

MAPS Observation Plots

Observation Plots were introduced by MAPS in 2010. It is a way to test any promising seedlings in the later stages of the SRA variety breeding program. Plots are selected across a wide range of conditions including soil types, drainage and farming practices. These observation plots also provide an opportunity for grower shed meetings and field walks for others to learn what is in the 'pipeline'.

Andrew Sherry is the latest Farleigh grower who was approached in 2017 to have an observation plot established on his farm the following year. Andrew's farm is on the south side of the Bruce Highway near Coningsby. Located at the top of the local catchment, the majority of the farm is well-drained on good sandy loam soils.

Andrew's father, Joe Sherry, still resides on the farm and helped when eight bundles of canes from the MAPS Clean Seed farm were delivered in July. This included the newly released canes **SRA12** and **SRA13** and also the following seedlings (in order):

QC05-1281

QC07-184

QSO4-2063

QC05-539

QC05-316 (SRA21)

QS04-772 (SRA22)

Andrew has done a great job of planting and growing these canes near his farm sheds and house. He even had them labelled at the ends of each row for any casual observers – including those attending his son's Buck's night!

Andrew says that all the canes struck and grew well, but from the day the bundles of cane stalks were delivered, Andrew was most interested in the variety that we now know as SRA21.

He says that its size and weight made him look forward to the day he could plant large areas of it. SRA21 has grown into a tall erect cane with loose trash.

SRA tests rate it intermediate-resistant for both Smut and Pachymetra. SRA21 shows a potential to handle dry



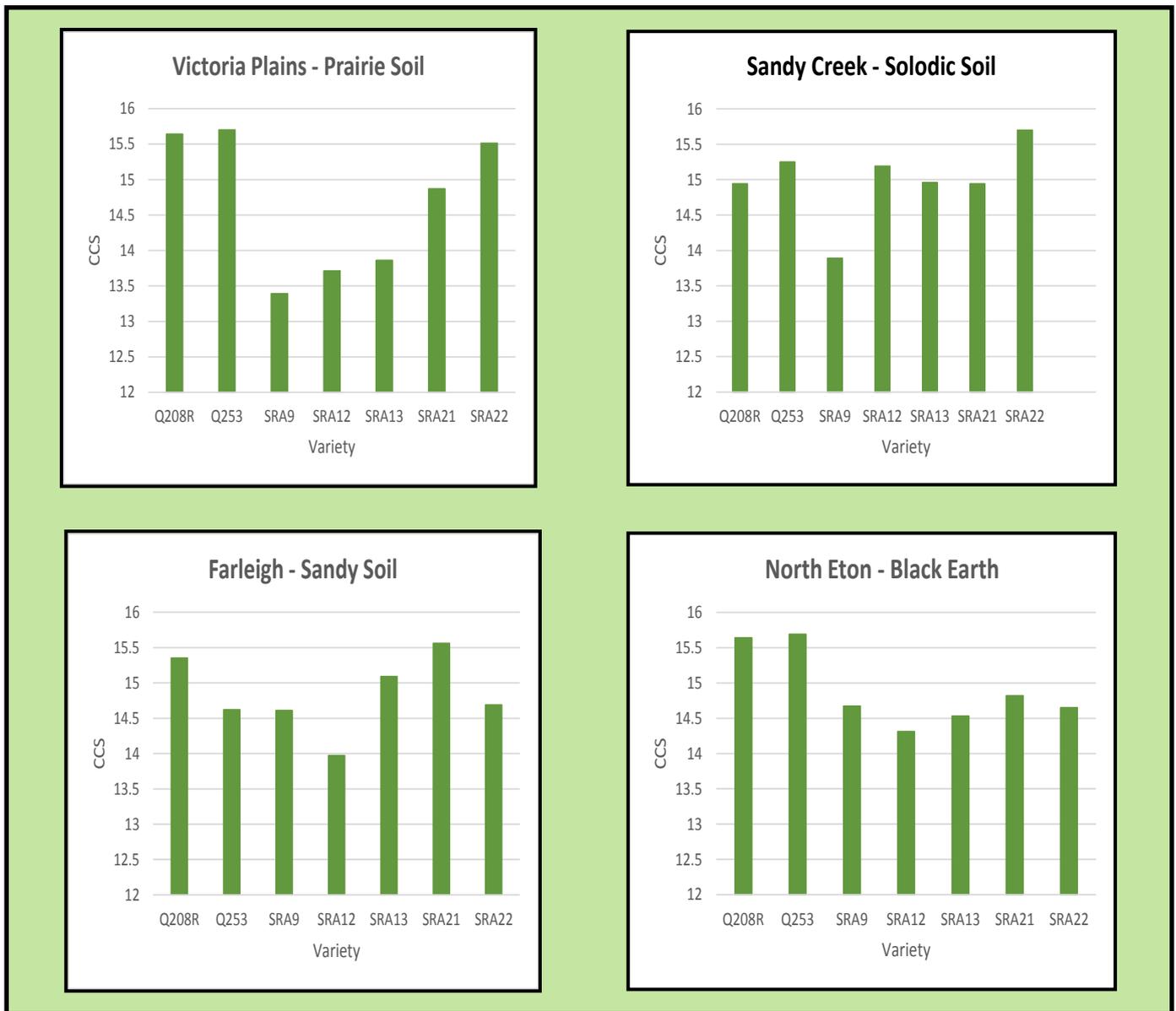
conditions and *may* produce good sugar in the first half of the harvest.

