

# VARIETY GUIDE 2023/2024



*Central Region*





## HOW TO USE THIS GUIDE

This guide is designed to help growers in the Central 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:**

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### 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](http://sugarresearch.com.au) or scan the QR code.



(Cover page) Irrigating the 2022 Central seedlings straight after planting at the SRA station Te Kowai.  
(Left) Billet planting in the Mackay region.

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# NEW AND RECENT VARIETIES AVAILABLE IN THE CENTRAL REGION

## Variety Recommendation and Release Process

Regional Variety Committees (RVCs) are responsible for variety release decisions. 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 Central RVC (Sugarcane Biosecurity Zone 3) voting membership consists of one grower representative from Proserpine, Mackay

and Plane Creek, and representatives from Wilmar and Mackay Sugar.

The Central RVC requires a majority vote for progression of a variety through the breeding program and a unanimous vote for the release of a variety.

If you would like more information on new variety releases and regional variety committees, visit the SRA website: [sugarresearch.com.au](http://sugarresearch.com.au) or scan the QR code.



Presented below and over the following pages are the results of trials conducted in the Central region. Yield (TCH) and CCS for each new variety are compared with the trial results of various standard varieties.

Variety: SRA40*		Parentage: CP70-1547 x QA96-1492 Summary: High tonnes cane; low CCS						
TRIAL HARVEST YEAR	CROP CLASS	YIELD (TCH)			CCS			# OF HARVESTS
		SRA40	Q208 <sup>®</sup>	Q240 <sup>®</sup>	SRA40	Q208 <sup>®</sup>	Q240 <sup>®</sup>	
(2014 series FATs): 2015	Plant	105	95		15.7	17.4		4
2016	1R	112	104		16.0	16.8		4
2017	2R	86	84		17.2	18.5		4
(2018 series FATs): 2019	Plant	115	91	96	15.2	16.9	16.7	3
2020	1R	100	103	99	15.6	16.8	16.8	3
2021	2R	105	102	104	16.6	17.8	17.8	3
<b>Overall performance</b>		<b>104</b>	<b>96</b>	*	<b>16.1</b>	<b>17.4</b>	*	<b>21</b>
<b>Available 2023</b>								
Comments:		<p>SRA40 has shown a TCH yield advantage over Q208<sup>®</sup> of 9%, and a TSH advantage of 4% in SRA field trials. This yield advantage has been consistent across all trials throughout the Central region across a number of years and has performed well on a wide range of soil types. It has great disease resistance to the major diseases found in the Central region which makes it a viable option for growers with blocks with poor soils and high Pachymetra. It is important to note that SRA40 will get brown rust similar to Q253<sup>®</sup>; this level of brown rust infection was observed in SRA field trials and at the MAPS farm at Victoria plains.</p> <p>SRA40 is a fast and reliable germinator which ratoons well when compared to varieties like Q208<sup>®</sup>, it has a large stool with high stalk number, the stalks have average thickness with good length. SRA40 has sparse arrowing, remains upright even in large crops, and doesn't sucker readily even in sprawling crops.</p> <p>It will continue to grow steadily throughout the autumn and winter months, and we recommend it is harvested mid- to late-season to maximise its TSH, growers should also consider planting on poorer soils or reduce the N applied to maximise CCS.</p> <p>SRA40 will be available from 2023 to order as tissue culture for a 2024 delivery or contact your local Productivity Service for availability.</p> <p>Q240<sup>®</sup> was only evaluated in the 2018 series FATs and can only be compared against those particular plant and ratoon crops.</p> <p>*A PBR application for SRA40 will be submitted in 2023.</p>						

