HCPSL

Herbert Cane Productivity Services Ltd.

THE CANE STALK

June 2017

A word from the Manager.

Welcome to the HCPSL newsletter.

HCPSL recently conducted the HCPSL Grower Board elections in May. Vince Russo, Michael Waring & Michael Reinaudo were elected as the Grower Board Members. Miller Board members nominated from Wilmar are Ian Davies, Jim Kirchner & Nicole Butler. Roy Pace & Ian Stirling retired from the Board & did not seek re-election. The HCPSL Board & its staff would like to thank Roy Pace for his 23 years of service to the company. We also wish Ian Stirling all the best in his retirement and thank him for his support over the past 3 years. The new board will provide direction and management to the company for the next 3 years.

HCPSL staff are working both internally & externally with partner organisations like SRA, WTSIP, Universities, NRM Groups & private companies to kick goals in the HCPSL Target 85 Program.

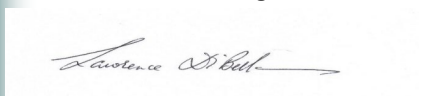
During the past few months numerous growers have undertaken nutrient management plans, attended chemical application workshops, develop variety management plans & other activities. The staff have developed new knowledge in nutrient management, soil mapping & herbicide use, which is now being rolled out on farm. The Target 85 program has now been operating for 3 years in October this year. The HCPSL Board will review the program soon and set the companies direction for the next 3 years. The HCPSL Board will encourage company members to be involved in the review, so that we can meet your business requirements.

This edition of the Cane Stalk covers a range of topic areas. I urge growers to visit our HCPSL website to download the seed cane Planting Calculator and the 2017 Herbert Weed & Pest management Guide.

The newsletter has been made in a way that the centre pages can be removed & laminated for future reference. These pages cover the fertiliser ready reckoner, calibration of a fertiliser box, ways to calculate nutrients applied & a herbicide applicator calibrations chart.

Enjoy reading the newsletter.

Lawrence Di Bella, Manager



Courses on Offer to all Growers:

- **Six Easy Steps**
- **Integrated Weed Management**
- **Safechem (Chemcert)**

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Navua Sedge in the Herbert

Navua sedge (*Cyperus aromaticas*) is a clumping perennial sedge that can be spread by seeds or from sections of the clump and attached rhizomes being transplanted

Figure 1 – Navua sedge in cane crop

Figure 2 – Close up showing flower and seed head

Navua sedge is becoming a weed of concern through the district as it can easily be spread. At present this weed is growing along road edges, in table drains along the roads and some cane paddocks and cattle pastures. This weed in the cane paddock will compete for moisture, nutrient and sunlight simular to nutgrass.

Control method

Fallow control :Navua sedge can be effectively controlled in fallow situations with a blanket application of Sempra®. A follow up application will be required.

Management in crop :(directed application)

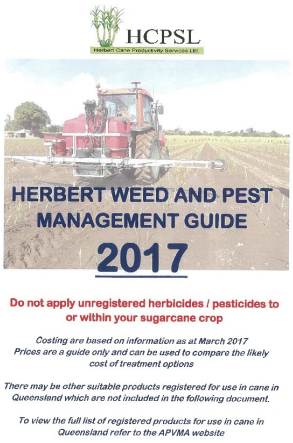
Daconate® @6L/ha

Daconate® @ 3L/ha plus Actril® DS @ 1.5L/ha

Krismat® @2kg/ha plus Diuron @0.5kg/ha plus Daconate® @ 3L/ha

Sempra®@130g/ha

A follow up application may be required



2017 Herbert Weed and Pest Management Guide

2017 Herbert Weed and Pest Management Guide is out again. The guide is a publication of commonly used herbicides in the Herbert river region. It covers different products and when and where they can be used, upper and lower registered application rates as well as water rates. Costings are also provided to give the grower an indication of what costs for each product. It is noted that the costings were as of February 2017.

Remember to always calibrate your boom spray before using to ensure that the correct rate of chemical is being applied and the correct water rate. If you happen to find a maximum variation of 10% between nozzles replace then and start again. Inaccurate and worn nozzles will give application problems. Some of these problems will be stripping, where herbicides are applied at uneven rates. An inaccurate application of herbicide and water rates (too high or too low) will also result in poor results. The 2017 Herbert Weed and Pest Management Guide has a calibration sheet attached to it at the back. Use this step by step sheet for all your boom spray calibrations. Copies are available on the website www.hcpsl.com or at the office.

2017 HCPSL Approved Seed Plots

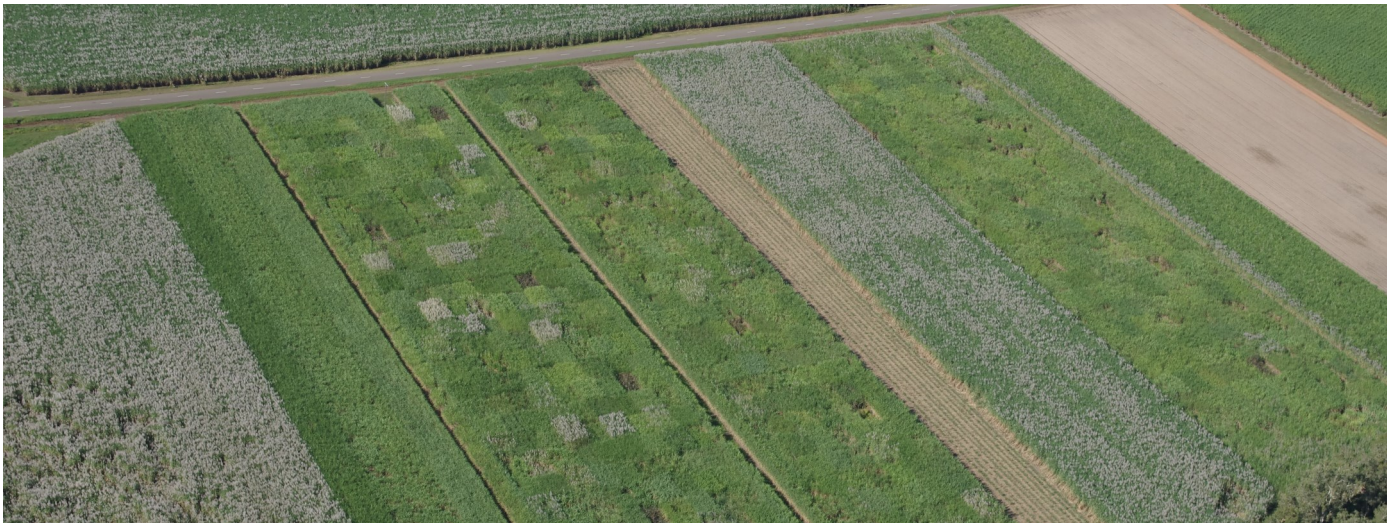
Macknade Plot (HCPSL Macknade Farm) Monday
Tony Mc Clintock 0447 304 963
Q208Φ, Q226Φ, Q232Φ, Q240Φ, Q250Φ, Q253Φ, SRA3Φ, SRA5Φ