Andrew observes that SRA22 is also an interesting cane with a green stalk and vigorous leafy top but he sees that it tends to sprawl like the SRA13. SRA22 will be propagated further on a different soil type of Andrew's farm to see how the variety performs.

No other seedlings in this plot have yet been approved. However Andrew will plant small quantities to observe them further; particularly the QC05-539 which was a quick germinator. The seedling did struggle during the dry half of 2018, however responded well to rainfall and its rapid growth quickly overtook some of the other canes. With an intermediate - susceptible smut rating, QC05-539 will be closely monitored by MAPS staff.

Andrew endorses the concept of using observation plots to learn about the more promising seedlings from SRA's breeding program. He encourages other growers to speak to their Productivity Officer about visiting a plot nearby to them.

Early maturity testing was carried out in four of the MAPS Observation Plots on the 12th June. Seven varieties were collected by MAPS staff and analysed by SRA. All plots at the time of sampling were 10 months old and were 1st Ratoon, apart from the Victoria Plains plot which was Plant cane. The exercise gives an indication of CCS levels of varieties on different soil types throughout the region at the start of the harvest season. Further samples will be collected during the season for testing from the same plots. If there are any questions about the result, please contact your Productivity Officer to discuss further.



MAPS would like to welcome Indiana Zarb to the team. Born and bred in Mackay with a farming background, Indiana started with MAPS in June as a Smartcane BMP Support Officer.

Indiana will be working closely with Audra Allan helping growers through the BMP accreditation process and also working with the Productivity Officers with helping out at the MAPS Clean Seed Plot.

Indiana is a welcome addition to the MAPS team and can be contacted on 0439 557 839.



Getting full value from mill mud

The benefits of mill mud and mud/ash are well known but are you getting full value out of your mill products? With low sugar prices and an average crop, take account of the available nutrients in mud and mud/ash to reduce your fertilizer bill.

Mill products are so good because they;

- Supply a decent amount of nutrients (carbon, nitrogen, phosphorus, potassium, sulphur, calcium, magnesium, zinc, copper and manganese)
- Improve soil texture and structure
- Improve soil water storage
- Increase soil pH

Not all the nutrients in mud products are available straight away. The table below shows the nutrients the cane can use in the first year and their dollar value.

		Mill Mud		Mud/Ash	
	Nutrient Value/kg	Available nutrients in 150t mud in first year	Nutrient value in first year	Available nutrients in 150 tonnes mud/ash	Nutrient value in first year
Nitrogen	\$1.28	80	\$102	50	\$64
Phosphorus	\$2.69	120	\$323	100	\$269
Potassium	\$1.42	40	\$57	120	\$170
Sulphur	\$1.40	10	\$14	10	\$14
Calcium	\$0.41	360	\$146	270	\$109
			\$642		\$627

If the soil test for your fallow plant states that you need: Nitrogen at 140kg/ha, Phosphorus at 20 kg/ha and Potash at 100 kg/ha, this could cost \$400/ha. If you use mill mud at 150 t/ha then you can cut fertilizer back to supply Nitrogen at 60 kg/ha, Phosphorus at zero and Potash at 60 kg/ha. This will save you about \$240/ha.

Note that more of the nutrients in mill products become available during the crop cycle.

