Sugar Research Australia

VARIETY GUIDE 2024/2025

Burdekin Region

HOW TO USE THIS GUIDE

This guide is designed to help growers in the Burdekin cane growing 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 on the following pages will help you understand:***

WANT TO KNOW WHAT IS HAPPENING IN THE OTHER REGIONS?

You can find all the regional variety guides on the SRA website.
Visit sugarresearch.com.au or scan the QR code.

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NEW AND RECENT VARIETIES AVAILABLE IN THE BURDEKIN REGION

Variety Recommendation and Release Process

Regional Variety Committees 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 varieties.

RVC 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 representative from CANEGROWERS Burdekin, Kalamia Cane Growers, AgForce, QCAR and one miller representative from Wilmar Sugar.

WSRA17Φ

WSRA17Φ was released in 2018. The "W" recognises 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 Final Assessment Trial (FAT) stage.

WSRA17Φ has a similar appearance to Q208Φ. It has higher tonnes and average CCS (Commercial Cane Sugar) to Q208Φ. In 2023, 317,405 tonnes (4% of the crop) of WSRA17Φ were delivered to mills with an average of 140 total cane yield per hectare (TCH) and CCS of 14.08. (Mill average was 14.75.)

SRA23Φ

SRA23Φ was released in 2019. In FAT trials, yields and CCS were on a par as the standard commercial varieties. Yields did drop off in ratoons. SRA23Φ was planted into Burdekin Productivity Services' (BPS) strip trials. For further information on these trials, please contact BPS direct.

In 2023, 101,378 tonnes (1.3%) of SRA23Φ was delivered to the mill with an average of 140 TCH and CCS of 13.87.

SRA32Φ

SRA32Φ was released in 2021 and is from the Smutbuster program. SRA32Φ is a vigorous, high tonnes, low CCS variety. Approved seed is available from BPS.

If you would like more information on new variety releases and regional variety committees, visit the SRA website: ***sugarresearch.com.au or scan the QR code.***

Presented below and over the page 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: SRA32Φ		***Parentage:*** *QN80-3425 X QN86-2168* **/** ***Summary:*** *High tonnes, low CCS.*										
TRIAL HARVEST YEAR	**CROP CLASS**	**YIELD (TCH)**					**CCS**					**# OF TRIALS**
		SRA32Φ	**KQ228Φ**	**Q183**	**Q208Φ**	**Q240Φ**	**SRA32Φ**	**KQ228Φ**	**Q183**	**Q208Φ**	**Q240Φ**	
(2015 series FATs): 2016	Plant	171	158	142	153	151	14.5	16.0	15.5	15.3	15.1	3
2017	1R	156	139	125	140	131	15.9	16.5	16.1	16.4	15.8	3
2018	2R	113	106	90	106	96	17.3	18.4	18.1	18.0	18.3	3
(2017 series FATs): 2018	Plant	152	151	128	144	148	15.7	17.0	16.9	16.7	16.6	4
2019	1R	137	132	121	122	126	16.8	17.5	17.8	17.6	17.1	4
2020	2R	129	107	105	104	108	17.2	17.8	17.9	17.5	17.3	3
Overall performance		**143**	**133**	**119**	**129**	**128**	**16.2**	**17.2**	**17.1**	**16.9**	**16.7**	**20**
Comments		SRA32Φ is a vigorous, high tonnes variety. In FAT trials, TCH was statistically significantly higher in 13/20 harvests and yielded 16 more TCH than the average of the standards. CCS was 0.8 unit lower than the average of the standards. SRA32Φ has an Intermediate rating for smut that has been observed in SRA plots. Preliminary herbicide phytotoxicity results for SRA32Φ flagged some issues. Results are available in this guide. SRA32Φ lodges readily and some stool tipping has been noted. SRA32Φ also has large eyes and side shoots and because of vigorous growth,the internodes are long and may be difficult for billet planting. SRA32Φ will require additional management for seed cane production. Contact BPS for more information.										

