



Sugar Research
Australia

VARIETY GUIDE 2020/2021

Burdekin Region







HOW TO USE THIS GUIDE

*This guide is designed to help growers in the Burdekin canegrowing region with their agronomic considerations when selecting new varieties to plant and trial on their farms. The information comes from the best available data of regional variety performance and disease ratings. **The information in the tables will help you understand:***

	New & recent varieties available in the Burdekin region	4
	Smut ratings	6
	Disease resistance	7
	Variety by herbicide screening trials	8
	Harvest management	10
	Variety adoption in each mill area	11
	Sugarcane Biosecurity Zone map	12
	Propagating new varieties	13
	Planting and managing tissue-cultured plantlets in the field	14

WANT TO KNOW WHAT IS HAPPENING IN THE OTHER REGIONS?

You can find all the regional variety guides on the SRA website sugarresearch.com.au

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NEW & RECENT VARIETIES AVAILABLE IN THE BURDEKIN REGION

Variety Recommendation and Release Process

Regional Variety Committees (RVCs) are responsible for variety release decisions. Membership is drawn from growers, millers and productivity services specific to the region. SRA supports these groups with secretariat support and the provision of technical information to assist the committee making decisions on particular varieties.

RVCs are composed of voting and non-voting members to ensure transparency in the decision making process.

The Burdekin RVC (Sugarcane Biosecurity Zone 2) voting membership consists of one grower representative from Canegrowers Burdekin, Pioneer Canegrowers, Kalamia Canegrowers and Invicta Canegrowers and one miller representative from Wilmar. The Burdekin RVC requires a majority vote for progression of a variety through the breeding program and a unanimous vote for the release of a variety.

Why WSRA17[Ⓛ]?

WSRA17[Ⓛ] is the first variety to carry the 'WSRA' prefix since the naming convention for new sugarcane varieties changed in 2015.

The W represents Wilmar's contribution to the development of the variety through its early-stage breeding program. In the Burdekin, Wilmar and SRA plant breeders collaborate closely, assessing potential new varieties as they progress through to the Final Assessment Trial (FAT) stage.

The variety has shown promise in field trials and through its development, and is special to the region because both parents are commercial varieties, Q208[Ⓛ] and Tellus[Ⓛ] that originate from the Burdekin.

If you would like more information on new variety release and regional variety committees, please visit the SRA website: sugarresearch.com.au/growers-and-millers/varieties/regional-variety-committees/

SRA23 – Released 2019

SRA23 was released in 2019 and will be available in 2021. In FATs, it had yields and CCS average with the standard commercial varieties. Yields dropped off in ratoons.

Presented below are the results of Final Assessment Trials (FATs) conducted in the Burdekin region. Yield (TCH) and CCS for each new variety are compared with the trial results of various standard varieties.

Variety: SRA23		Parentage: QC82-663 X QC87-123 / Summary: Average tonnes cane; average CCS.								
TRIAL HARVEST YEAR	CROP CLASS	YIELD (TCH)				CCS				# OF HARVESTS
		SRA23	Q183 [Ⓛ]	Q208 [Ⓛ]	KQ228 [Ⓛ]	SRA23	Q183 [Ⓛ]	Q208 [Ⓛ]	KQ228 [Ⓛ]	
(2011 series FATs): 2012	Plant	124	114	109	118	15.8	16.2	15.8	15.7	4
2013	1R	94	99	97	104	16.6	16.9	16.2	16.8	4
2014	2R	111	118	122	125	16.8	16.6	16.3	17.1	4
(2013 series FATs): 2014	Plant	157	147	163	168	15.8	16	15.4	16.2	4
2015	1R	112	108	120	120	16.6	17	15.9	17.0	4
2016	2R	91	88	103	96	17.1	17.2	16.7	17.3	4
Overall performance		115	112	119	122	16.4	16.7	16.1	16.7	24
Available 2021										
Comments:		Overall, in FAT trials, SRA23 has average tonnes and average CCS compared to the average of the standards (KQ228 [Ⓛ] , Q240 [Ⓛ] , Q208 [Ⓛ] and Q183 [Ⓛ]). In trials, TCH dropped off in ratoons. It is a trashy variety and arrows profusely. SRA23 has been tested in BPS strip trials. For more information and results, please contact your local Productivity Officer. SRA23 will be available in 2021.								