Variety: SRA26 <sup>®</sup>		Parentage: QN97-2122 x Q146 / Summary: Slightly below tonnes cane; higher CCS								
TRIAL HARVEST YEAR	CROP CLASS	YIELD (TCH)				CCS				# OF HARVESTS
		SRA26 <sup>®</sup>	Q208 <sup>®</sup>	Q240 <sup>®</sup>	SRA9 <sup>®</sup>	SRA26 <sup>®</sup>	Q208 <sup>®</sup>	Q240 <sup>®</sup>	SRA9 <sup>®</sup>	
(2020 series FATs): 2021	Plant	116	130	118	129	17.7	17.0	17.3	16.8	3
2022	1R	127	133	125	126	17.4	17.1	17.1	16.7	3
<b>Overall performance</b>		<b>122</b>	<b>132</b>	<b>122</b>	<b>128</b>	<b>17.6</b>	<b>17.1</b>	<b>17.2</b>	<b>16.8</b>	<b>6</b>
<b>Available 2022/2023</b>										
Comments:		<p>SRA26<sup>®</sup> has shown similar TCH to Q240<sup>®</sup> but better CCS than both Q208<sup>®</sup> and Q240<sup>®</sup> across all SRA trial sites around the Central region. It has performed consistently on a range of soil types and across crop classes. One of its main advantages is its exceptional disease resistance to smut and Pachymetra which makes it a great option for growers with higher Pachymetra spore counts to rotate their varieties.</p> <p>SRA26<sup>®</sup> is a fast and reliable germinator with a large canopy that fills in quickly and provides better canopy closure than Q208<sup>®</sup>. It has a compact stool with high stalk number that stays erect and presents well to the harvester. SRA26<sup>®</sup> has internodes of even length and protected eyes making it an ideal variety for billet planting, but if whole-stalk planting be aware that it is very hairy, and care must be taken whilst handling. Preliminary experimental results and initial commercial experience suggest that SRA26<sup>®</sup> has RSD sensitivity between Q208<sup>®</sup> and Q253<sup>®</sup>.</p> <p>SRA26<sup>®</sup> is a very sparse or non-arrowing variety, is moderate trashing and does not sucker readily. It will continue to grow steadily throughout the autumn and winter months, and we recommend it is harvested mid- to late-season to maximise its CCS.</p> <p>SRA26<sup>®</sup> was distributed to growers in Proserpine and Plane Creek in 2022 and will be distributed to Mackay growers in 2023. Tissue culture orders are also available, orders placed in 2023 will be delivered in 2024.</p>								

Variety: SRA22 <sup>®</sup>		Parentage: QS91-7179 x CP72-2086 / Summary: Slightly above tonnes cane; higher CCS								
TRIAL HARVEST YEAR	CROP CLASS	YIELD (TCH)				CCS				# OF HARVESTS
		SRA22 <sup>®</sup>	Q208 <sup>®</sup>	Q238 <sup>®</sup>	KQ228 <sup>®</sup>	SRA22 <sup>®</sup>	Q208 <sup>®</sup>	Q238 <sup>®</sup>	KQ228 <sup>®</sup>	
(2013 series FATs): 2014	Plant	84	78	85	78	16.5	16.2	16.4	15.9	4
2015	1R	97	95	95	89	18.0	17.4	17.6	18.0	4
2016	2R	98	96	94	91	17.1	16.9	16.3	16.9	4
(2016 series FATs): 2017	Plant	77	70	65		17.4	17.8	17.1		3
2018	1R	88	93	87		18	17.7	17.5		3
2019	2R	88	86	85		17.4	17.1	16.8		3
<b>Overall performance</b>		<b>89</b>	<b>86</b>	<b>85</b>	*	<b>17.4</b>	<b>17.2</b>	<b>17.0</b>	*	<b>21</b>
<b>Available since 2020</b>										
Comments:		<p>SRA22<sup>®</sup> has shown a slight sugar yield increase compared to Q208<sup>®</sup> throughout the Central SRA field trials. Whilst TCH is similar to Q208<sup>®</sup> across the different crop classes, CCS was consistently higher. Commercial data suggest that the optimal time to harvest SRA22<sup>®</sup> is early to mid-season to optimize CCS and to avoid the degradation of stalks that has been observed late in the season. SRA22<sup>®</sup> is Pachymetra and smut resistant and would be a profitable choice for farmers blocks that have a high Pachymetra spore count or high smut pressure.</p> <p>SRA22<sup>®</sup> has a large compact stool with a high stalk population that are shorter in length, the stalks are thick with a light green/yellow appearance tending more yellow when exposed to sun. It has a large canopy with wide leaves that closes in well helping to stem competition from weeds. It has sparse arrowing and doesn't readily sucker, it is free trashing and puts down a good trash blanket. If planting whole stick, be aware of the hairs on the leaf sheath. SRA22<sup>®</sup> has been shown to accumulate levels of the RSD bacteria lower than Q208<sup>®</sup> over plant and first ratoon experiments.</p> <p>SRA22<sup>®</sup> was distributed to growers in 2020. Contact your local productivity service for availability or tissue culture is available with orders placed in 2023 being delivered in 2024.</p> <p>*KQ228<sup>®</sup> was only evaluated in the 2013 series FATs and can only be compared against those particular plant and ratoon crops.</p>								