For more information on *variety field trials* contact:
SRA Burdekin Variety Officer **Catherine Kettle** **E** ckettle@sugarresearch.com.au **M** 0418 879 301

HARVEST MANAGEMENT

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

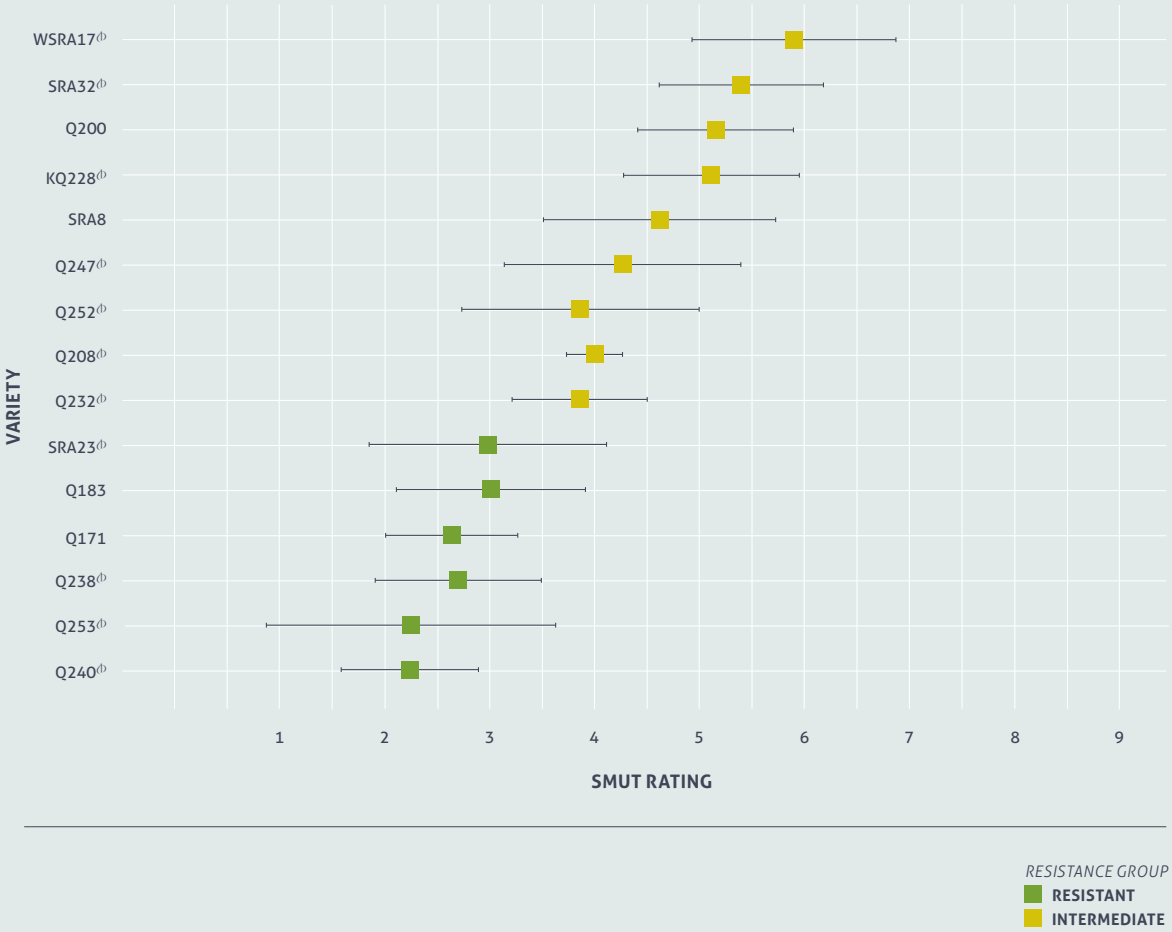
Burdekin Harvest Management					
VARIETY		EARLY SUGAR	MID SUGAR	LATE SUGAR	LODGING TOLERANCE
SRA32ф	Based on FAT data	Poor	Poor	Poor	Poor
SRA23ф	Based on limited mill data	Average	Good	Unknown	Average
WSRA17ф	Based on limited mill data	Average	Average	Average	Average
SRA8		Good	Good	Good	Average
Q253ф	Harvest mid-late season for optimal maturity)	Poor	Poor	Poor	Average
Q252ф		Average	Good	Good	Average
Q247ф		Average	Average	Average	Average
Q240ф		Average	Average	Average	Average
Q238ф		Poor	Poor	Poor	Good
Q232ф		Poor	Poor	Poor	Average
KQ228ф		Good	Good	Average	Average
Q208ф		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, and 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