Variety: WSRA17 [Ⓛ] KQ08-2180		Parentage: Q208 [Ⓛ] X Tellus [Ⓛ] / Summary: Higher tonnes cane; lower CCS								
TRIAL HARVEST YEAR	CROP CLASS	YIELD (TCH)				CCS				# OF HARVESTS
		WSRA17 [Ⓛ]	Q183 [Ⓛ]	Q208 [Ⓛ]	KQ228 [Ⓛ]	WSRA17 [Ⓛ]	Q183 [Ⓛ]	Q208 [Ⓛ]	KQ228 [Ⓛ]	
(2011 series FATs): 2012	Plant	115	114	109	118	15.4	16.2	15.8	15.7	4
2013	1R	102	99	97	104	16.0	16.9	16.2	16.8	4
2014	2R	139	118	122	125	16.1	16.6	16.3	17.1	4
(2013 series FATs): 2014	Plant	161	143	159	161	15.9	16.2	15.6	16.3	4
2015	1R	117	103	116	114	17.2	17.9	16.9	17.8	4
2016	2R	105	96	109	103	16.7	17.2	16.8	17.3	4
Overall performance		123	112	119	121	16.2	16.8	16.3	16.9	24
Available 2020										
Comments:		WSRA17 [Ⓛ] has an intermediate - susceptible smut rating. Smut rating indicates smut may be observed in this variety and will continue to be closely monitored in all trials. Intermediate-susceptible rating for pachymetra and is resistant to leaf scald. WSRA17 [Ⓛ] has been tested in BPS strip trials. For more information and results, please contact your local Productivity Officer.								

SRA23

WSRA17[Ⓛ]



For more information on
variety field trials contact:

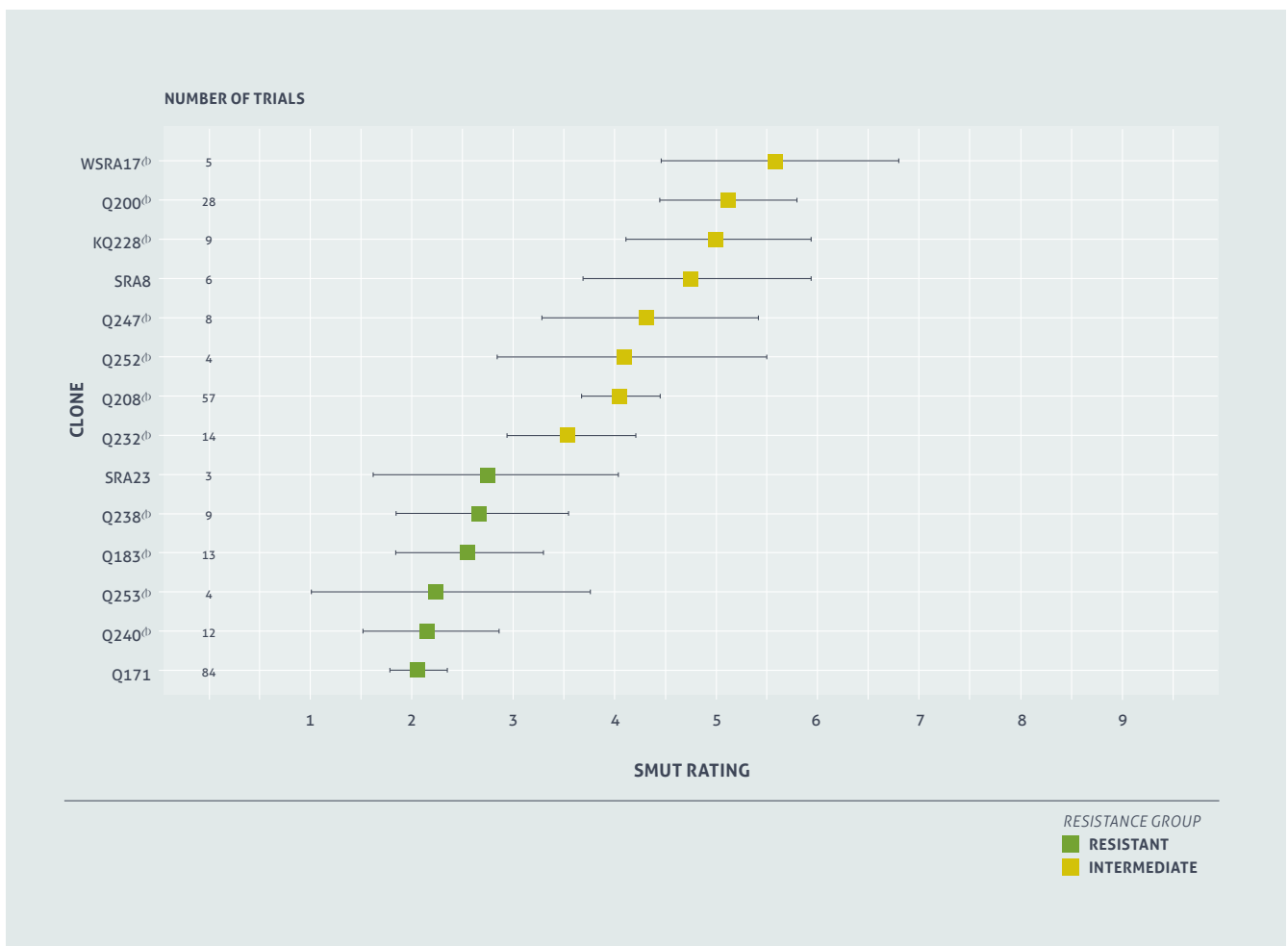
Burdekin Variety Officer
Catherine Kettle