# NEW AND RECENT VARIETIES AVAILABLE IN THE CENTRAL REGION (CONT)

Variety: SRA21 <sup>Ⓛ</sup>		Parentage: QC82-663 x Q205 <sup>Ⓛ</sup> / Summary: Equal tonnes cane; equal CCS								
TRIAL HARVEST YEAR	CROP CLASS	YIELD (TCH)				CCS				# OF HARVESTS
		SRA21 <sup>Ⓛ</sup>	Q208 <sup>Ⓛ</sup>	Q183	Q238 <sup>Ⓛ</sup>	SRA21 <sup>Ⓛ</sup>	Q208 <sup>Ⓛ</sup>	Q183	Q238 <sup>Ⓛ</sup>	
(2011 series FATs): 2012	Plant	107	92	101		16.4	16.9	16.1		4
2013	1R	88	92	92		17.9	18.4	18.1		4
2014	2R	83	87	82		17.4	17.9	17.6		4
(2014 series FATs): 2015	Plant	90	95	89	98	17.5	17.4	17.2	17.2	4
2016	1R	101	104	102	98	16.8	16.8	17.0	16.8	4
2017	2R	80	84	80	80	18.5	18.5	18.3	18	4
<b>Overall performance</b>		<b>92</b>	<b>92</b>	<b>91</b>	*	<b>17.4</b>	<b>17.7</b>	<b>17.4</b>	*	<b>24</b>
Available 2019										
Comments:		<p>SRA21<sup>Ⓛ</sup> has shown to have comparable tonnes of cane per hectare and CCS as Q208<sup>Ⓛ</sup> and Q183 in SRA field trials. SRA21<sup>Ⓛ</sup> has performed well in the commercial setting when planted on sandy soils and in waterlogged blocks. It can also tolerate dry conditions better than some of the other commercial varieties and performs well on soils with a higher salt content.</p> <p>SRA21<sup>Ⓛ</sup> has a thick barrel diameter, and the stalks are waxy and lighter in colour. There are less stalks in the stool compared to Q208<sup>Ⓛ</sup>, however, its lower stalk number is made up by its stalk length and diameter. It has an erect, open canopy with a narrow pale leaf. SRA21<sup>Ⓛ</sup> is a tight trashing variety and usually remains upright even in larger crops. It germinates and ratoons reliably and has sparse arrowing and average suckering. Commercial data suggests that the best time to harvest SRA21<sup>Ⓛ</sup> is early to mid-season to maximise CCS.</p> <p>SRA21<sup>Ⓛ</sup> was distributed to growers in 2019. Contact your local productivity service for availability or tissue culture is available with orders placed in 2023 being delivered in 2024.</p>								