SMUT RATINGS

Smut resistance ratings are calculated from the incidence and severity of infection compared to standard varieties in inoculated field trials. The graphic below 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. 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										
CLONE	SMUT	LEAF SCALD	PACHYMETRA	CHLOROTIC STREAK	ORANGE RUST	BROWN RUST	RED ROT	YELLOW SPOT	FIJI LEAF GALL	MOSAIC
SRA32Φ	I	R	I	U	U	U	I	U	I-S	R
SRA23Φ	R	R	I	U	U	U	I	U	I	R
WSRA17Φ	I-S	R	I	U	U	U	R	U	I	R
SRA8	I	R	I-R	U	R	R	I	U	R	R
Q253Φ	R	R	R	U	R	I-S	I	S	S	R
Q252Φ	I-R	R	I	U	R	U	R	I	I	R
Q247Φ	I-R	R	R	U	R	U	R	S	R	R
Q240Φ	R	R	I	I-R	R	U	R	I	I-S	R
Q238Φ	R	R	R	S	R	R	I-R	S	I-R	R
Q232Φ	I-R	R	I	R	R	U	I-R	R	I	R
KQ228Φ	I	R	I	S	R	R	R	I	I	R
Q208Φ	I-R	R	I	R	R	R	R	R	I-S	R
Q200	I	R	I	I	R	R	R	I-R	R	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

Rotation of varieties for each crop cycle 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.
Visit sugarresearch.com.au or scan the QR code.

You will note that Ratoon Stunting Disease (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 approved seed cane is used to establish crops, that crops are planted into volunteer-free land and the equipment is decontaminated regularly.

No sugarcane varieties are resistant to RSD: they can all become infected, suffer yield losses, and further spread the disease.

Some varieties are more sensitive to RSD and carry significantly higher levels of the bacteria. In situations where RSD is a high risk and hygiene measures are not guaranteed, it may be appropriate to avoid varieties such as KQ228Φ and Q253Φ.

- 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 conducted trials following a two-step process to obtain reliable data for the susceptibility of varieties to herbicide. This process is:

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

In year three, 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 four- to six-leaf stage.

In the pot trials, weekly phytotoxicity ratings are conducted using the European Weed Research Council (EWRC) 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$^{(f)}$ is assessed and used as a susceptible reference variety to compare to other tested varieties.

Table 2 describes the phytotoxicity symptoms obtained on KQ228$^{(f)}$ and their expected severity. All varieties present identical symptoms but their severity may vary between varieties.

Tables 3, 4 and 5 summarise all phytotoxicity, biomass and yield results obtained in the pot and field trials from 2014 to 2022.

These tables are updated yearly to include newly tested combinations of varieties by herbicides.

For more information contact:
Emilie Fillols, Weed Scientist
T 07 4056 4510

TABLE 1. EWRC selectivity rating scale

SCORE	SELECTIVITY
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$^{(f)}$

	2,4-D	AMETRYN	AMETRYN+ TRIFLOXY SULFURON	AMICARBAZONE	ASULAM	DIURON	FLUMIOXAZIN	METOLACHLOR	METRIBUZIN	MSMA
DESCRIPTION OF SYMPTOMS	Small white 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
PHOTOGRAPH OF SYMPTOMS										
SYMPTOM SEVERITY ON KQ228$^{(f)}$	Mild	Medium to severe	Mild	Mild	Medium	Mild	Severe	Medium	Mild	Medium to severe
KQ228$^{(f)}$ PHYTO RATING RANGE										
	1.2 to 2.3	1.8 to 3.2	1.3	1.3 to 1.8	1.1 to 2.6	1.8 to 2.0	3.9 to 4.1	1.1 to 2.8	1.2 to 2.0	1.7 to 3.8

TABLE 3. Herbicide symptoms severity on the cane foliage for all testing varieties. (Legend: Refer to Table 1 (left) Page 8)