Note too that if you apply more than 100 t/ha of mud it must be accounted for under reef regulations.

Banded Mill Mud & Mud/Ash Guidelines

Mud (Racecourse & Farleigh Mills)

Table 1: Typical nutrient content of mill mud & estimated available nutrients when applied at 50 t/ha banded on the row

MUD	50 t/ha Typical nutrient content (kg/ha)	Estimated available nutrients (kg/ha)		
		1 st crop	2 nd crop	3rd & 4 th crop
Nitrogen	140	25	15	0
Phosphorus	140	sufficient	sufficient	sufficient
Potassium	40	15	0	0
Sulfur	15	5	0	0
Calcium (0.7 t/ha lime)	280	Calcium needs met	Calcium needs met	Calcium needs met

Table 2: Estimated \$ value of mill mud applied at 50 t/ha banded on the row

Nutrient	Nutrient cost	Estimated available nutrients & their value in 50 t/ha mud	
	\$/kg	kg/ha	value \$/ha*
Nitrogen	1.28	40	51
Phosphorus	2.69	140	377
Calcium	0.41	280	115
Potassium	1.42	15	21
Sulfur	1.40	5	7
Total			571

* Nutrient costs are correct as of June 2019. Mud contains cane fibre which equates to about 28 % carbon content in dry matter. 50 wet t/ha of mud dries down to about 12 dry t/ha. This contributes about 3.5 t/ha of carbon to the soil. Useful quantities of magnesium, zinc, copper & manganese are also present and have not been given a dollar value.

Mud/Ash (Marian Mill)

Table 3: Typical nutrient content of mud/ash & estimated available nutrients when applied at 50 t/ha banded on the row

MUD/ASH	50t/ha	Estimated available nutrients (kg/ha)		
		1 st crop	2 nd crop	3 rd & 4 th crop
Nutrients	Typical nutrient content (kg/ha)			
Nitrogen	100	15	0	0
Phosphorus	100	sufficient	sufficient	Check with leaf test in 3 rd crop
Potassium	60	40	0	0
Sulfur	15	5	0	0
Calcium (0.5 t/ha lime)	180	Calcium needs met	Calcium needs met	Calcium needs met

Table 4: Estimated \$ value of mud/ash applied at 50 t/ha banded on the row

Nutrient	Nutrient cost	Estimated available nutrients & their value in 50 t/ha Marian mud/ash	
		kg/ha	value \$/ha*
Nitrogen	1.28	15	19
Phosphorus	2.69	100	269
Calcium	0.41	180	74
Potassium	1.42	40	85
Sulfur	1.40	5	7
Total			454

Guidelines: when using 50 t/ha mill mud or mud/ash banded on row:

- No phosphorus is needed at planting or in 3 ratoons following mud application
- Leaf testing is recommended in 3rd crop after mud/ash application to check P adequacy in the crop
- If soil BSES P is greater than 50 mg/kg, do NOT apply phosphorus fertiliser, mill mud or mud/ash
- This rate supplies approximately 0.5-0.7 t/ha of lime & the calcium needs for the crop cycle
- If calcium levels are deficient (less than 1.1 meq %) or soil pH < 5.5, extra lime is needed
- Reduce fertiliser nitrogen rate (10-15%) in the first crop after application



When times are tight, minimising losses makes good business sense.

For a number of years, MAPS staff have been working with growers in the Sandy Creek catchment to better understand the losses of pesticides from the paddock.

Sometimes losses are unavoidable but minimising losses makes good business sense. Weather reports, chemical selection, calibration, timeframe to get the job done, nozzle selection and wind speed, and, weed pressure are things that need to be taken into account.

There is a lot to think about before leaving the shed. Recently, MAPS received funding from the State Government to continue to provide support to the growers within the Sandy Creek catchment as they try to minimise their pesticide losses, ensuring more product remains in the paddock to do the job.

MAPS is currently looking for interested growers to work with over two years to address these challenges.

MAPS will provide additional extension specifically focusing on pesticide selection and application.

The first step in minimising losses is to ensure that spray rigs are operating as efficiently as expected. Often small improvements lead to big savings.

MAPS will undertake a spray rig review with those engaged, with a small grant available to correct any issues identified.

If you are interested in finding out more, please talk to your productivity officer or call the MAPS office on 4963 6830.