Variety: SRA9 <sup>Ⓛ</sup>		Parentage: QN81-289 x Q166 / Summary: Higher tonnes cane; lower CCS								
TRIAL HARVEST YEAR	CROP CLASS	YIELD (TCH)				CCS				# OF HARVESTS
		SRA9 <sup>Ⓛ</sup>	Q208 <sup>Ⓛ</sup>	Q200 <sup>Ⓛ</sup>	KQ228 <sup>Ⓛ</sup>	SRA9 <sup>Ⓛ</sup>	Q208 <sup>Ⓛ</sup>	Q200 <sup>Ⓛ</sup>	KQ228 <sup>Ⓛ</sup>	
(2007 series FATs): 2008	Plant	95	90	84	85	16.0	16.7	16.5	16.7	4
2009	1R	80	80	74	75	15.3	16.0	15.8	16.1	4
2010	2R	100	76	68	70	14.6	14.6	14.8	14.4	2
2011	3R	32	33	30	36	14.8	15.4	15.6	15.4	1
(2009 series FATs): 2010	Plant	74	75	74	69	15.1	15.5	15.8	14.9	3
2011	1R	87	82	81	79	15.1	15.3	15.3	15.4	3
2012	2R	87	84	75	71	17.0	17.3	17.0	17.6	3
(2019 series FATs): 2020	Plant	110	108		98	16.5	17.0		17.0	3
2021	1R	111	104		106	16.8	17.0		17.0	3
2022	2R	108	112		111	17.3	17.4		18.3	3
(2020 series FATs): 2021	Plant	129	130		128	16.8	17.0		17.6	3
2022	1R	126	133		133	16.7	17.0		17.4	3
<b>Overall performance</b>		<b>95</b>	<b>92</b>	*	<b>88</b>	<b>16.0</b>	<b>16.4</b>	*	<b>16.5</b>	<b>35</b>
Available 2017										
Comments:		<p>SRA9<sup>Ⓛ</sup> is a recent Central variety which has shown an impressive yield advantage over Q208<sup>Ⓛ</sup> in SRA field trials in the Central region. It's yield performance in commercial fields has also been impressive; in 2022 in the Mackay district, SRA9<sup>Ⓛ</sup> yielded 5.4% higher TSH over Q208<sup>Ⓛ</sup> in Plant and 1R crops. SRA9<sup>Ⓛ</sup> is a very vigorous but lower CCS variety with a low propensity to arrow and will keep growing throughout the season. SRA9<sup>Ⓛ</sup> is a more profitable variety choice especially for growers with higher Pachymetra spore counts and provides good weed competition.</p> <p>SRA9<sup>Ⓛ</sup> is a reliable germinator when compared to Q208<sup>Ⓛ</sup>. It has tall and moderate to high stalk numbers of average diameter at maturity. SRA9<sup>Ⓛ</sup> has more of an erect canopy than SRA26<sup>Ⓛ</sup>, but it still provides better canopy closure than Q208<sup>Ⓛ</sup> for good weed competition. It also has a clean green canopy year-round. Smut levels observed in SRA9<sup>Ⓛ</sup> through natural infection in the Central region suggest its resistance to smut is better than Q208<sup>Ⓛ</sup> and KQ228<sup>Ⓛ</sup>. SRA9<sup>Ⓛ</sup>'s vigour has been demonstrated over a wide range of trial locations and crop classes across the Central region. SRA9<sup>Ⓛ</sup> is a sparse arrowing variety, is moderate trashing and does not sucker readily. It will continue to grow steadily throughout the autumn and winter months so is best harvested mid or late in the season. SRA9<sup>Ⓛ</sup> is a profitable variety choice for growers with a high Pachymetra risk.</p> <p>SRA9<sup>Ⓛ</sup> was first distributed to growers in 2017. Contact your local productivity service for availability or tissue culture is available with orders placed in 2023 being delivered in 2024.</p>								