VARIETY	2,4-D	AMETRYN	AMETRYN+ TRIFLOXY-SULFURON	AMI-CARBAZONE	ASULAM	DIURON	FLUMIOXAZIN	METOLACHLOR	METRIBUZIN	MSMA
KQ228Φ	**1.6**	**1.9**	**1.7**	**1.3**	**1.9**	**1.3**	**3.6**	**2.1**	**1.5**	**3.0**
Q208Φ	1.5		1.6		1.8			2.0	1.4	2.9
Q232Φ	1.6		1.8		1.9			2.2	1.6	3.0
Q238Φ	1.7		1.8		2.0			2.3	1.6	3.1
Q240Φ	1.6		1.7		1.8			2.1	1.5	2.9
Q252Φ	1.6		1.7		1.8			2.1	1.5	3.0
Q253Φ	1.7		1.8		1.9			2.2	1.6	3.0
SRA8	1.6	1.9		1.3	1.8		3.6	2.1	1.5	3.0
WSRA17Φ	1.4	1.7		1.1	1.6		3.4	1.9	1.3	2.7
SRA23Φ	1.7	2.0		1.4	2.0	1.4		2.2	1.6	3.1
SRA32Φ	1.5	1.8		1.2	1.8	1.3		2.1	1.5	2.9

The predicted EWRC scores and associated colour code are presented for each tested combination of herbicides by variety. The predicted EWRC scores is derived from the average EWRC scores for each trial series, using KQ228Φ as a reference variety, in an attempt to harmonise trial variations as symptom severity can vary between trials: weather conditions at application, and/or during the trial can alter cane growth and herbicide response. Predicted EWRC scores are derived from average EWRC scores across the 10-week assessment period, which means higher symptoms intensity and scores could have been observed during the assessment period.

TABLE 4. Percentage sugarcane dry biomass reduction in the pot trial (10 weeks after spraying) compared to the untreated control. (Legend: bottom of page)

VARIETY	2,4-D	AMETRYN	AMETRYN+ TRIFLOXY-SULFURON	AMI-CARBAZONE	ASULAM	DIURON	FLUMIOXAZIN	METOLACHLOR	METRIBUZIN	MSMA
KQ228Φ	**-19%**	**-46%**	**-55%**	**-15%**	**-16%**	**-14%**	**-36%**	no reduction	**-25%**	**-21%**
Q208Φ	-29%		-33%		-12%			-51%	-21%	-50%
Q232Φ	-13%		-42%		-26%			-33%	-13%	-33%
Q238Φ	-40%		-34%		-62%			-35%	-32%	-39%
Q240Φ	-36%		-28%		-41%			-7%	-21%	-37%
Q252Φ	-38%		-11%		no reduction			-6%	-20%	-26%
Q253Φ	-29%		-49%		-52%			-18%	-51%	-54%
SRA8	no reduction	-2%		no reduction	no reduction		-42%	no reduction	no reduction	no reduction
WSRA17Φ	-8%	-60%		-74%	-8%		-71%	-44%	no reduction	-47%
SRA23Φ	-25%	-27%		-12%	-57%	-21%		-4%	-21%	-56%
SRA32Φ	-84%	-41%		-36%	-134%	-61%		-32%	-46%	-53%

The predicted biomass reduction in the pot trials is represented in a green-to-red scale. The predicted biomass reduction is derived from the biomass reduction for each trial series, using KQ228Φ as the reference variety, in an attempt to harmonise trial variations: weather conditions at application, and/or during the trial can alter cane growth and herbicide response. Predicted biomass reduction compared to the untreated control is indicated in the table. The derived predicted biomass reduction values differ from the observed biomass reduction values in each trial series and should only be used as indicators to compare the severity of the treatments on cane growth across all varieties (in some cases the predicted values exceed 100% biomass reduction. It does not mean the death of the treated plant). Severe biomass reductions recorded 10 weeks after spraying are typical, as the plant metabolism has just been diverted into detoxifying the applied herbicide to the detriment of its growth. Usually yield loss by harvest time is less severe as the plant has had more time to recover from its growth delay.

TABLE 5. Percentage yield reduction in the field trial (at harvest) compared to the untreated control. (Legend: bottom of page)

The predicted yield reduction in the field trials is represented in a green-to-red scale. The predicted yield reduction is derived from the yield reduction for each field trial series. The percentage value compared to the untreated is indicated in the table (a negative value indicates a yield reduction compared to the untreated).