Ingham Line Plot (Mammarella) Monday
Sam Lamari 0427 608 663
Q186Φ, Q208Φ, Q226Φ, Q232Φ, Q242Φ, Q250Φ, Q253Φ, SRA3Φ, SRA5Φ

Abergowrie Plot (Joe Crisafulli) Tuesday
Sam Sellick 0417 622 129
Q183Φ, Q186Φ, Q200Φ, Q208Φ, Q231Φ, Q240Φ, Q242Φ, Q247Φ, Q250Φ, Q253Φ, SRA3Φ, SRA5Φ

Stone River Plot (HCPSL Stone River Farm) Wednesday
Graeme Holzberger 0428 761 808
Q138, Q183Φ, Q186Φ, Q200Φ, Q208Φ, Q215Φ,Q226Φ, KQ228Φ, Q232Φ, Q237Φ, Q238Φ, MQ239Φ, Q240Φ, Q242Φ, Q247Φ, Q250Φ, Q252Φ, Q253Φ, SRA3Φ, SRA5Φ

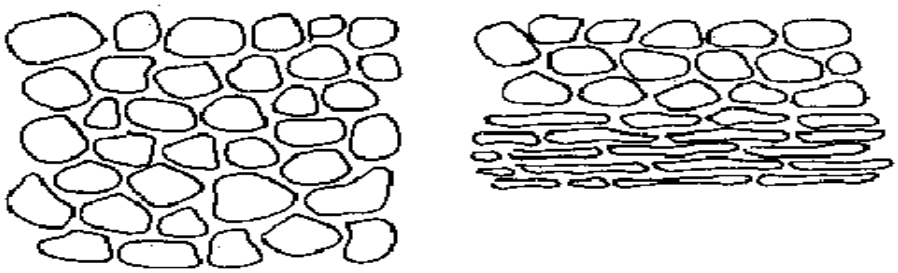
Central / Contractor Plot (Lynn) Friday
Richard Hobbs 0400 544 301
Q200Φ, Q208Φ, Q231Φ, Q232Φ, Q240Φ, Q250Φ, Q253Φ, SRA3Φ, SRA5Φ.



Compaction the hidden menace!

What is soil compaction?

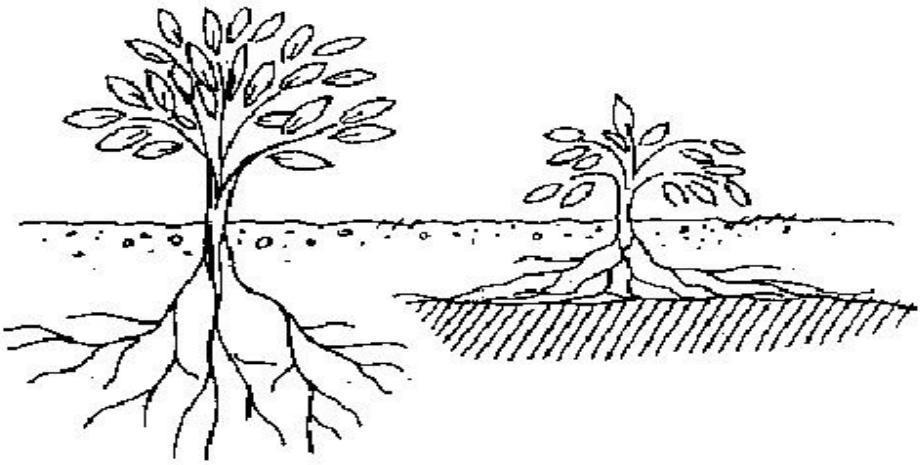
Compaction occurs when a force compresses the soil and pushes air and water out of it so that it becomes more dense. Compaction is more severe when the soil is wet and less able to withstand compression.



Good soil structure (left) and compacted structure (right)

Why should I worry about it?

Compaction is a concern because it affects plant growth. There are not enough pores or spaces in compacted soil to allow unrestricted root movement, infiltration, drainage or air circulation. The restricted roots are often unable to take up sufficient water or nutrients from the soil. The result is less plant growth and lower yields, particularly during periods of drought.

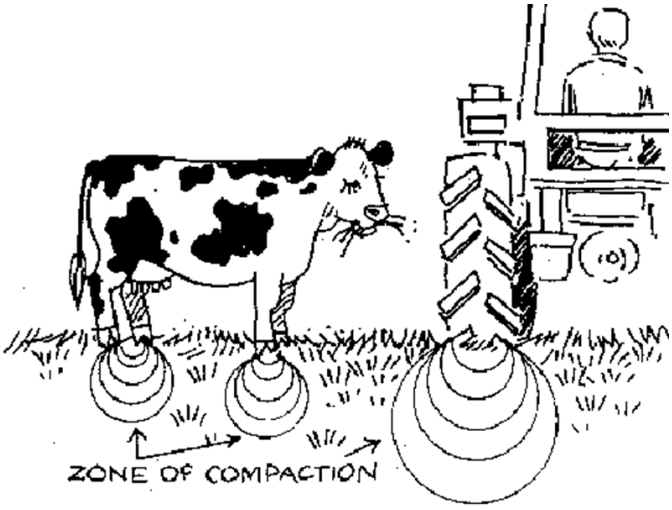


Compacted soil restricts root growth (right)

What causes soil compaction?

The most common causes of compaction on farms are animals and machinery, mostly tractors and heavy cultivation (ie. ploughing) and harvesting equipment.

The degree of compaction depends on the force compressing the soil, the contact area with the soil, the strength in the soil and the type of soil. Animal hooves and tyres of light vehicles compact the soil directly underneath and around the contact area; heavy vehicles compact the soil more deeply. Tyre width has little effect, except that near-surface compaction is reduced as tyres becomes wider. The same object causes more damage to a moist soil than a dry one, particularly in clay soils. Some soils are more prone to compaction than others, particularly soils with a lot of fine sand and silt and little organic matter. Wet clay is much more easily compacted than dry sandy soil. Some clays are more prone to compaction than others because of their high sodicity (high levels of sodium in the clay).