Variety: Q253 <sup>Ⓛ</sup>		Parentage: QN80-3425 x Q209 <sup>Ⓛ</sup> / Summary: Equal tonnes cane; lower CCS								
TRIAL HARVEST YEAR	CROP CLASS	YIELD (TCH)				CCS				# OF HARVESTS
		Q253 <sup>Ⓛ</sup>	Q208 <sup>Ⓛ</sup>	Q240 <sup>Ⓛ</sup>	Q238 <sup>Ⓛ</sup>	Q253 <sup>Ⓛ</sup>	Q208 <sup>Ⓛ</sup>	Q240 <sup>Ⓛ</sup>	Q238 <sup>Ⓛ</sup>	
(2016 series FATs): 2017	Plant	69	70	65	65	17.0	17.8	17.7	17.1	4
2018	1R	95	93	91	87	17.2	17.7	18.0	17.5	4
2019	2R	90	86	85	85	16.6	17.1	17.0	16.8	4
<b>Overall performance</b>		<b>85</b>	<b>83</b>	<b>80</b>	<b>79</b>	<b>16.9</b>	<b>17.5</b>	<b>17.6</b>	<b>17.1</b>	<b>12</b>
Available since 2018										
Comments:		<p>Q253<sup>Ⓛ</sup> has shown equal or higher TCH and lower CCS than Q208<sup>Ⓛ</sup> and Q240<sup>Ⓛ</sup> in SRA yield trials. Commercial data from the 2022 harvest in the Mackay area shows that Q253<sup>Ⓛ</sup> performed equally to Q208<sup>Ⓛ</sup> for TSH in Plant and 1R crops.</p> <p>Q253<sup>Ⓛ</sup> is a very fast and reliable germinator when compared to other commercial varieties. It has a large stool with a high stalk population that can become sprawly in larger crops. The stalk diameter is larger at plant cane than in ratoons. It is a trashy variety with leaves of average width, has a large canopy that closes in well to help stem competition from weeds, and does not flower readily. Q253<sup>Ⓛ</sup> is resistant to smut, pachymetra and leaf scald, susceptible to fiji leaf gall, intermediate to red rot, and is intermediate-susceptible to brown rust.</p> <p>Q253<sup>Ⓛ</sup> is a good option for growers with poorer soils and it continues to produce good yields into ratoons. If grown on heavy to good soils, consider adjusting nitrogen rates to maximise CCS.</p> <p>Q253<sup>Ⓛ</sup> was first distributed to growers in 2018. Contact your local productivity service for availability or tissue culture is available with orders placed in 2023 being delivered in 2024.</p>								

SRA40



SRA26<sup>Ⓛ</sup>



SRA22<sup>Ⓛ</sup>



SRA21<sup>Ⓛ</sup>



SRA9<sup>Ⓛ</sup>



Q253<sup>Ⓛ</sup>



For more information on variety field trials contact:

SRA Central Variety Officer Chris Tom

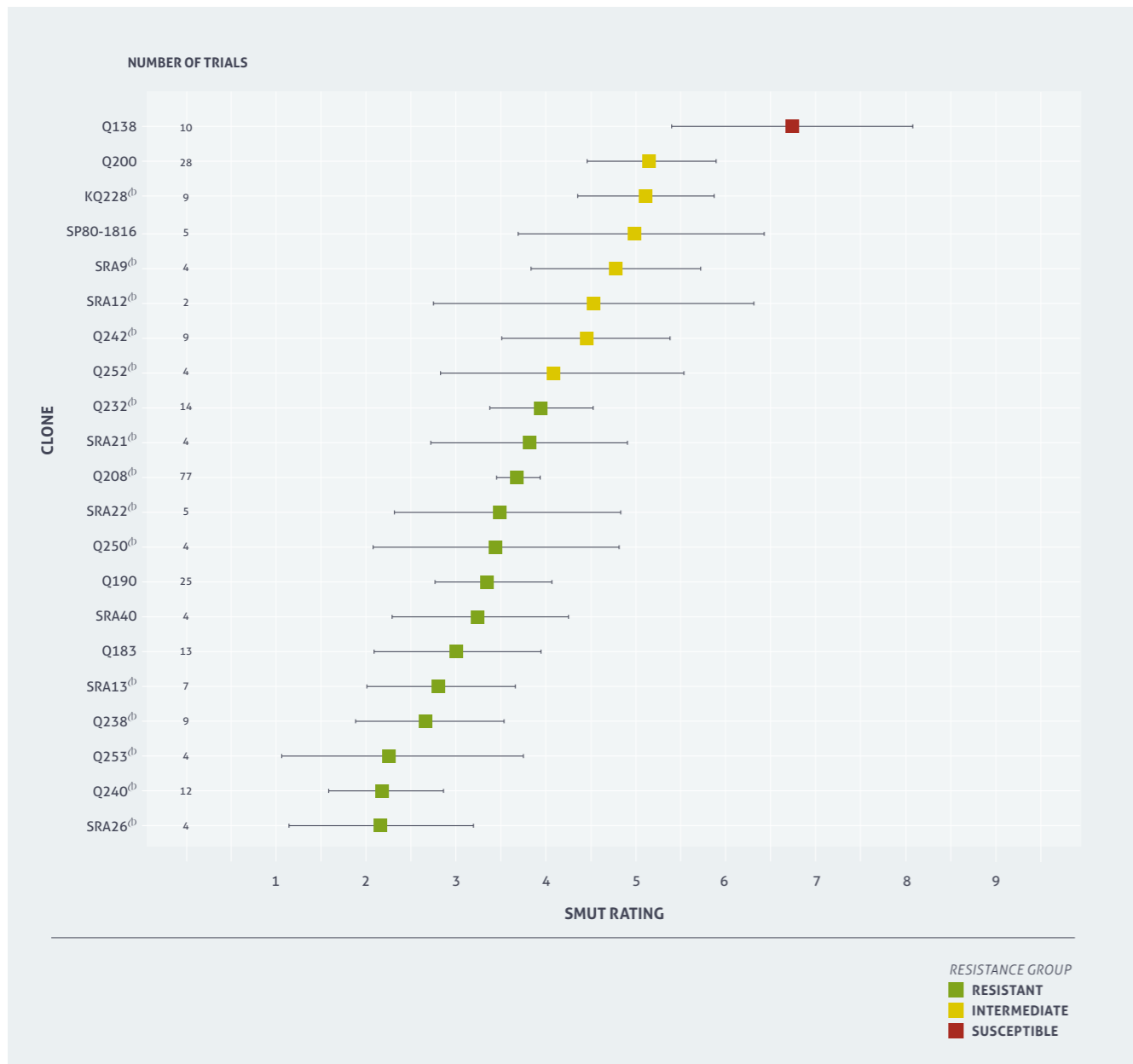
E [ctom@sugarresearch.com.au](mailto:ctom@sugarresearch.com.au)