VARIETY	2,4-D	AMETRYN	AMETRYN+ TRIFLOXY-SULFURON	AMI-CARBAZONE	ASULAM	DIURON	METO-LACHLOR	METRI-BUZIN	MSMA
KQ228Φ	**-1%**	-14%		-11%	no reduction	-6%	-3%	no reduction	no reduction
Q232Φ			-9%				no reduction	-4%	no reduction
Q238Φ		no reduction	-15%				-3%	-8%	-27%
WSRA17Φ	-8%	-9%		-25%	no reduction	no reduction			

Legend

% VALUE = BIOMASS/YIELD REDUCTION (-%) OR GAIN (+%) IN THE POT/FIELD TRIAL COMPARED TO THE UNTREATED

COMBINATION OF HERBICIDE BY VARIETY NOT TESTED

SLIGHT BIOMASS/YIELD REDUCTION IN POT/ FIELD TRIAL COMPARED TO UNTREATED

SEVERE BIOMASS/YIELD REDUCTION IN POT/ FIELD TRIAL COMPARED TO UNTREATED

NO BIOMASS/YIELD REDUCTION IN POT/ FIELD TRIAL COMPARED TO UNTREATED

MODERATE BIOMASS/YIELD REDUCTION IN POT/FIELD TRIAL COMPARED TO UNTREATED

VARIETY ADOPTION IN THE BURDEKIN

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 DISTRICT PRODUCTION (% TONNES 2023)

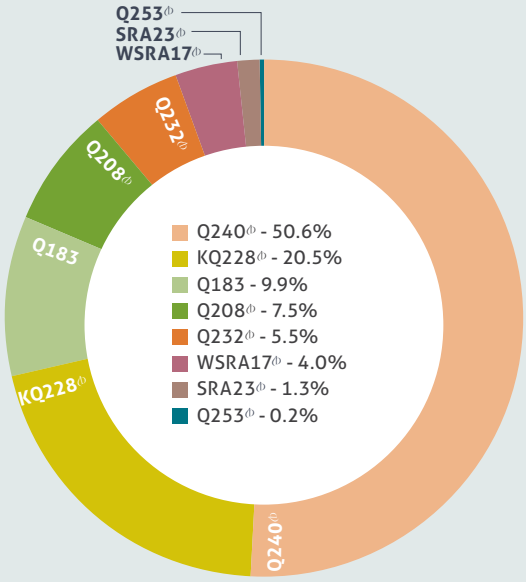
The Burdekin District cut 8.03m tonnes from 68091ha in the 2023 season.

For the 2023 season, the Burdekin region had an average TCH of 118.

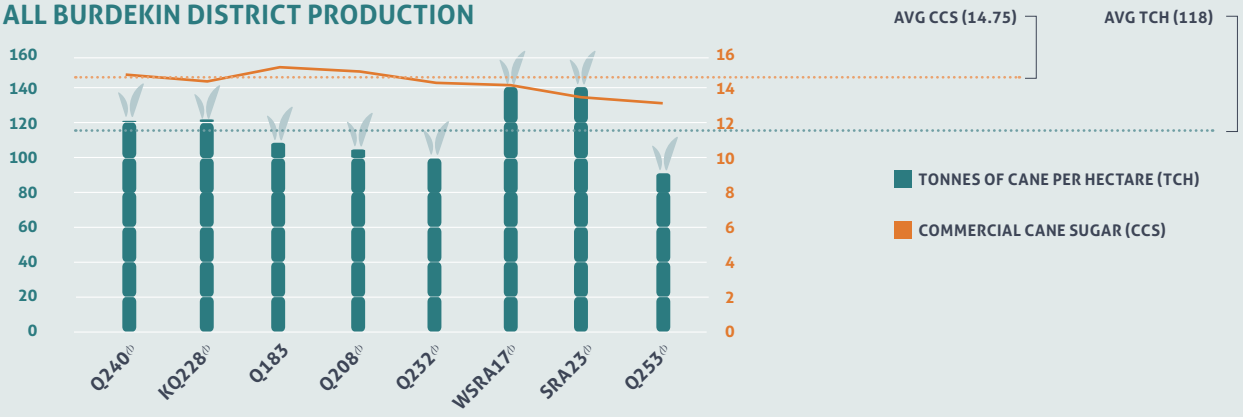
Average CCS for 2023 was 14.75.