How can I tell if soil is compacted?

Compaction often occurs in a layer below the soil surface, so is not easy to identify on the surface. The simplest way is to push a steel rod or even a long screwdriver into the ground. If you can't push it very far your soil may be compacted or very dry.

To check further, dig a 30-cm deep hole. As you dig you will be able to feel if there is a hard, compacted layer. With your shovel, take a slice off one side of the hole, lift it out and lay it on its side. Compacted soil shows up as a hard solid layer with large, deformed aggregates. The soil above it is usually looser and separates quite easily to expose the smooth surface of the compacted section. The compacted soil is often arranged into horizontal layers, giving a platy structure. You may see plant roots growing horizontally along the top of the compacted layer because they cannot grow through it.

How can I avoid compacting soil?

Ways to avoid soil compaction are:

- Have the same wheel spacing on all your machines, and follow the same tracks in your paddocks (called tramlining or controlled traffic), refer to figures 2 and 3. The soil under the tracks will compact severely, but this will provide good traction, and you will have minimum compaction where plants are growing.
- Reduced pressure on the soil by decreasing the axle load and/or increasing the contact of the wheels on the soil.
- Minimise the amount of tillage undertaken and strategic till only in the cropping zone (which is where the cane plant grows).
- Introduce organic matter through fallow crops like legume green manure crops, which will improve soil health, increase organic matter and will provide a “cushion” to the soil while holding onto additional water for crop use. Refer to figure 1.

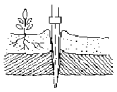
Figure 1. Legume stubble left on pre-formed permanent beds, in the Herbert.

Figure 2. Wide chute mound planted cane @ 1.83m, in the Herbert.

Figure 3. The table below highlights the area compacted in a cane farming system

System	Assumptions	Driving Error	%Area compacted
1.5m Not controlled traffic	**Tyre width = 622 mm, wheel centres 1.9m**	**With GPS No GPS**	**68% 95%**
1.8m	**As above**	**With GPS No GPS**	**28% 55%**
2.1m	**Haulout Tractor tyres (14.9*32)**	**With GPS No GPS**	**18% 20%**

How can I repair compacted soil?



Deep tillage can help break up compacted layers, but the long-term approach is controlled traffic.

Yes, you can repair compacted soils- **but it is going to take time.**

Deep tillage with tractors and implements such as an Agroplow® or a Yeomans plow® can break up compacted layers with minimal soil mixing, restoring the soil's ability to soak up and store water and allowing roots to grow. However, it is important that you do this at the right moisture content. If clay soils are too wet they will be smeared and compacted; if sandy and loamy soils are too dry they can be pulverised to dust. In cracking clays, drought-stressed rotation crops can be used to create shrinkage cracks. If enough cracks are produced, deep tillage may not be needed.
Eliminate compacted soil before you introduce techniques such as controlled traffic, minimum tillage and direct drill, otherwise these techniques are unlikely to be successful. **Remember up to 70% of the compaction occurs at the first past after you have undertaken deep tillage to remove the compaction.** Consider ripping directly below the cane row to gain most benefit for the crop, while reducing tillage costs.
Consider implementing a controlled traffic farming system, which means that you must match machinery and row spacing.
The benefits of a controlled traffic farming system:

- It has been noticed that in general across the cane industry you will generally gain 1-2 extra ratoons per crop cycle when a controlled traffic system has been implemented.
- It has been noticed that a 10% yield gain can be achieved once the farming system is bedded down on some local farms.
- Up to a 20% improvement in water infiltration rates leading to more soil moisture being available and improved nutrient uptake.
- Reduces tillage costs.
- Allow earlier access to fields to undertake spraying, fertilising and harvesting.
- Improvements in soil biota (ie. worms, micro and macropods) and soil structure once the controlled traffic system has settled in.

Growers considering transitioning to wider row spacing should consider planting with a wide chute mound or furrow planting system (45-60cm wide) or dual row plant, to ensure adequate tillers per hectare. Refer to figure 2.
There are usually **no significant** yield losses experienced with most varieties when moving to 1.8-1.9m row spacing, planted as a wide chute or dual row, in the Herbert. Years of trials confirm this.

Sources:
Soil Sense leaflet 1/94. Agdex 510 produced by Rebecca Lines-Kelly, formerly soils media officer, Wollongbar Agricultural Institute, for NSWA and SCS, north coast region, under the National Landcare Program, September 1994.
BSES Yield Decline Joint Venture.

FUNGICIDE MANAGEMENT OPTIONS

When it comes to fungicide management, cane farmers and planting contractors currently have limited options to use against Pineapple Sett Rot disease.
In good conditions, all fungicides registered for sugarcane are effective against Pineapple Sett Rot disease (*Ceratocystis paradoxa*). It is only when conditions become less favorable, such as abnormally wet or cold conditions, dry soil, poor water quality in application tanks or most importantly, cane setts or billets that have harvester damage. In the coming months, the soil temperature will drop and after recent weather events, plant sources will be lodged increasing the risk of damaged billets. If thorough fungicide coverage of billets is not achieved in these less than perfect conditions, the results will be like this picture below, resulting in poor strikes across the district.

Figure 1. Symptoms of pineapple disease
(Source: BSES Woodford QLD)

It is important to ring your area field officer to get a plant source inspection before planting. Read and understand the fungicide label of the product that you or your contractor intends to use. Some products can be mixed with other insecticides whilst others state on the label that they are not compatible with any other product. Some products must be applied via spray nozzles while others can use the dip system or both. Some products are registered for both Pineapple Sett Rot disease and Smut. Label requirements differ for these two diseases. Set up of the planter is also critical.

In 2015 the Australian Government has indicated the phase out of Shirtan would occur in the year 2020. Shirtan is widely used across the cane industry for Pineapple Sett Rot and its active ingredient consists of 120g/L mercury (Hg) present as methoxy ethyl mercuric chloride. The Australian government has signed the Minamata Convention treaty. This treaty has the objective to protect human health and the environment from emissions and releases of mercury. The Australian government is in the process of phasing out all mercury use in Australia in all industries.