E ckettle@sugarresearch.com.au

M 0418 879 301

SMUT RATINGS

Smut resistance ratings are calculated from the incidence and severity of infection compared to standard varieties in inoculated field trials. The graphic includes the rating and the 95% confidence interval for each variety. The confidence interval is influenced by factors such as the number of trials and the uniformity of smut infection. For example the variety Q200[Ⓛ] has been tested in 28 trials and has a narrow confidence interval from 4.4 to 5.8, while the new variety SRA23 has only been tested in three trials and ranges from 1.6 to 4.0. Rating confidence will improve as more data is collected.





DISEASE RESISTANCE

Disease has the potential to lower the performance of varieties on your farm. This table will help you select varieties that will perform well given the diseases that may be present on your farm.

Burdekin Disease Ratings										
VARIETY	SMUT	LEAF SCALD	PACHYMETRA	CHLOROTIC STREAK	ORANGE RUST	BROWN RUST	RED ROT	YELLOW SPOT	FIJI LEAF GALL	MOSAIC
SRA23	R	R	I	U	U	U	I	U	I	R
WSRA17 [Ⓛ]	I-S	R	I	U	U	U	R	U	I	R
SRA8	I	R	I-R	U	R	R	I	U	R	R
Q253 [Ⓛ]	R	R	R	U	R	I-S	I	S	S	R
Q252 [Ⓛ]	I	R	I	U	R	U	R	I	I	R
Q247 [Ⓛ]	I-R	R	R	U	R	U	R	S	R	R
Q240 [Ⓛ]	R	R	I	I-R	R	U	R	I	I-S	R
Q238 [Ⓛ]	R	R	R	S	R	R	I-R	S	I-R	R
Q232 [Ⓛ]	I-R	R	I	R	R	U	I-R	R	I	R
KQ228 [Ⓛ]	I	R	I	S	R	R	R	I	I	R
Q208 [Ⓛ]	I-R	R	I	R	R	R	R	R	I-S	R
Q200 [Ⓛ]	I	R	I	I	R	R	R	I-R	I	R
Q183 [Ⓛ]	R	I	R	S	R	R	I	I-S	R	R
Q177 [Ⓛ]	R	R	S	U	I	R	I-R	R	I-R	I-R
Q171	R	R	S	U	R	R	I	U	R	S
Q133	R	I-R	S	I-S	U	R	I	U	S	U

Rotation of varieties is important in the management of diseases. Arrange for your local productivity services officer to inspect your farm for disease. The Diseases of Australian Sugarcane Field Guide provides information on diseases including how to identify and manage them. The guide is available on the SRA website sugarresearch.com.au.

You will note that RSD resistance ratings are not included in this variety guide. Varietal resistance is not one of the three pillars of RSD disease management; growers should continue to ensure that disease-free seed cane is used to establish crops, that crops are planted into volunteer-free land and equipment is decontaminated regularly. SRA is reviewing methods for screening varieties for RSD resistance. Current ratings remain available on QCANESelect[®]. Current varieties are not immune to RSD and some yield loss can be expected in all canes.

- RESISTANT (R)
- INTERMEDIATE - RESISTANT (I-R)
- INTERMEDIATE (I)
- INTERMEDIATE- SUSCEPTIBLE (I-S)
- SUSCEPTIBLE (S)
- UNKNOWN (U)



VARIETY BY HERBICIDE SCREENING TRIALS

Sugarcane varieties are known to have variable responses to herbicides with some being more impacted than others. As a result, data outlining susceptibility is critical to optimise productivity outcomes.

Since 2014, SRA has been conducting trials following a two-step process to obtain reliable data for the susceptibility of varieties to herbicide

- a fully randomised replicated pot trial in year 1 to short list the most susceptible combinations of varieties and herbicides.
- a fully randomised replicated field trial in year 2 to confirm that the shortlisted combinations have an impact on yield.

In year 3, the two-step process starts again with new combinations of newly released varieties and herbicides.

In these trials, products are applied at their maximum label rate (and their minimum water label rate) when plant cane is at 4 to 6 leaf stage.

In the pot trials, weekly phytotoxicity ratings are conducted using the EWRC (European Weed Research Council) rating scale (Table 1) and the aerial plant dry biomass is measured 10 weeks after spraying.

In the field trials, plant cane yield is measured at harvest using a weigh truck.

In all trials, KQ228[®] is assessed and used as a reference susceptible variety to compare to other tested varieties.

Tables 2 and 3 summarise all phytotoxicity, biomass and yield results obtained in the pot and field trials from 2014 to 2020. These tables will be updated yearly to include newly tested combinations of varieties by herbicides.