Q240Φ was the dominant variety comprising 50% of total tonnes harvested.

For the more recently released varieties, 317 405 tonnes of WSRA17Φ were delivered with an average of 140 TCH and CCS of 14.08; 101 378 tonnes of SRA23Φ were delivered with an average of 140 TCH and CCS of 13.87.



ALL BURDEKIN DISTRICT PRODUCTION



VARIETY PERFORMANCE TONNES OF SUGAR/HA (TSH), BY SOIL TYPE IN THE BRIA AND DELTA.

Reading the TSH plot diagrams

Plots below show variety performance (TSH) for the major soil classes detailed in Wilmar Farm maps for the 2022 season. While 2023 seasonal data is unavailable, it's likely this performance data would follow a similar trend to 2022.'

Information on the soil classes for your farm is available on the Wilmar Grower Portal.

In the plots, a dot represents the average TSH; the size of the dot represents total production for that variety; the length of the line through the dot measures the variation of TSH.

A short line means that all growers produced similar TSH; a longer line indicates that TSH varied across growers.

Variety TSH is ranked on each soil type and in the BRIA and Delta areas. A ranking of "1" is the top performing variety on that soil type. In some cases where the varietal performance is similar, the ranking will be the same.

When looking at the information, keep in mind the amount of tonnes being produced (the size of the dot). Very small tonnes may skew results. Details on the tonnes produced on each soil class are in the adjoining table.

For more information, please contact SRA or BPS.

Cracking Clay

In 2022, total production was 2.85m tonnes (34.8%).

RANK AT BRIA

VARIETY	RANK
KQ228ф	1
Q240ф	2
Q183	3
Q232ф	3
Q208ф	4

MEAN TSH OVER PLANT AND 3 RATOON CROPS

RANK AT DELTA

VARIETY	RANK
Q240ф	1
KQ228ф	2
Q183	2
Q208ф	3
Q232ф	4

Sandy Loam Sodic Clay

In 2022, total production was 1.33m tonnes (16.3%).

RANK AT BRIA

VARIETY	RANK
Q240ф	1
KQ228ф	2
Q183	3
Q208ф	3
Q232ф	3

MEAN TSH OVER PLANT AND 3 RATOON CROPS

RANK AT DELTA

VARIETY	RANK
Q240ф	1
KQ228ф	2
Q183	3
Q208ф	3
Q232ф	4

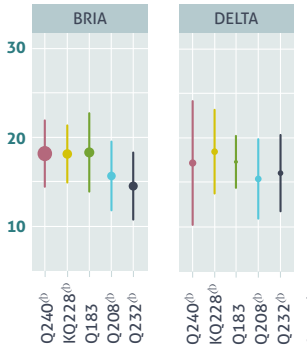
Sandy Loam Earthy Clay

In 2022, total production was 0.96 m tonnes (11.7%).

RANK AT BRIA

VARIETY	RANK
KQ228ф	1
Q240ф	2
Q183	2
Q208ф	3
Q232ф	4

MEAN TSH OVER PLANT AND 3 RATOON CROPS



RANK AT DELTA

VARIETY	RANK
KQ228ф	1
Q240ф	2
Q183	2
Q208ф	3
Q232ф	3

Non-cracking Clay Loam

In 2022, total production was 2.7m tonnes (33.6%).

RANK AT BRIA

VARIETY	RANK
Q240ф	1
KQ228ф	1
Q208ф	1
Q183	2

MEAN TSH OVER PLANT AND 3 RATOON CROPS

RANK AT DELTA

VARIETY	RANK
Q240ф	1
KQ228ф	1
Q183	2
Q208ф	3
Q232ф	3

SOIL TYPE	VARIETY	BRIA	DELTA
CRACKING CLAY	Q240ф	790,983	606,230
	Q183	298,266	96,049
	Q232ф	199,759	129,760
	Q208ф	106,314	94,978
	KQ228ф	29,186	411,838
	WSRA17ф	19,480	32,296
	Q253ф	15,578	9,060
SANDY LOAM EARTHY CLAY	Q240ф	398,051	58,826
	Q183	124,860	4,263
	KQ228ф	124,767	36,761
	Q208ф	97,777	26,965
	Q232ф	50,402	16,007
	WSRA17ф	14,409	1,461
	Q253ф	337	