HCPSL plant all approved seed cane plots with Sinker. It is recommended that all growers use Sinker when planting clean seed on their own farms, to give the crop protection from smut (especially after cane has been long hot water treated). Sinker has the added benefit of assisting with the prevention, of primary infection of sugarcane smut on planting material. It is recommended that growers who wish to grow varieties like SRA3$^{\Phi}$ and Q252$^{\Phi}$ should use Sinker, instead of other fungicides for the control of smut, as well as Pineapple disease.

Below is a list of products registered for pineapple disease in sugarcane.

Trade Name	Active Ingredient	Rate	Remarks	$/ha	$/200L mix (approx.)
Sinker	500g/L flutriafol	500mL/ha or 7.5 mL/100 m row	Apply as a spray onto setts in the planting chute with thorough coverage. Apply in a minimum water volume of 350 L / ha.	$35	
Tilt 250ec,	250g/L propiconazole	40mL/200L Water	Ensure thorough coverage of the cut ends of sugarcane setts		$1.00
Bumper 250ec	250g/L propiconazole	40ml/200L Water	Ensure thorough coverage of the cut ends of sugarcane setts		$1.17
Throttle	250g/L propiconazole	20ml/200L Water	Ensure thorough coverage of the cut ends of sugarcane setts		$1.00
Shirtan	120g/L Mercury(Hg) present as methoxy ethyl mercuric chloride.	250mL/200Lwater	For use in spray or dip planters. Ensure thorough wetting of cut ends or setts. If color of solution changes from red, or it becomes contaminated with soil, it should be discarded.		$14.50

Sinker Tilt 250ec Bumper Throttle Shirtan



Calculating your nutrient output

Calculating output from bags/ac

Bags/ac → (Times by 124) → kg/ha → (Divide by 100 then times by Nutrient % in the product) → Nutrient output in kg/ha

Example: You are applying a product with 25% Nitrogen at 4.5bags/ac

4.5 bags/ac → (4.5 x 124) → **558 kg/ha** → (558 ÷ 100) → **5.58** → (5.58 x 25) → **140kg of N/ha**

Repeat this for the PKS using the P%, K% and S% values within the product.

Calculating rate from your Soil Requirements

Soil Requirments → (Divide by Nitrogen % in product then times by 100) → **kg/ha** → (Divide by 124) → **bags/ac**

Using the example above: The soil requires 140kg of N/ha and the product you are using has 25% of N

140kg of N/ha → (140 ÷ 25) → 5.6 → (5.6 x 100) → **560 kg/ha** → (560 ÷ 124) → **4.5 bags/ac**

Calibrating your fertiliser box

Row spacing (ft)	Row Spacing (m)	Meters to collect fertiliser (m)
5'3"	1.6	50.59
5'4"	1.63	49.66
5'5"	1.65	49.05
5'6"	1.68	48.18
6'0"	1.83	44.23

Kilograms collected in this distance are the bags/ac your fertiliser box is applying.

e.g. If your row spacing is 1.65m and you collect 4.5kg over 49.05m. The fertiliser box is outputting 4.5bags/ac of product.

Increase fertiliser rate by: Increasing the **Driving** cog size **or** decreasing the **Driven** cog (cog running the worm)

Decrease fertiliser rate by: Decreasing the **Driving** cog size **or** increasing the **Driven** cog (cog running the worm)

Changing Driving Cog

$$No.\,of\ teeth\ required = \frac{No.\,of\ teeth\ on\ existing\ cog \times Required\ application\ rate}{Current\ application\ rate}$$

Changing Driven Cog

$$No.\,of\ teeth\ required = \frac{No.\,of\ teeth\ on\ existing\ cog \times Current\ application\ rate}{Required\ application\ rate}$$

e.g. 16-tooth driving cog and an 8-tooth driven cog applying 400kg/ha but you want to apply 560 kg/ha. Note: If using this method; only change one, not both cogs.

$$e.g.New\ \boldsymbol{Driving}\ cog = \frac{16 \times 560}{400} = 22\ tooth\ cog$$

$$e.g.New\ \boldsymbol{Driven}\ cog = \frac{8 \times 400}{560} = 6\ tooth\ cog$$

Herbert Fertiliser Ready Reckoner – 2017

Plant and Ratoon Mixtures

kg/ha		188				250				313				375				438				500			
bag/ac		1.5				2				2.5				3				3.5				4			
Nutrients (kg/ha)		N	P	K	S	N	P	K	S	N	P	K	S	N	P	K	S	N	P	K	S	N	P	K	S
Fertiliser	GF HR 74832 Plant, CK 66 (S)	25	21	26	9	33	28	35	13	42	34	44	16	50	41	53	19	58	48	61	22	67	55	70	25
	GF 351, Impact 67(S)	23	18	33	9	30	25	45	12	38	31	56	14	45	37	67	17	53	43	78	20	60	49	89	23
	Nitraphoska Special	23	10	26	11	30	13	35	15	38	16	44	19	45	20	53	23	53	23	62	26	60	26	71	30
	GF NK planter	26	-	28	32	35	-	38	42	44	-	47	53	53	-	56	63	62	-	66	74	71	-	75	84
	GF 401, CK 44 (S), Impact 45(S)	17	13	48	8	23	17	64	10	28	22	80	13	34	26	96	15	40	30	112	18	46	35	128	21
	DAP	34	38	-	3	45	50	-	4	56	63	-	5	68	75	-	6	79	88	-	7	90	100	-	9
	GF 540, CK 50/50, Impact 51/51	45	-	45	-	60	-	60	-	75	-	75	-	90	-	90	-	105	-	105	-	120	-	120	-
	Urea	86	-	-	-	115	-	-	-	144	-	-	-	173	-	-	-	201	-	-	-	230	-	-	-

Ratoon One shots

kg/ha		438				500				563				625				688				750			
bag/ac		3.5				4				4.5				5				5.5				6			
Nutrients (kg/ha)		N	P	K	S	N	P	K	S	N	P	K	S	N	P	K	S	N	P	K	S	N	P	K	S
Fertiliser	GF 553, Impact 136, CK 135	144	-	62	-	165	-	71	-	185	-	80	-	206	-	89	-	226	-	98	-	247	-	107	-
	Nitra-King	131	-	77	-	150	-	88	-	168	-	98	-	187	-	109	-	206	-	120	-	224	-	131	-
	GF 542, CK 300 (S)	127	9	53	13	146	10	60	15	164	11	68	17	182	13	75	19	200	14	83	21	218	15	90	23
	GF 554, Nitra-K(S), Reef Choice 223	120	-	74	13	137	-	84	15	154	-	95	17	171	-	105	19	188	-	116	21	206	-	126	23
	CK 140, Impact 141	109	11	83	1	125	13	95	1	140	15	107	1	156	16	119	1	171	18	131	1	187	20	143	2
	GF 508, Reef Choice 343	108	11	78	8	123	12	89	9	138	14	100	10	154	15	111	11	169	17	122	12	185	18	134	14
	CK 150, Impact 151	111	16	74	1	127	18	85	2	142	20	96	2	158	23	106	2	174	25	117	2	190	27	128	2
	GF 560, CK 150 (S)	107	13	68	14	122	15	78	16	137	17	87	17	153	19	97	19	168	21	107	21	183	23	116	23
	GF 506, CK 140 (S), Impact 141(S)	99	9	75	19	114	10	86	22	128	11	97	25	142	13	108	28	156	14	118	30	170	15	129	33