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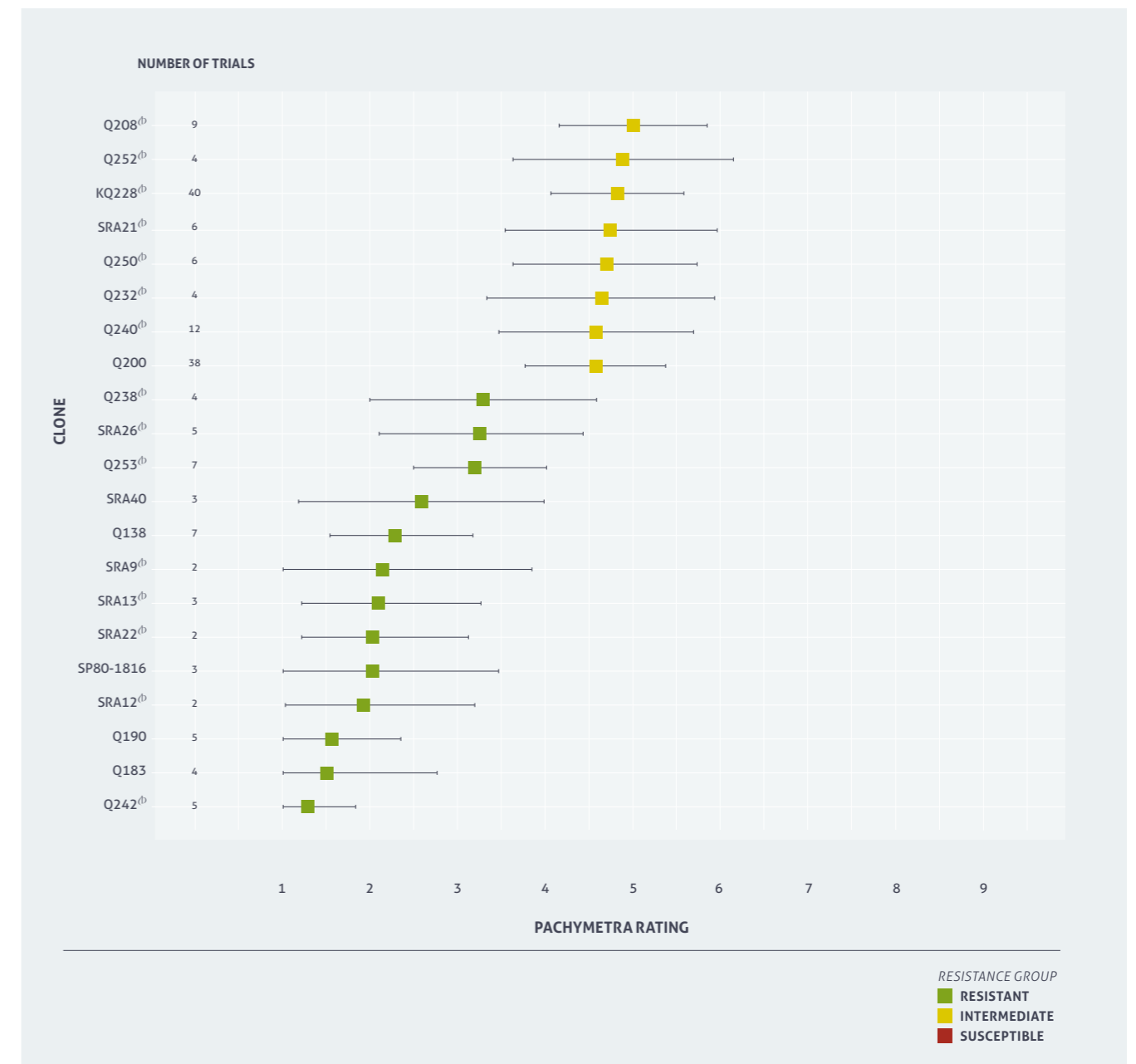
# SMUT RATINGS