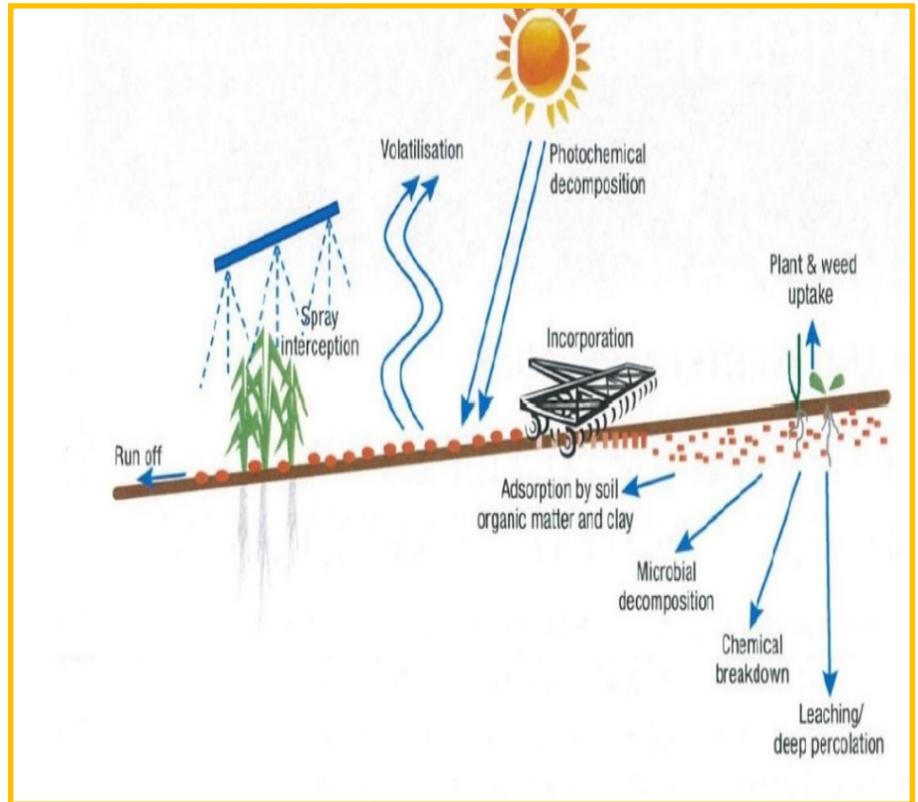


Understanding Herbicides

After a very dry spring and early summer in 2018, there was decent rain in early December. Growers took advantage and sprayed residual herbicides in their sugarcane crops, which they were not able to do in previous months. Unfortunately some crops, especially on the lighter soil, were affected by those chemicals which were highly soluble and moved with the soil moisture. This article is to remind growers of the different properties of the main sugarcane residual chemicals and how to deal with them.

Interactions, loss and breakdown pathways of residual herbicides

- Trash & crop vegetation can **intercept** and reduce the efficiency of herbicides, rainfall/irrigation is needed to wash the chemical into the soil.
- **Photodegradation** occurs when a herbicide undergoes a chemical reaction in the presence of sunlight, and is then broken down and is not effective. These herbicides need incorporation, either mechanically, by irrigation or rainfall; Atrazine, Diuron, Pendimethaline (Stomp), Picloram (Tordon) and S-Metolachlor (Dual Gold). Two of the more recent residual herbicides, isoxaflutole (Balance) and imazapic (Flame) are more UV stable and do not require immediate incorporation, however incorporation by rainfall/irrigation will achieve better results.
- **Volatilization** is when a liquid spray application transitions into a gas when left on the soil surface; if not incorporated as soon as possible, there will be some losses. Chemicals with high volatility are Trifluralin (Treflan), Pendimethaline (Stomp) and S-Metolachlor (Dual Gold).
- **Incorporation**; without it, some herbicides are more liable to breakdown and some loss from volatilisation and photodegradation. The objective is to move the herbicide into the top few mm of soil (20 -30 mm) either mechanically or with a light irrigation. Excessive rainfall or irrigation can move some herbicides beyond the weed zone and result in crop damage. This is what could have happened in early December last year.
- **Solubility** of a chemical is how easily it mixes with water. Highly soluble chemicals are easy to incorporate with limited rainfall while low solubility chemicals require larger volumes of rainfall to be incorporated and remain effective.
- **Binding** refers to how tightly the chemical holds on to the soil and organic matter. Heavier soils will absorb/bind more chemical, so higher application rates may be required.
- **Persistence** in a chemical is measured as a half-life, or the days of time that it takes for 50% of the product in the soil to break down.