TABLE 1 EWRC selectivity rating scale

NOTE	SYMPTOMS SEVERITY
1	No effect
2	Very slight effects. Some stunting and yellowing just visible
3	Slight effects. Stunting and yellowing obvious, effects reversible
4	Substantial chlorosis and or stunting, most effects probably reversible.
5	Strong chlorosis/stunting, thinning of stand. (50 % loss)
6	Increasing severity of damage (70 % loss)
7	Increasing severity of damage (85 % loss)
8	Increasing severity of damage (90% loss) a few plants survive
9	Total loss of plants and yield

TABLE 2 Summary of phytotoxicity ratings and symptoms obtained on the reference susceptible variety KQ228[®]

	2,4-D	2,4-D+ IOXYNIL	AMETRYN	AMETRYN+ TRIFLOXY SULFURON	AMICARBAZONE	ASULAM	DIURON	FLUMIOXAZIN	METOLACHLOR	METRIBUZIN	MSMA
SYMPTOM DESCRIPTION	Small white spotty discolorations	Small yellow spotty discolorations	Yellowing of the whole plant	Slight yellow blotching	Small white spotty discolorations	Bright yellow blotching	Slight yellowing of the whole plant	Large necrotic lesions	Small necrotic lesions	Slight yellowing of the whole plant	Large necrotic lesions
SYMPTOMS PICTURE		NA									
SYMPTOMS SEVERITY ON KQ228 [®]	Mild	Mild	Medium to severe	Mild	Mild	Medium	Mild	Severe	Medium	Mild	Medium to severe
KQ228 [®] PHYTO RATING RANGE	1.2 to 1.9	1.2	1.8 to 3.2	1.3	1.3 to 1.5	1.1 to 2.6	1.8	3.9 to 4.1	1.1 to 2.8	1.2 to 1.8	1.7 to 3.5
NUMBER OF TRIALS	5	1	4	1	3	5	1	2	5	5	5

■ MILD
■ MEDIUM
■ SEVERE

Table 3 presents the herbicide symptoms severity on the cane foliage on all tested varieties in a green to red scale (mild to severe symptoms due to the herbicide treatment compared to the untreated control). Table 3 also presents the cane dry biomass measured 10 weeks after spraying compared to the biomass of the untreated variety in a light to dark grey scale (slight to severe biomass reduction due to the herbicide treatment compared to the untreated control). Yield data from the field trials were also added to Table 3 and the combinations of varieties by herbicide that were tested in the field are marked with the symbols ☆ or △. Cells with ☆ indicate varieties whose

yield was reduced by less than 10% compared to the untreated control. Cells with △ indicates varieties whose yield was reduced by more than 10% compared to the untreated control (no yield loss was statistically significantly different to the untreated control at P 0.05).

Phytotoxicity symptoms and yield loss observed on-farm may vary from those reported here, as severity of symptoms, biomass and yield can vary depending on local environmental conditions (temperature, humidity, soil moisture), the condition of the crop (actively growing or stressed) and the weather conditions at the time of application, as was seen in

KQ228^ϕ's response to metolachlor ranging from mild to severe depending on the year and season it was trialled. Additionally, while visual symptoms might be seen in a range of varieties trialled, in most cases no yield loss is expected if the correct label rates are followed. However, a minor yield loss might be expected in a variety such as Q238^ϕ when applying either MSMA, metribuzin or ametryn+trifloxysulfuron. The newer WSRA17^ϕ variety is being evaluated in the 2019-20 phytotoxicity field trial to assess whether the biomass reductions observed in pot trials could translate into yield loss under field conditions.

TABLE 3 Phytotoxicity rating, biomass and yield difference compared to the untreated control of the same variety

VARIETY	2,4-D		2,4-D+ IOXYONIL		AMETRYN		AMETRYN+ TRIFLOXY-SULFURON		AMI-CARBAZONE		ASULAM		DIURON		FLUMI-OXAZIN		METOLA-CHLOR		METRIBUZIN		MSMA	
	PHYTOTOXICITY	BIOMASS/YIELD	PHYTOTOXICITY	BIOMASS/YIELD	PHYTOTOXICITY	BIOMASS/YIELD	PHYTOTOXICITY	BIOMASS/YIELD	PHYTOTOXICITY	BIOMASS/YIELD	PHYTOTOXICITY	BIOMASS/YIELD	PHYTOTOXICITY	BIOMASS/YIELD	PHYTOTOXICITY	BIOMASS/YIELD	PHYTOTOXICITY	BIOMASS/YIELD	PHYTOTOXICITY	BIOMASS/YIELD	PHYTOTOXICITY	BIOMASS/YIELD
KQ228 ^ϕ	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey
Q208 ^ϕ	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey
Q232 ^ϕ	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey
Q238 ^ϕ	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey
Q240 ^ϕ	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey
Q252 ^ϕ	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey
Q253 ^ϕ	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey
SR8	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey
WSRA17 ^ϕ	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey
SRA23	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey	Light Green	Light Grey