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 Q190 has been tested in 25 trials and has a narrow confidence interval from 2.75 to 4.1 while the new variety SRA22<sup>Ⓛ</sup> has only been tested in five trials and ranges from 2.3 to 4.8 and new variety SRA21<sup>Ⓛ</sup> has only been tested in four trials and ranges from 2.7 to 4.9. Rating confidence will improve as more data is collected.



# PACHYMETRA RATINGS

Pachymetra resistance ratings are calculated from the severity of infection in a test clone compared to standard varieties in inoculated bench 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 times a variety has been tested and variability of Pachymetra infection within each trial. For example, the variety KQ228<sup>Ⓛ</sup> has been tested in 37 trials and has a narrow confidence interval from 4.4 to 5.4 while for the newer variety, SRA21<sup>Ⓛ</sup> has only been tested in five trials and ranges from 3.5 to 5.9 and SRA22<sup>Ⓛ</sup> has only been in two trials and ranges from 1.2 to 3.2. Rating confidence will improve as more data are collected.



# DISEASE RESISTANCE

Disease has the potential to lower the performance of varieties on your farm. This table contains all of the varieties approved for planting in the Central region, and will help you select varieties that will perform well given the diseases that may be present on your farm.

Central Disease Ratings										
VARIETY	SMUT	PACHYMETRA	LEAF SCALD	RED ROT	CHLOROTIC STREAK	FIJI LEAF GALL	ORANGE RUST	BROWN RUST	YELLOW SPOT	MOSAIC
SRA40	R	R	R	R		I		I-S*		
SRA26 <sup>db</sup>	R	R	R	R		I-R	R		R	S
SRA22 <sup>db</sup>	R	R	I-R	I		R	R	R		R
SRA21 <sup>db</sup>	I-R	I	R	I		R	R		R	I
SRA13 <sup>db</sup>	I	R	R	I-R		R	R			R
SRA12 <sup>db</sup>	I	R	R	I		I	R		I-R	I
SRA9 <sup>db</sup>	I	R	R	I-R		I	R		I-R	R
Q253 <sup>db</sup>	R	R	R	I		S	R	I-S	S	R
Q252 <sup>db</sup>	I-R	I	R	R		I	R		I	R
Q250 <sup>db</sup>	R	I	R	I		I-S	I		I-R	R
Q249 <sup>db</sup>	R	I-R	R	I-R		R	R		R	R
Q247 <sup>db</sup>	I-R	R	R	R		R	R		S	R
Q242 <sup>db</sup>	I-R	R	R	I-R	I	R	R		R	R
Q240 <sup>db</sup>	R	I	R	R	I-R	I-S	R		I	R
Q238 <sup>db</sup>	R	R	R	I-R	S	I-R	R	R	S	R
Q232 <sup>db</sup>	I-R	I	R	I-R	R	I	R		R	R
KQ228 <sup>db</sup>	I	I	R	R	S	I	R	R	I	R
Q226 <sup>db</sup>	R	I-S	R	R		R	R	I-S	R	R
Q208 <sup>db</sup>	I-R	I	R	R	R	I-S	R	R	R	R
Q200	I	I	R	R	I	R	R	R	I-R	R
Q190	R	R	R	R		R	R	I-R	I-S	R
Q183	R	R	I	I	S	R	R	R	I-S	R
Q138	S	R	R	I-S	I-R	R	R	R	I	I-S
SP80-1816	I	R	R	R		R	R		I	R