Liquids

L/ha		900				1000				1100			
Nutrients (kg/ha)		N	P	K	S	N	P	K	S	N	P	K	S
Fertiliser	NPKS	151	9	72	9	168	10	80	10	185	11	88	11
	NPKS HiK	126	9	90	9	140	10	100	10	154	11	110	11
	NP HiK	126	-	90	9	140	-	100	10	154	-	110	11
	Notes	6.3kg/ha of Ca and 0.36kg/ha of Mg				7kg/ha of Ca and 0.4kg/ha of Mg				7.7kg/ha of Ca and 0.44kg/ha of Mg			

Exceeds the legislated limit of 160kg of N/ha

CALIBRATION OF A HERBICIDE SPRAYER RECORDING SHEET.

Date of Calibration:.....

Steps of calibration

1. Select your tractors' gear and engine RPM for your preferred application speed. Record the details below:

A) Tractor ID: ……

B) Gear: ……

C) Engine RPM: …… Pressure: ……

D) Record your time to travel 100 metres. (Check at least twice.)

Seconds: ……..

2. Collect output of the **nozzle/s or each dropper or Irvin leg in Litres** for the time recorded in **1-E)**. (Stationary calibration)

Nozzle 1	**Nozzle 2**	**Nozzle 3**	**Nozzle 4**	**Nozzle 5**	**Nozzle 6**		
L	L	L	L	L	L	Total	L
Nozzle 7	**Nozzle 8**	**Nozzle 9**	**Nozzle 10**	**Nozzle 11**	**Nozzle 12**		
L	L	L	L	L	L	**Total of all nozzles**	L

3. Determine the treated area: in **Square Metres(M^2)**

Total boom Width sprayed M		**100 M**		**M^2**
	X	100 M	=	

4. Calculate the application rate of water/ha.

Total Output of nozzles		**Spray Area M^2**		**Spray Rate**
L	÷	M^2	x 10000 =	L/Ha

5. Calculate how much herbicide to add to your spray tank

Tank Volume		**Spray Rate**		**Product Rate**		**Herbicide in Tank**
L	÷	L/Ha	x	L/Ha	=	L

Soil testing and laser services:

It is soil testing time again. Growers are urged to get soil tests into the office ASAP, so that we can get your soil test results back to you prior to planting. Soil augers can be collected from the HCPSL office.

Soil tests for nutrients costs- $125 inclusive of GST

Soil tests for *Pachymetra* costs- $55 inclusive of GST

Soil test for nematodes costs- $55 inclusive of GST

Under Reef Regulations and to comply with BMP soil testing is required.

Up and coming events:

GFRAS/APEN

INTERNATIONAL
CONFERENCE HINCHINBROOK
&
TOWNSVILLE
9TH—15TH SEPTEMBER 2017

www.gfrasapenint2017.com

The GFRAS meeting will be held in the Hinchinbrook region at the township of Ingham.
Following the GFRAS meeting the APEN International Conference will be held in Townsville.

The conference will consist of various events
showcasing both
International & Australian extension programs in operation.

Volunteer's / Helpers needed:

- **Guides for local events**
- **Translators for Spanish, French & Russian.**

If any body is interested in being able to help out Please ring Sandra at the HCPSL office for more information.

Enrol Now

Dates for the up and coming **SafeChem (ChemCert) and Six Easy Steps** courses are yet to be set.

Please ring HCPSL- 4776 1808, to notify your interest for these courses.

More information on these events will be forwarded at a later date

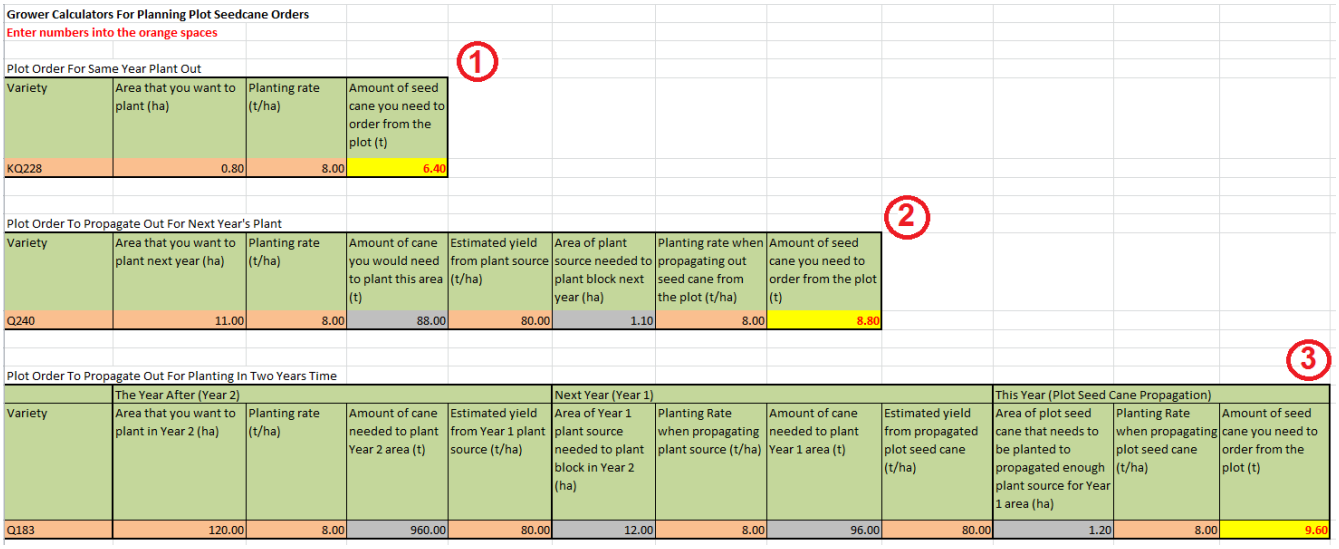
The HCPSL Website

If you have not checked out the HCPSL website lately, please take the time to have a browse. You will find many new features, articles and sections on the site. Go to www.hcpsl.com

SEED CANE PLANNING CALCULATOR

This is the time of year to start thinking about propagation of clean seed cane for plant source over the coming years. The calculator has been developed to help you determine how much clean seed cane you need to order from the plot this year to propagate enough plant source for the areas you intend to plant in the coming years.