- NO SYMPTOMS TO MILD PHYTOTOXICITY SYMPTOMS ON FOLIAGE
- MILD PHYTOTOXICITY SYMPTOMS ON FOLIAGE
- MODERATE PHYTOTOXICITY SYMPTOMS ON FOLIAGE
- SEVERE PHYTOTOXICITY SYMPTOMS ON FOLIAGE
- ☐ COMBINATION OF HERBICIDE BY VARIETY NOT TESTED

- ☐ NO BIOMASS REDUCTION COMPARED TO UNTREATED
- SLIGHT BIOMASS REDUCTION COMPARED TO UNTREATED
- MODERATE BIOMASS REDUCTION COMPARED TO UNTREATED
- SEVERE BIOMASS REDUCTION COMPARED TO UNTREATED
- ☆ COMBINATION OF HERBICIDE BY VARIETY TESTED IN FIELD TRIALS < 10% COMPARED TO UNTREATED
- △ COMBINATION OF HERBICIDE BY VARIETY TESTED IN FIELD TRIALS > 10% COMPARED TO UNTREATED

For more information contact:
 Senior Researcher
 Emilie Fillols
 T 07 4056 4510

HARVEST MANAGEMENT

Select varieties for a harvest plan that can be followed to maintain maximum CCS throughout the year. The charts below indicate early, mid or late sugar varieties.

Burdekin Harvest Management				
VARIETY	EARLY SUGAR	MID SUGAR	LATE SUGAR	LODGING TOLERANCE
SRA23	Unknown	Unknown	Unknown	Unknown
WSRA17 [Ⓛ]	Average	Average	Average	Average
SRA8	Good	Good	Good	Average
Q253 [Ⓛ] (harvest mid-late season for optimal maturity)	Poor	Poor	Poor	Unknown
Q252 [Ⓛ]	Average	Good	Good	Average
Q247 [Ⓛ]	Average	Average	Average	Unknown
Q240 [Ⓛ]	Average	Average	Average	Average
Q238 [Ⓛ]	Poor	Poor	Poor	Good
Q232 [Ⓛ]	Poor	Poor	Poor	Average
KQ228 [Ⓛ]	Good	Good	Average	Average
Q208 [Ⓛ]	Average	Good	Good	Average
Q200 [Ⓛ]	Poor	Average	Good	Average
Q183 [Ⓛ]	Average	Good	Good	Good
Q177 [Ⓛ]	Average	Average	Average	Average
Q171	Good	Average	Average	Average
Q133	Poor	Poor	Average	Average

Maximise your profit at harvest:

Selecting varieties for specific sugar maturity profiles, planting and harvesting them for optimal CCS maturity can make a significant difference in the profit your crop can make for you. Making harvest decisions based on in-field maturity maximises profit making decisions.

