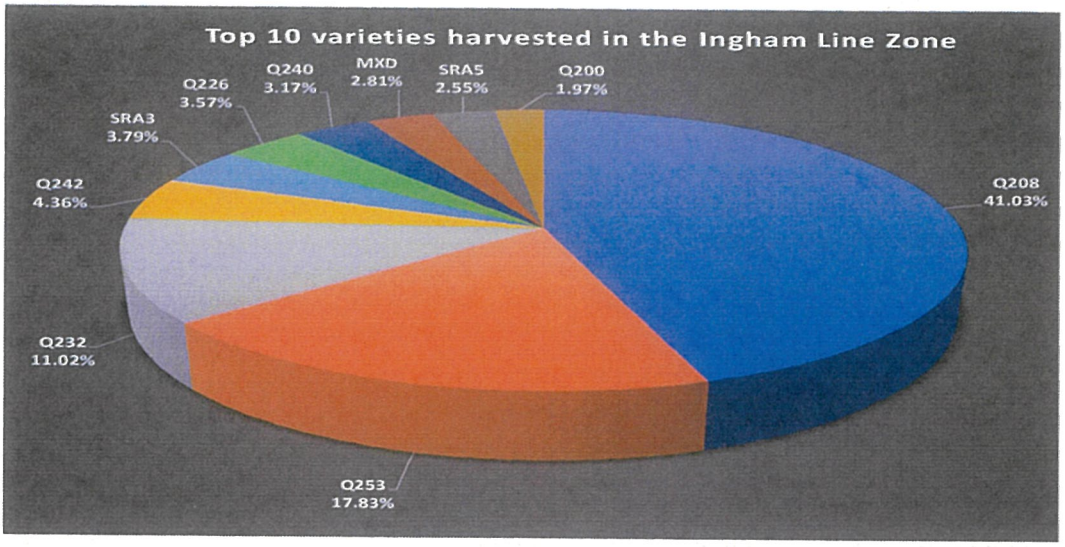
1. Wet Zone (blue): This zone includes part of the Wet belt and northern reaches of the Lower Herbert productivity region.
2. Abergowrie Zone (pink): This zone mainly consists of the Abergowrie productivity zone.
3. Stone River Zone (orange): This zone includes the Stone River productivity region and the area around Helens Hill that is considered part of the Ingham Line.
4. Ingham Line Zone (green): This includes the Ingham Line productivity region as well as the southern parts of the central productivity region.
5. Central Zone (purple): This includes parts of every productivity zone but the majority of the Central and Lower Herbert productivity zones.

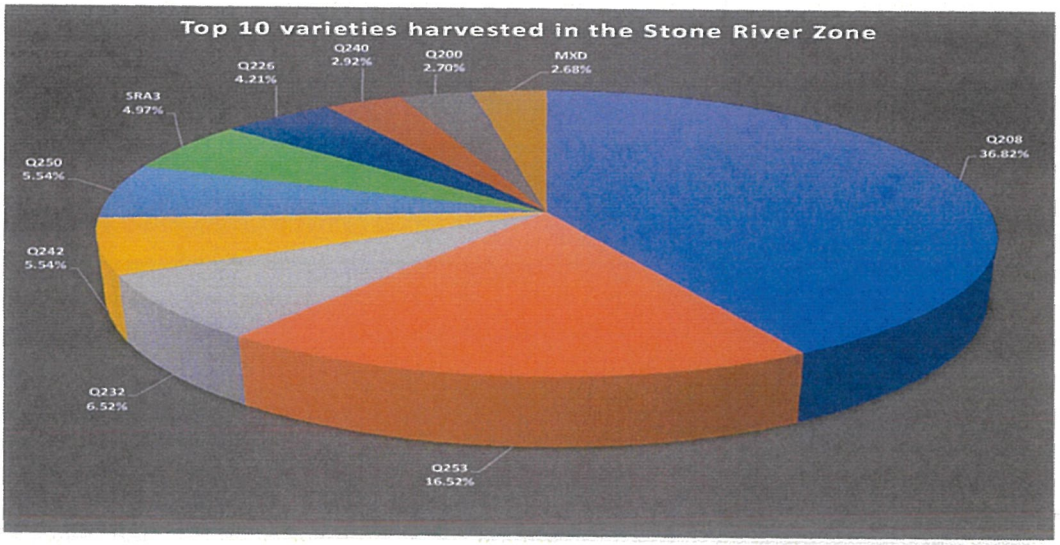
The Wet zone had the highest rainfall in summer, autumn and winter . The Abergowrie and Stone River zones had the lowest spring and summer rainfall. However, the Stone River and Ingham Line zones had the lowest autumn and winter rainfall, with the Abergowrie zone having higher rainfall than either. This difference in rainfall in autumn is one of the main reasons for differentiating the Abergowrie and Stone River zones. Summer rainfall in the Central zone is more similar to the Wet and Ingham Line zones than the low summer rainfall associated with the Abergowrie and Stone River zones. The spatial variation in radiation was lower than the spatial variation in rainfall both within and between climate zones. The most evident difference was high radiation in the Ingham Line zone in each season and the low solar radiation in the Abergowrie zone in summer. There were little obvious differences between the climate zones when the maximum daily temperature was considered. However, the Abergowrie and Stone River zones had the lowest maximum daily temperatures.