The seed cane calculator is available from the HCPSL website. Go to www.hcpsl.com to find the calculator.
When you open the Plot Seed Cane Order Calculator you will see:



Grower Calculators For Planning Plot Seedcane Orders

Enter numbers into the orange spaces

① Plot Order For Same Year Plant Out

Variety	Area that you want to plant (ha)	Planting rate (t/ha)	Amount of seed cane you need to order from the plot (t)
KQ228	0.80	8.00	6.40

② Plot Order To Propagate Out For Next Year's Plant

Variety	Area that you want to plant next year (ha)	Planting rate (t/ha)	Amount of cane you would need to plant this area (t)	Estimated yield from plant source (t/ha)	Area of plant source needed to plant block next year (ha)	Planting rate when propagating out seed cane from the plot (t/ha)	Amount of seed cane you need to order from the plot (t)
Q240	11.00	8.00	88.00	80.00	1.10	8.00	8.80

③ Plot Order To Propagate Out For Planting In Two Years Time

	The Year After (Year 2)				Next Year (Year 1)				This Year (Plot Seed Cane Propagation)		
Variety	Area that you want to plant in Year 2 (ha)	Planting rate (t/ha)	Amount of cane needed to plant Year 2 area (t)	Estimated yield from Year 1 plant source (t/ha)	Area of Year 1 plant source needed to plant block in Year 2 (ha)	Planting Rate when propagating plant source (t/ha)	Amount of cane needed to plant Year 1 area (t)	Estimated yield from propagated plot seed cane (t/ha)	Area of plot seed cane that needs to be planted to propagated enough plant source for Year 1 area (ha)	Planting Rate when propagating plot seed cane (t/ha)	Amount of seed cane you need to order from the plot (t)
Q183	120.00	8.00	960.00	80.00	12.00	8.00	96.00	80.00	1.20	8.00	9.60

Select which calculator you need to use for your purpose:

- Use this calculator if you only know what area you want to plant with clean seed cane this year
- Use this calculator if you know what area you want to plant next year. It will give you the area and tonnes of clean seed cane you will need to propagate this year to have enough plant source for next year.
- Use this calculator if you know what area you want to plant in two years' time. It will give you the area you need to plant next year to have enough plant source and give you the area and tonnes of clean seed cane you need to propagate this year to have enough plant source for the next two years.

For all the calculators, you will need to enter the area, estimated planting rate and estimated plant source block yield into the orange cells. The yellow cell will then give you the amount of clean seed cane you will need to order from the plot and propagate this year. The following examples demonstrate how to use each calculator.

Example for calculator 1: If I want to plant 0.8 hectares this year at an estimated planting rate of 8t/ha, I will need to order 6.4 tonnes of clean seed source from the plot.

Plot Order For Same Year Plant Out

Variety	Area that you want to plant (ha)	Planting rate (t/ha)	Amount of seed cane you need to order from the plot (t)
KQ228	0.80	8.00	6.40

Example for calculator 2: I want to plant 11 hectares next year at an estimated planting rate of 8t/ha. I estimate that the plant source block will be yielding 80t/ha by planting time next year. Therefore, I will need to order 8.8 tonnes of clean seed cane from the plot and propagate it out over 1.1 hectares this year to have enough plant source for next year.

Plot Order To Propagate Out For Next Year's Plant

Variety	Area that you want to plant next year (ha)	Planting rate (t/ha)	Amount of cane you would need to plant this area (t)	Estimated yield from plant source (t/ha)	Area of plant source needed to plant block next year (ha)	Planting rate when propagating out seed cane from the plot (t/ha)	Amount of seed cane you need to order from the plot (t)
Q240	11.00	8.00	88.00	80.00	1.10	8.00	8.80

Example for calculator 3: I want to plant 120 hectares in two years' time at an estimated planting rate of 8t/ha. I estimate that my plant source block will consistently yield about 80t/ha. Therefore, I will need to order 9.6 tonnes of clean seed cane from the plot this year. I will propagate it out over 1.2 hectares this year to plant 12 hectares next year. This will provide me with enough plant source to plant the 120 hectares the year after.

Plot Order To Propagate Out For Planting In Two Years Time

	The Year After (Year 2)				Next Year (Year 1)				This Year (Plot Seed Cane Propagation)		
Variety	Area that you want to plant in Year 2 (ha)	Planting rate (t/ha)	Amount of cane needed to plant Year 2 area (t)	Estimated yield from Year 1 plant source (t/ha)	Area of Year 1 plant source needed to plant block in Year 2 (ha)	Planting Rate when propagating plant source (t/ha)	Amount of cane needed to plant Year 1 area (t)	Estimated yield from propagated plot seed cane (t/ha)	Area of plot seed cane that needs to be planted to propagated enough plant source for Year 1 area (ha)	Planting Rate when propagating plot seed cane (t/ha)	Amount of seed cane you need to order from the plot (t)
Q183	120.00	8.00	960.00	80.00	12.00	8.00	96.00	80.00	1.20	8.00	9.60

Area you want to plant in two years

Area you need to plant next year to have enough plant source for year 2

Area you need to plant with clean seed cane this year to propagate enough plant source for the next two years

This is a great tool for determining how much clean seed cane you need to order from the plot this year. A reminder, using good quality plant source is an important factor when managing disease risk on your farm. HCPSL staff are available to provide plant source inspections, ring the office 4776 1808.