■	GOOD
■	AVERAGE
■	LOW
■	POOR
■	UNKNOWN

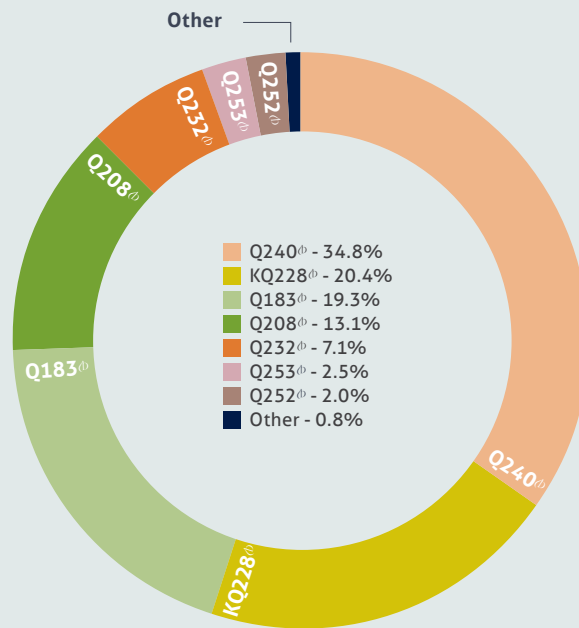


VARIETY ADOPTION IN BURDEKIN

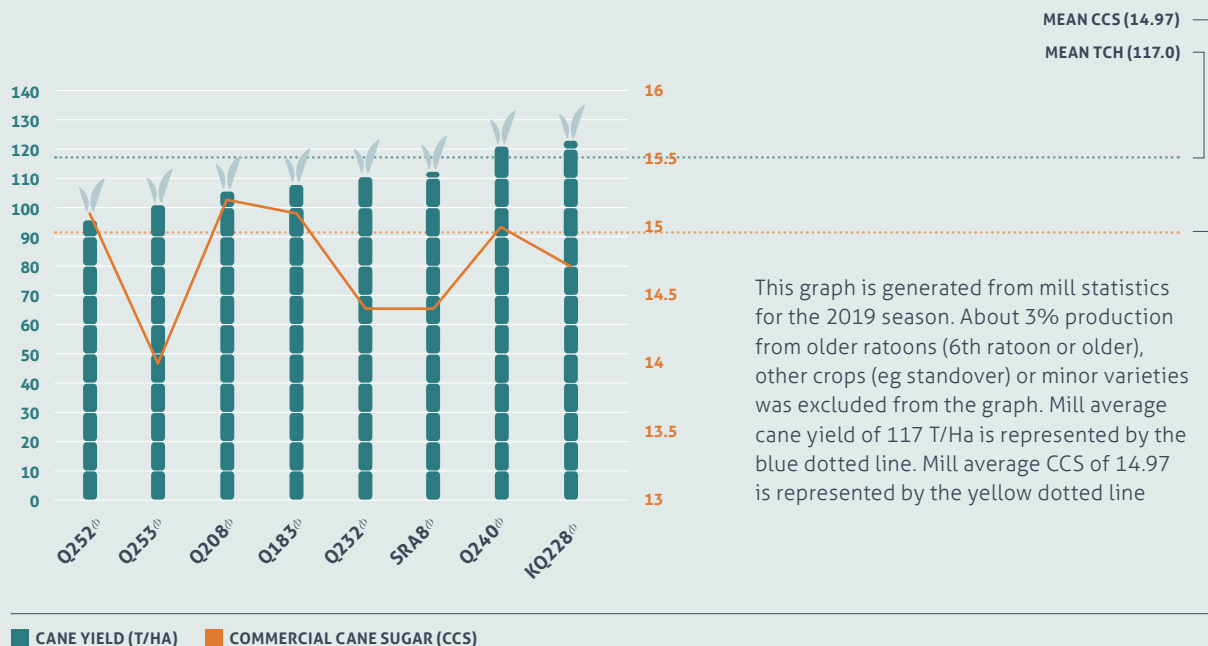
Data below can be found in QCANESelect® under the regional reporting tab. Use this information to assess yield performance of varieties over a number of years. Caution should be taken when comparing commercial performance of newer varieties (from plant and young ratoons) to older/ established varieties (which include older ratoons).

Burdekin (% TONNES 2019)

In 2019, 7,896,529 tonnes were cut over 67,700 ha with an average of 117 TCH. The average season CCS was 14.97. Almost 35% of the crop was Q240[®]. This was up from 29% in 2018 and 22% in 2017. Q183[®] has dropped from 30% in 2017 to 19% in 2019. KQ228[®] increased from 18.9% to 20.4% of production in 2019.