The table below summarizes the above points –

Volatility	Breakdown of the chemical on the soil surface	Volatile	Mechanical or rainfall incorporation required asap
		Non-Volatile	Incorporation required but not critical in short term
Solubility	How well does the chemical mix with water? This impacts washing-off trash, uptake via roots and leaching	Low	Needs more rainfall to incorporate and moist conditions over time for uptake. Potential tie up in trash
		Moderate	In between low & high
		High	Tends to wash off trash easily, incorporates easily and taken in by plant. Potential for leaching if it's Binding is "likely to move" (eg Imazapic, Metribuzin)
Solubility needs to be considered in conjunction with Binding			
Binding	How tight does it hold onto the soil and organic matter? Heavy soils bind tighter, but this can be pH dependant. Soil binding can take 2-3 days	Non-mobile	Will bind tightly to soil & organic matter, especially if solubility is low (eg Trifluralin, Pendimethalin, Flumioxazin)
		Slightly mobile	Needs good soil moisture for root uptake, especially if solubility is low
		Likely to move	Washes off trash easily & moves more readily when highly soluble
Persistence	How long will it stay in the soil? Will vary depending on soil type.	Non-Persistent	Unlikely to have plant back issues. Seen as a short term residual, but if used at higher rates can provide extended control
		Moderately Persistent	Plant back constraints will occur
		Persistent	Long re-cropping intervals to sensitive crops

Chemical properties of some sugarcane residual herbicides –

Product	Volatility	Solubility	Binding	Persistence
Trifluralin (Treflan)	Volatile	Low	Non-mobile	Persistent
Metolachlor (Bouncer, Dual Gold)	Volatile	Moderate	Likely to move	Non persistent
Pendimethalin (Rifle, Stomp)	Volatile	Low	Non-mobile	Moderately persistent
Metribuzin (Tomahawk, Soccer, Mentor)	Non-volatile	High	Likely to move	Moderately persistent
Isoxaflutole (Balance)	Non-volatile	Low	Likely to move	Non persistent
Imazapic (Spark, Flame)	Non-volatile	High	Likely to move	Persistent
Flumioxazin (Valor)	Non-volatile	Low	Non-mobile	Non persistent
Diuron	Non-volatile	Low	Slightly mobile	Moderately persistent
Hexazinone	Non-volatile	High	Slightly mobile	Persistent
Atrazine	Non-volatile	Low	Likely to move	Non persistent
Ametryne	Non-volatile	Moderate	Likely to move	Moderately persistent
Amicarbazone (Amitron)	Non-volatile	High	Likely to move	Persistent

(Sources for this article: Understanding Pre-emergent Herbicides, Mark Congreve)

MAPS WEBSITE

MAPS has updated its website! Jump on the web, search 'Mackay Area Productivity Services' and check out the new and improved MAPS webpage.

It is easy to navigate and filled with useful information and links, covering everything from our approved seed plots to pest, weed and disease management, weather stations and everything in between.

maps
mackay area productivity services

Homebush, Queenslan...
Mon, Jul 29, 2019
24°C
Sunny

HOME APPROVED SEED PLOTS PESTS, WEEDS & DISEASES NUTRITION MACHINERY INSPECTIONS BREAK CROPS IRRIGATION CONTACT GALLERY

Welcome to MAPS

MAPS is the main provider of sugarcane advice and extension for Mackay Sugar farmers. We work on most issues including: pests, diseases, weeds, varieties, nutrition, irrigation and harvesting.

Our mission is to enhance the profitability and sustainability of the sugar industry through innovative productivity programs and plant protection services.

NOTICE BOARD

Approved Seed Plots are open as of June

SMARTCANE BMP SMARTCANE BMP

WEATHER STATIONS

2019/20 VARIETY GUIDE

2019 FIELD DAY BOOKLET

Mackay Show Variety Guessing Competition Winner

MAPS organised a variety guessing competition at the Mackay Show.

Andrew Agius' entry was the first correct one drawn out of the hat.

Andrew received a Bunnings voucher as reward for his efforts.



Andrew Agius and Shane Hare (MAPS)