SOIL TYPE	VARIETY	BRIA	DELTA
SANDY LOAM SODIC CLAY	Q240ф	720,197	67,946
	Q183	161,713	10,603
	Q208ф	120,619	6,247
	Q232ф	116,767	18,392
	KQ228ф	73,839	13,679
	WSRA17ф	17,481	228
	Q253ф	2,193	1,789
NON-CRACKING CLAY LOAM	Q240ф	83,181	897,509
	Q183	26,100	181,332
	KQ228ф	12,754	1,115,920
	Q208ф	12,643	242,280
	WSRA17ф	6,597	52,458
	Q232ф	1,410	93,591
	Q253ф		3,960

APPROVED PLANTING AND RATOONING/RATOONING ONLY LIST

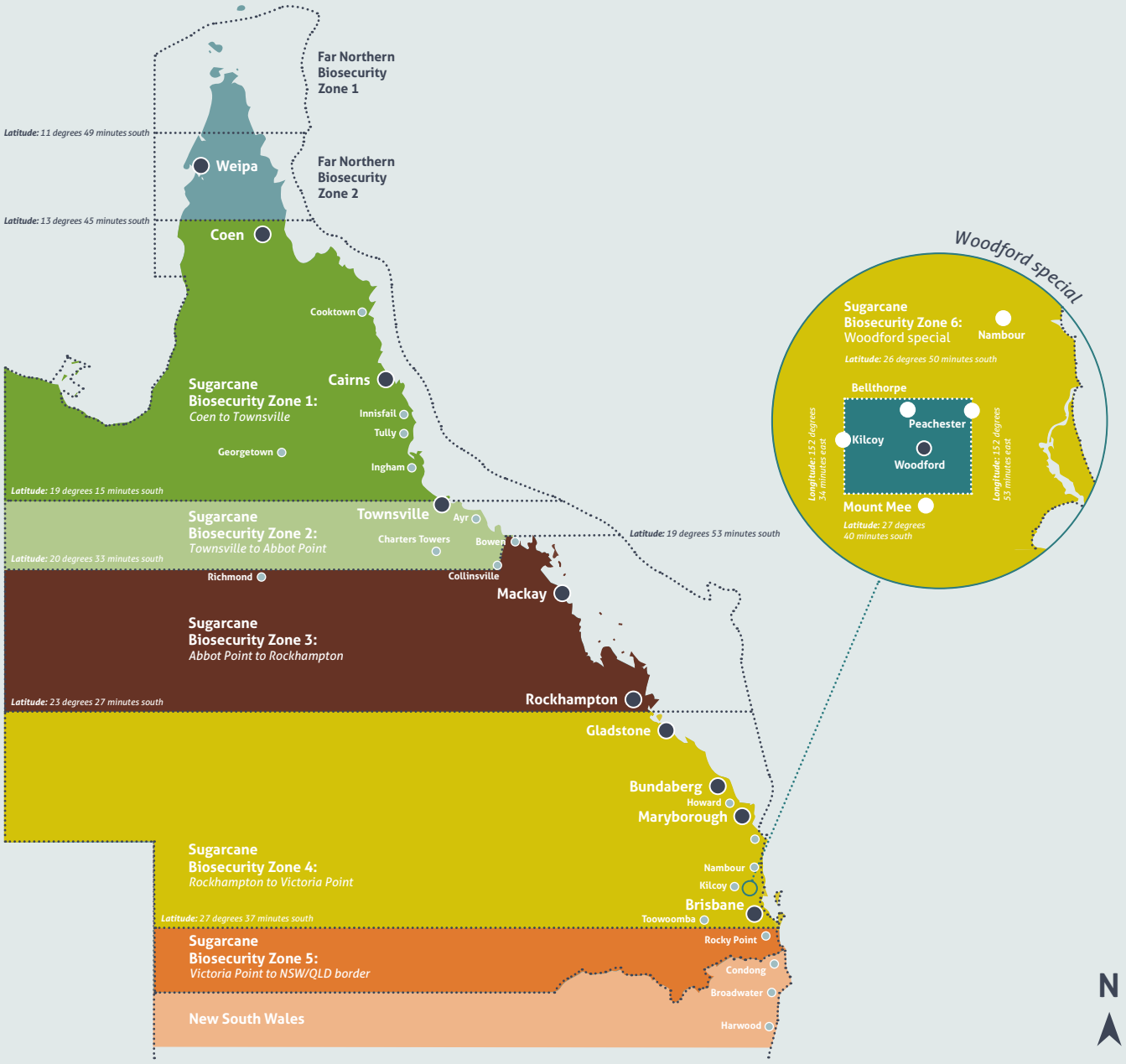
All varieties in the Burdekin Approved "Planting and Ratooning" list meet the disease threshholds for the region. Some varieties, eg CP74-2005 are on the list for a specific purpose, striate mosaic.