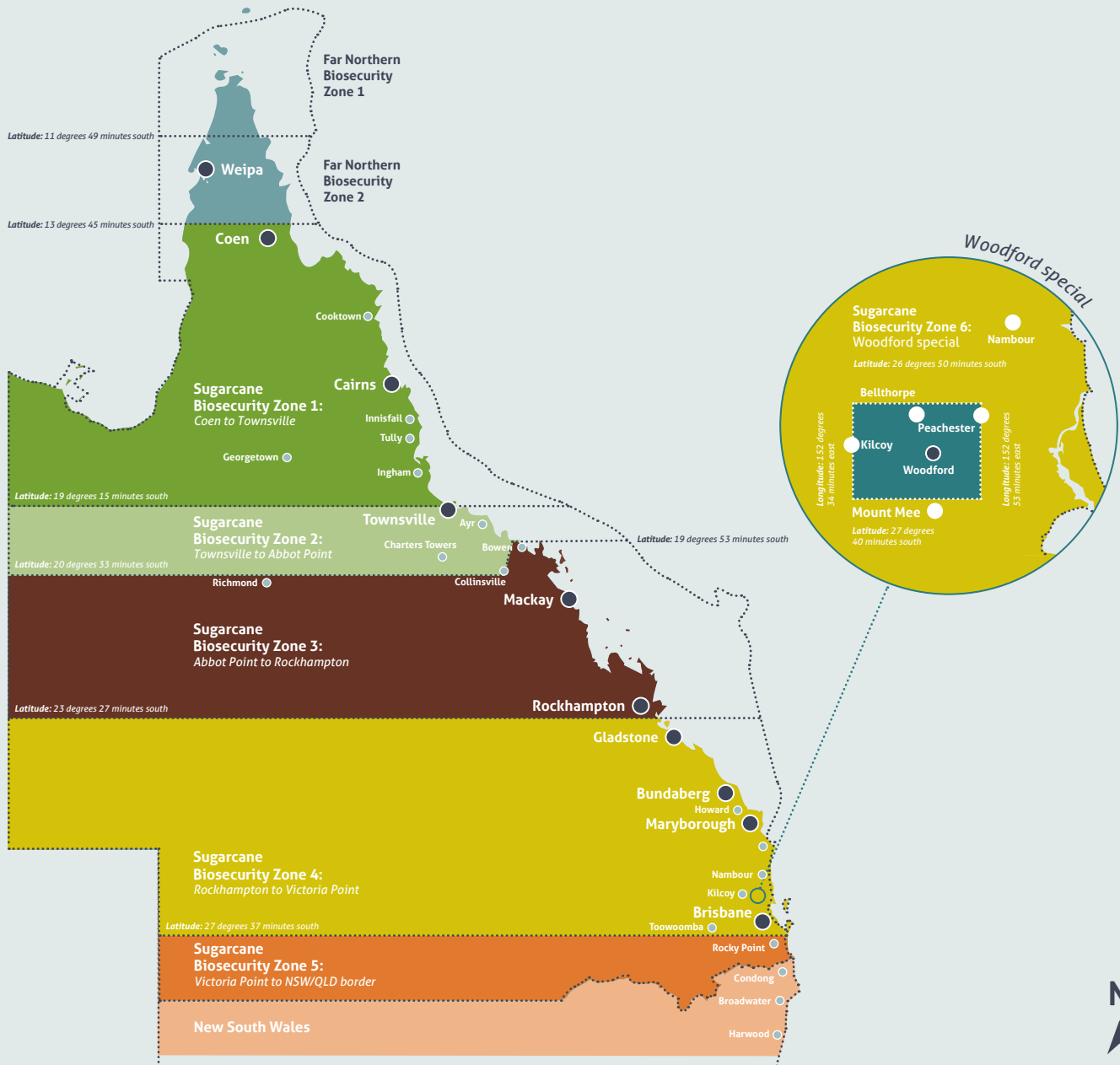
YIELD INFORMATION



This graph is generated from mill statistics for the 2019 season. About 3% production from older ratoons (6th ratoon or older), other crops (eg standover) or minor varieties was excluded from the graph. Mill average cane yield of 117 T/ha is represented by the blue dotted line. Mill average CCS of 14.97 is represented by the yellow dotted line



SUGARCANE BIOSECURITY ZONE MAP



- All appliances (harvesters and other sugarcane machinery) moving between sugarcane biosecurity zones must:
 - > be free of cane trash and soil
 - > be inspected by an authorised inspection person who will issue a Plant Health Assurance Certificate (PHAC)
 - > be accompanied during transportation by the PHAC.
- Machinery moving from NSW to Qld requires a Plant Health Certificate issued by NSW Department of Primary Industries.
- Machinery inspections can be arranged by contacting the local Productivity Service organisation.
- To move sugarcane plants (stalks, leaves, potted plants, etc) between biosecurity zones contact Biosecurity Queensland (13 25 23).



PROPAGATING NEW VARIETIES

Contact your local productivity services group for regional advice on varieties. They can supply clean planting material of recommended varieties and place orders for tissue culture plantlets.



Burdakin Productivity Services Ltd (BPS):
T 07 4783 1101

Billet planting



PLANT MATERIAL FROM AN APPROVED SEED SOURCE

Approved-seed provides cane growers with disease-free seed of varieties that are true-to-type. Disease-free seed (stalks, billets, setts or tissue culture plantlets used for planting) is a key control measure for systemic diseases of sugarcane, including chlorotic streak, Fiji leaf gall, leaf scald, mosaic, ratoon stunting disease (RSD) and smut. Provision of disease-free or approved-seed in each mill area in the Australian sugar industry is coordinated by SRA, in cooperation with the local productivity services group. SRA provides a disease-free supply of DNA fingerprinted new varieties. The local productivity services group multiplies the new varieties, maintaining the disease-free status and distributes the approved-seed to growers.



GROW SUGARCANE SPECIFICALLY FOR PLANTING MATERIAL

The block selected for growing plant material should be disease-free, weed-free and sugarcane volunteer-free. When selecting cane for planting material the cane should be less than one year old, erect and free from damage. Plan for two or more eyes per sett when harvesting for billets or stick planting. For non-irrigated regions plants should be well watered, have adequate nutrition immediately prior to harvest for billet planting. For irrigated regions you may need to reduce fertiliser rates, withhold irrigation or plant late in the season. The cane should also have originated from an approved seed plot and therefore be no more than three years away from long hot water treatment.

The best "whole farm" disease risk minimisation and productivity strategies can be achieved through consistent access to clean seed. It is highly recommended that cane considered for use as planting material be RSD tested well in advanced of harvest so an informed choice can be made prior to planting.



SET UP THE HARVESTER FOR CUTTING HIGH QUALITY SOUND BILLETS

Rubber coating rollers and optimising the roller speeds to chopper speed will produce good quality billets with minimal split or crushed ends and damaged eyes. Reduce the speed of harvesting and maintain sharp basecutter and chopper blades for clean cutting. Disinfect the machinery used to cut and plant new varieties to limit the spread of disease and weeds.