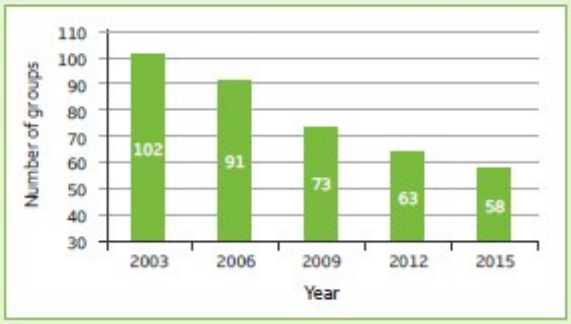
Source: Burdekin Productivity Services developed the calculator

Summary of 2016 Harvesting Trials

Sugar Research Australia

Challenges for the harvesting sector

- The reward/payment system for harvesters is clearly "broken" as the incentive is to minimise costs, not payment for maximising value.
- The increase in group sizes due to reducing harvester numbers.
- Increase in machine capacity with corresponding increase in ground speed.
- Diminishing bin weights due to increased pour rate (therefore increase in extraneous matter).
- Belief in the benefits:
  - > Needed by both growers, harvester operators and millers
  - > Trials underway to try to generate belief
  - > SRA involvement required (protocols, supervision, analysis, adoption)
  - > More work required at regional level to generate belief.



Basic harvester performance principles

- Field conditions have most impact on EM and cane loss.
- Crop presentation (row profile/width) impacts on stool damage and pickup losses.
- Fan speed determines cane loss levels with limited impact on EM.
- Lower pour rates = lower EM, but this increases harvesting costs.
- The main sources of harvesting losses affecting yield include:
  - > Extractor losses (5-25%)
  - > Pickup losses (1-10%)
  - > Chopper losses (2-8%).

Current SRA demonstration trials: Bundaberg, Isis, Innisfail, Tully, Herbert, NSW

Treat-ment	Fan-speed (rpm)	Ground speed (km/hr)	Trash in field (t/ha)	Sugar loss in paddock (t/ha)	CCS delivered cane	Delivered cane (TCH)	Harvesting operations		CST operations		Revenue	
							Time to harvest (hr/ha)	Haulout trips to siding	Average cane bin weight (t/bin)	No of cane bins required (bin/ha)	Value of sugar left in paddock ($/ha)	Value of sugar delivered ($/ha)
T1	850	8.0	30.5	2.26	16.03	108	1.05	9	5.62	20	$1,017	$6,866
T2	700	8.0	22.2	1.21	16.03	121	1.05	11	5.16	24	$544	$7,701
T3	700	6.5	22.3	1.13	16.27	123	1.23	11	5.44	23	$511	$7,957

Four and Five blade chopper configuration comparisons

Trial 1 – ISIS

Harvester	Billet length	Fan speed	Average of TS/ha lost	Average of TC/ha	Harvesting operations			CST operations		Revenue	
					Delivered clean cane (TCH)	Time to harvest (hr/ha)	Haulout trips to siding	Average cane unit weight (t/unit)	No of cane units required (units/ha)	Average of $/ha left in the paddock	Value of sugar delivered ($/ha)
H10	Long	700	0.77	5.78	115	1.02	10	6.54	18	385	8395
H10	Short	700	0.91	6.80	113	1.02	10	6.75	17	457	8393
H10	Short	900	1.35	9.99	111	1.02	10	7.03	16	676	8235
H8	Short	700	0.59	4.51	114	1.02	10	5.88	20	297	8566
H8	Long	700	0.53	4.10	120	1.02	10	5.79	21	265	8874
H8	Long	900	1.09	8.05	114	1.02	10	6.22	19	544	8494
H8	Long	500	0.32	2.52	119	1.02	10	4.87	25	158	9214

On average, 8 Blade chop netted the industry $479/ha more for same harvester operation.

Trial 2 – Tully

Treatment	Average yield	Average CCS	Average cane price	Average cane payment /ha	Average harvest cost	Average net/ha
1 (5 blade, 700 rpm, 6 kph)	101.0	12.34	$37.52	$3,789.40	$753.42	$3,035.98
2 (5 blade, 800 rpm, 6 kph)	102.0	12.36	$37.61	$3,837.89	$761.23	$3,076.66
3 (5 blade, 500 rpm, 4 kph)	129.4	12.51	$38.29	$4,954.20	$965.32	$3,988.87
4 (4 blade, 700 rpm, 6 kph)	114.6	12.19	$36.84	$4,221.80	$854.97	$3,366.83
5 (4 blade, 800 rpm, 6 kph)	110.4	12.57	$38.57	$4,257.11	$823.49	$3,433.62
6 (4 blade, 500 rpm, 4 kph)	138.7	12.59	$38.64	$5,360.43	$1,034.99	$4,325.44
	Sugar price	Harvest cost/tonne	Litres/tonne	$/Litre		
	500	$6.50	1.2	0.8		

On average, 8 Blade chop netted the grower $340/ha more for same harvester operation.

Assessing new technologies: EHS chopper drum trial

2014 Trial Results (see Figure 1)

- 33% decrease in chopper losses from EHS to standard (2.45% vs 3.27% sugar on trash).
- Billet quality: ~10% more sound billets with EHS chopper drums, ~7% less mutilated billets with EHS chopper drums.

2015 Trial Results (see Figure 2)

- 38% decrease in chopper losses from EHS to standard.
- Billet quality: ~10% more sound billets with EHS chopper drums, ~7% reduction in damaged with EHS chopper drums.

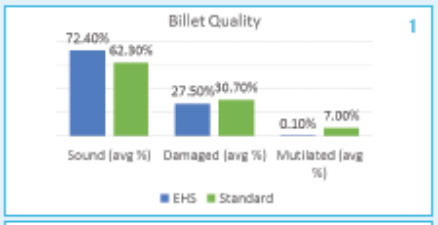
2016 Trial Results

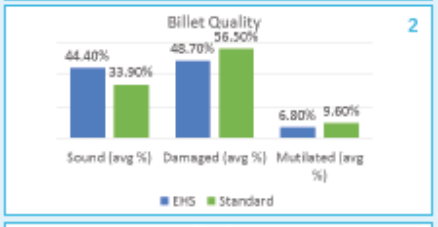
Trial 1 – NSW

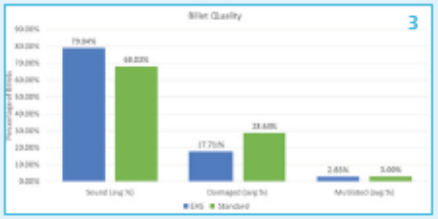
- 19.6% decrease in chopper losses from EHS to standard at 800RPM.
- 19.34% reduction in chopper losses from EHS to standard at 500RPM.
- ~5% increase in proportion of sound billets at 800RPM with EHS chopper drums.
- ~10% increase in proportion of sound billets at 500RPM with EHS chopper drums.