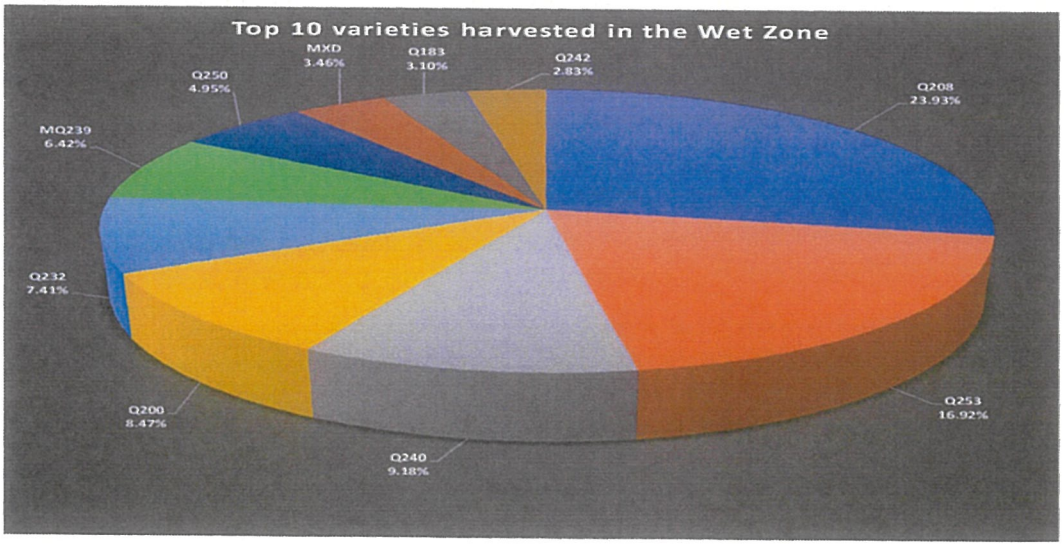
Q208 and Q253 are the major varieties in all climate zones. Q240 is suitable to wetter climate zones, but generally does not handle the drier conditions experienced in the Stone River and Ingham Line zones. Q232 is also grown widely across the district, except in the Abergowrie zone.






Top 10 varieties harvested in the Ingham Line Zone
Q208 41.03%
Q253 17.83%
Q232 11.02%
Q242 4.36%
SRA3 3.79%
Q226 3.57%
Q240 3.17%
MXD 2.81%
SRA5 2.55%
Q200 1.97%


Top 10 varieties harvested in the Stone River Zone
Q208 36.82%
Q253 16.52%
Q232 6.52%
Q242 5.54%
Q250 5.54%
SRA3 4.97%
Q226 4.21%
Q240 2.92%
Q200 2.70%
MXD 2.68%


Top 10 varieties harvested in the Wet Zone
Q208 23.93%
Q253 16.92%
Q240 9.18%
Q200 8.47%
Q232 7.41%
MQ239 6.42%
Q250 4.95%
MXD 3.46%
Q183 3.10%
Q242 2.83%

Herbert Cane Productivity Services Ltd.

STAFF MEMBERS

HCPSL CORE STAFF

Lawrence Di Bella
Manager
0448 084 252

Sue Beccaris
Admin Manager
07 4776 1808

Sandra Coco
Resource Officer
07 4776 1808

Richard Hobbs
Extension Agronomist
0400 544 301

Tony McClintock
Field Agronomist
0447 304 963

Jason Caruso
Field Agronomist
0417 622 129

Rhiannan Harragon
Field Agronomist
0428 746 079

HCPSL PROJECT STAFF

Adam Royle
Extension Agronomist
0417 610 446

Ellie McVeigh
Extension Agronomist
0491 149 245

Jarrod Sartor
Extension Agronomist
0499 034 968

Megan Zahmel
Extension Agronomist
0447 317 102

Graeme Holzberger
Extension Agronomist
0428 761 808

Bethany Donker
Extension Agronomist
0409 077 176

Bailey Kilpatrick
Extension Agronomist
0409 889 383

Rod Nielson
GIS Officer
07 4776 1808

Melissa Royle
Admin Support Officer
Projects
07 4776 1808