Tissue culture



CALCULATE HOW MUCH TISSUE CULTURE TO ORDER

We've made it easier with our online tissue culture calculator. It demonstrates the speed at which large quantities of planting material can be produced from a set number of plantlets or for a set cost. Below is a look-up table including common results from the calculator (available at sugarresearch.com.au/calculator).



TRY TISSUE CULTURE AS AN APPROVED CLEAN SEED SOURCE

Tissue culture is an excellent source of clean seed for all varieties and can help reduce the spread of serious diseases such as RSD, smut and Fiji leaf gall. Tissue-cultured plantings are more uniform and produce more sticks than conventional plantings so larger quantities of planting material are achieved the following year. This means earlier commercial-scale production of more productive new varieties can be achieved when using tissue culture.

STAGE	ORDER DEADLINE FOR SPRING PLANTING	ORDER DEADLINE FOR AUTUMN PLANTING
Grower finalises order. Productivity services group places order with SRA.	15 November	1 July
Productivity services group receives established plantlets from nursery and distributes to growers.	Delivery on agreed date between grower, productivity services group and nursery. Available in August.	Delivery on agreed date between grower, productivity services group and nursery. Available in March.

ESTIMATED COST AND TIME TO SCALE UP NEW VARIETY PRODUCTION USING TISSUE CULTURE

	No. plantlets ordered	100	250	500	1000
Yr 1	Approximate cost	\$150	\$375	\$750	\$1500
	M row planted @ 0.8m	80	200	400	800
Yr 2	M row available for planting	2400	6000	12000	24000
	Ha avail for planting @ 1.8m	0.4	1.1	2.2	4.3

For more information on *tissue culture*, contact:

SRA Tissue Culture Manager Clair Bolton E cbolton@sugarresearch.com.au T 07 3331 3374

PLANTING AND MANAGING TISSUE-CULTURED PLANTLETS IN THE FIELD

Planting

- Prepare soil to a fine tilth to ensure good soil/root contact.
- A seedling planter can be used if one is available, although hand planting small numbers is not a huge job. Plant them deep at the bottom of a drill to prevent stool tipping.
- Fill in after early growth.
- Plant the plantlets 500 mm to 1 m apart. A good distance is 800 mm, which will allow tillering to produce a high number of sticks.

Irrigating

- Provision of water is the most critical factor for the successful establishment of tissue culture plantlets.
- Irrigate plantlets immediately after planting and monitor them to ensure they don't dry out over the first three weeks to get the roots well established.
- If you do not have access to flood or sprinkler irrigation a simple irrigation system can be set up using cheap drip tape and an in-line filter hooked up to your garden tap or water tanker.

Insects

- If you expect problems with insects then an application of an insecticide drench (such as chlorpyrifos or imidacloprid) at planting will protect the young plantlets.
- In canegrub-prone areas use your standard grub control treatment.

Fertiliser

- Fertiliser requirements of the tissue cultured plantlets are the same as for billet plantings.
- If possible, plant with a planter mix to maintain good early growth, and side-dress later to avoid fertiliser burn.

Weeds

Weed control is important for good establishment and growth.

- Ideally pre-irrigate the soil to germinate weeds, then apply a knock-down herbicide or cultivate just prior to planting to reduce the weed pressure on young plantlets.
- Allow at least one week after planting before applying pre-emergent herbicides, longer if planted into cold, wet soils, as the root system needs time to establish:
 - > Atradox® at 2.5 kg/ha plus Dual Gold® at 1.5 L/ha has been successfully applied over the top, for grass and broadleaf weed control.
 - > Do not use diuron as young plantlets are sensitive to this product.
- Sempra® at 100 g/ha plus Activator at 200 mL/100 L for nutgrass. Both applications were sprayed over the top for nutgrass control.
- Do not use paraquat unless you have no other option and only on established plantings.

QCANESelect®

- Using sugarcane varieties that are best-suited to your farm may help maximise productivity and profitability.
- QCANESelect® is an online tool that allows you to review, compare and select varieties for use on each block on your farm.
- To access QCANESelect® and the tissue culture calculator visit the SRA website sugarresearch.com.au
- The information in QCANESelect® is updated regularly based on our most recent trials and from observations and experiences of varieties that are growing in the field.
- Once you have identified the best varieties for planting on your farm, contact your local productivity services group to place orders for tissue-cultured plantlets.





Sugar Research Australia Limited

ABN 16 163 670 068

Brisbane Office 50 Meiers Road, Indooroopilly QLD 4068 Australia

Postal Address PO Box 86 Indooroopilly QLD 4068 Australia

T 07 3331 3333

E sra@sugarresearch.com.au

sugarresearch.com.au