Trial 2 – Herbert (see Figure 3)

- Higher level of damaged billets with standard chopper drums.
- ~11% increase (~68% to ~79%) in proportion of sound billets.







"What does it mean to the Cane Industry"

Why change Queensland's biosecurity laws?

Biosecurity is the protection of the economy, the environment and the community from animal and plant pests, diseases and contaminants. It is critical to market access and the profitability and sustainability of our industries. It also safeguards Queensland's natural assets, our health and our way of life.

The biosecurity Act (the Act) was enacted in early 2016. The Act allows a consistent modern, risk-based and less prescriptive approach to biosecurity in Queensland.

All Queenslanders need to take an active role in managing biosecurity risks under their control. Under the Act, individuals and organisations who undertake activities that pose a biosecurity risk will have greater legal responsibility for managing them. The general biosecurity obligation means that all must take reasonable steps to ensure they do not spread a pest, disease or contaminant.

Queenslanders will need to report unusual events that might be related to biosecurity. Biosecurity zones will be introduced by Regulation and used to manage, reduce or eradicate pests or disease (such as Fiji disease in sugarcane).

What is your general biosecurity obligation?

You will need to:

- Take all reasonable and practical steps to prevent or minimise each biosecurity risk
- Minimise the likelihood of the risk causing a biosecurity event and limit the consequences of such an event
- Prevent or minimise the adverse effects the biosecurity risk could have and refrain from doing anything that might exacerbate the adverse effects.

A biosecurity risk exists when you deal with ay pest, disease or contaminant, or with something that could carry one of these. This includes moving or keeping a pest, disease contaminant or animals, plants, soil and equipment that could carry a pest, disease or contaminant.

Do you need to know about all biosecurity risks?

No. However, you will be expected to know about the risks associated with your day-to-day work and your hobbies

What will happen if someone does not meet their obligation?

Biosecurity Queensland will focus on educating Queenslanders about biosecurity and will encourage voluntary compliance with biosecurity obligations. However, if required, specific action could be taken to ensure an individual, business or other organisation improves how they manage biosecurity risks.
To achieve this, Biosecurity Queensland would generally provide specific advice on how risks can be managed. An officer could also issue a biosecurity order requiring specific action to be taken within a reasonable time.
Not complying with the general biosecurity obligation is an offence. Biosecurity Queensland may also consider prosecution.

What does it mean to the cane industry?

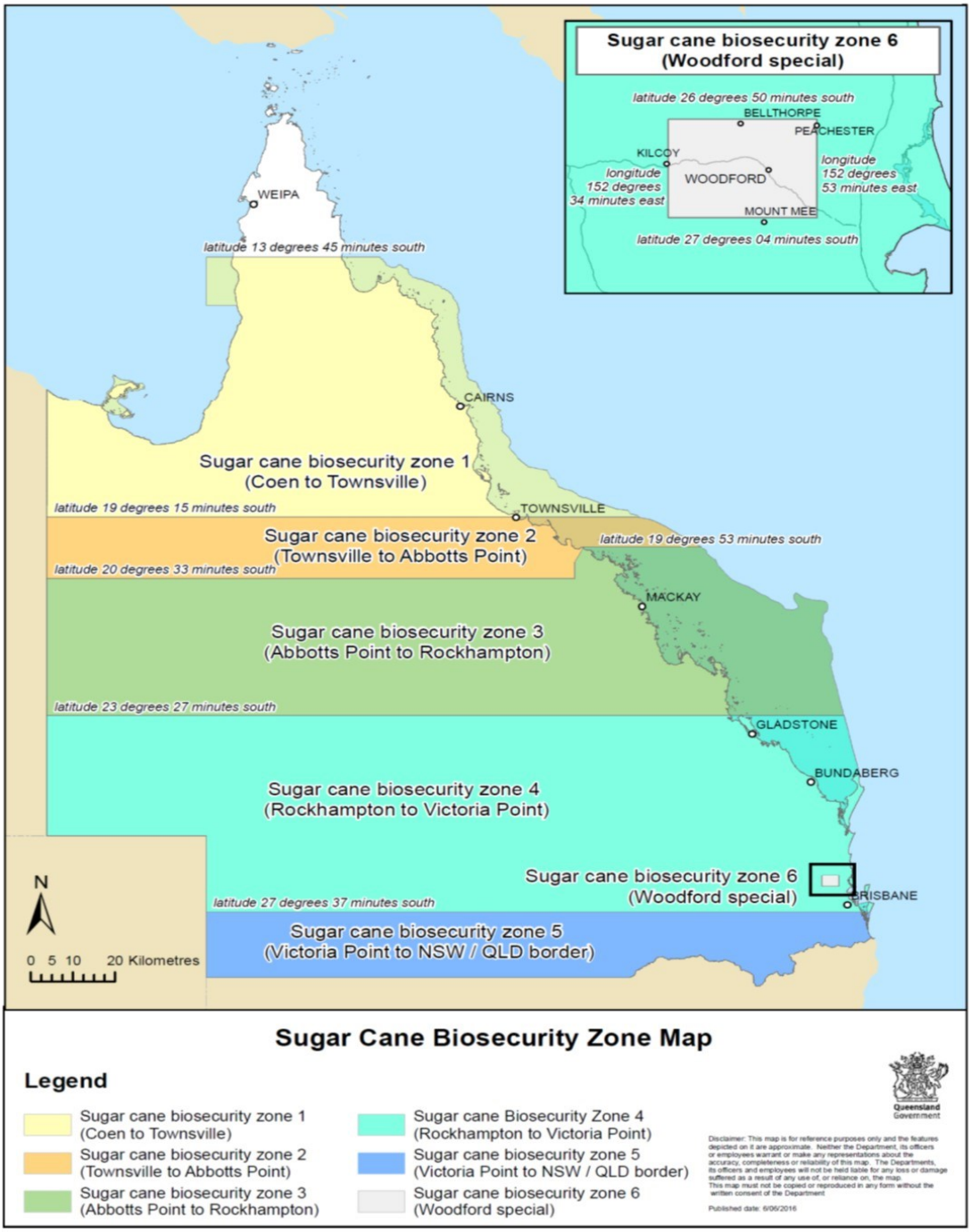
Biosecurity zones are in place throughout the State to prevent the movement of sugarcane diseases.

Growers cannot move cane between biosecurity zones.

Machinery must be clean & approved for movement across biosecurity zones.
A permit can be obtained from HCPSL

More information

To find out more about the Act, visit www.biosecurity.qld.gov.au or call 13 25 23



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