In 2023, the Regional Variety Committee added SRA26Φ and SRA27 to the Approved list. Both varieties meet the disease thresholds for the Burdekin region. For more information on any variety, please contact SRA or BPS.

VARIETY	DATE APPROVED FOR BURDEKIN	APPROVAL TYPE	SMUT	LEAF SCALD	PACHYMETRA	COMMENT
CP74-2005	5/09/2003	Planting and Ratooning	R	I	S	Approved for Striate Mosaic areas
Q96	5/09/2003	Planting and Ratooning	I-R	I-R	I-S	
Q133	5/09/2003	Planting and Ratooning	R	I-R	S	
Q156	5/09/2003	Planting and Ratooning	I-S	R	S	Approved for Striate Mosaic areas
Q171	5/09/2003	Planting and Ratooning	R	R	S	
Q177	5/09/2003	Planting and Ratooning	R	R	S	
Q183	5/09/2003	Planting and Ratooning	R	I	R	
Q200	19/03/2007	Planting and Ratooning	I	R	I	
Q208Φ	5/09/2003	Planting and Ratooning	I-R	R	I	
KQ228Φ	10/04/2006	Planting and Ratooning	I	R	I	
Q231Φ	30/08/2013	Planting and Ratooning	R	I-R	R	
Q232Φ	18/09/2008	Planting and Ratooning	I-R	R	I	
Q238Φ	16/09/2011	Planting and Ratooning	R	R	R	
Q240Φ	16/09/2011	Planting and Ratooning	R	R	I	
Q247Φ	16/09/2011	Planting and Ratooning	I-R	R	R	
Q250Φ	21/09/2012	Planting and Ratooning	R	R	I	
Q252Φ	30/08/2013	Planting and Ratooning	I-R	R	I	
Q253Φ	30/08/2013	Planting and Ratooning	R	R	R	
SRA8	19/04/2016	Planting and Ratooning	I	R	I-R	
SRA23Φ	8/05/2019	Planting and Ratooning	R	R	I	
SRA26Φ	22/03/2023	Planting and Ratooning	R	R	R	
SRA27	22/03/2023	Planting and Ratooning	I-R	R	I-S	
SRA32Φ	23/03/2021	Planting and Ratooning	I	R	I	
WSRA17Φ	21/06/2018	Planting and Ratooning	I-S	R	I	
TELLUS	5/09/2003	Ratooning Only	S	R	S	

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

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 approved planting material of recommended varieties and place orders for tissue culture plantlets.

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

Billet planting

PLANT MATERIAL FROM AN APPROVED SEED SOURCE

Approved seed provides cane growers with the highest quality planting materials in terms of disease status and being 'true-to-type'. Approved 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 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 DNA fingerprinted new varieties which the local productivity services group then maintains and distributes the approved seed to growers.

GROW SUGARCANE SPECIFICALLY FOR PLANTING MATERIAL

The block selected for growing plant material should be 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 approved 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. The calculator is available on SRA's website. **Visit sugarresearch.com.au/calculator or scan the QR code.**

TRY TISSUE CULTURE AS AN APPROVED SEED SOURCE

Tissue culture is an excellent source of approved 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

Yr 1	No. plantlets ordered	100	250	500	1000
	Approximate cost	$150	$375	$750	$1500
	Metre row planted @ 0.8m	80	200	400	800
Yr 2	Metre 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 50cm to 1m apart. A good distance is 80cm, 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.

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:
  - > Atradex® at 2.5kg/ha plus Dual Gold® at 1.5L/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 100g/ha plus Activator at 200mL/100L 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.

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.

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