## 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](http://sugarresearch.com.au) or scan the QR code.



*NOTE: 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 KQ228<sup>db</sup> and Q253<sup>db</sup>.*

- RESISTANT (R)
- RESISTANT-INTERMEDIATE (I-R)
- INTERMEDIATE (I)
- INTERMEDIATE- SUSCEPTIBLE (I-S)
- SUSCEPTIBLE (S)
- UNKNOWN
- \*PROVISIONAL RATING

# HARVEST MANAGEMENT

Select varieties for a harvest plan that can be followed to maintain maximum CCS throughout the year. The tables below indicate early, mid or late sugar varieties. The information presented in this table for the recently released varieties is based on very limited information and could be expected to differ in different circumstances and conditions. SRA will continue to monitor this information and update as more becomes available.

Central Harvest Management					
VARIETY	EARLY SUGAR	MID SUGAR	LATE SUGAR	SPEED OF GERMINATION	TRASH YIELD
SRA40	Poor	Average	Average	Good	Average
SRA26 <sup>db</sup>	Average	Good	Good	Good	Average
SRA22 <sup>db</sup>	Average	Good	Good	Good	Good
SRA21 <sup>db</sup>	Good	Good	Average	Average	Average
SRA13 <sup>db</sup>	Average	Average	Poor	Good	Average
SRA12 <sup>db</sup>	Poor	Average	Average	Average	Good
SRA9 <sup>db</sup>	Average	Average	Good	Average	Good
Q253 <sup>db</sup>	Good	Good	Average	Good	Average
Q252 <sup>db</sup>	Average	Good	Good	Good	Average
Q250 <sup>db</sup>	Good	Good	Average	Good	Good
Q247 <sup>db</sup>	Average	Average	Average	Good	Average
Q242 <sup>db</sup>	Average	Average	Average	Good	Good
Q240 <sup>db</sup>	Good	Good	Good	Good	Good
Q238 <sup>db</sup>	Good	Good	Good	Good	Good
Q232 <sup>db</sup>	Poor	Good	Poor	Average	Average
KQ228 <sup>db</sup>	Good	Good	Average	Good	Average
Q208 <sup>db</sup>	Good	Good	Good	Average	Average
Q183	Good	Good	Good	Good	Average
Q138	Poor	Poor	Average	Good	Good
SP80-1816	Average	Good	Good	Average	Good

## Maximise your profit at harvest:

Selecting varieties for specific sugar maturity profiles, planting and harvesting them for optimal CCS maturity at time of harvest 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
- POOR



# 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<sup>®</sup> is assessed and used as a susceptible reference variety to compare to other tested varieties.

Table 2 describes the phytotoxicity symptoms obtained on KQ228<sup>®</sup> 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<sup>®</sup>

	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	Mild	Medium to severe	Mild	Mild	Medium	Mild	Severe	Medium	Mild	Medium to severe
KQ228 <sup>®</sup> 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 on the left)

VARIETY	2,4-D	AMETRYN	AMETRYN+TRIFLOXY-SULFURON	AMICARBAZONE	ASULAM	DIURON	FLUMIOXAZIN	METOLACHLOR	METRIBUZIN	MSMA
KQ228 <sup>®</sup>	1.6	1.9	1.7	1.3	1.9	1.3	3.6	2.1	1.5	3.0
Q208 <sup>®</sup>	1.5		1.6		1.8			2.0	1.4	2.9
Q232 <sup>®</sup>	1.6		1.8		1.9			2.2	1.6	3.0
Q238 <sup>®</sup>	1.7		1.8		2.0			2.3	1.6	3.1
Q240 <sup>®</sup>	1.6		1.7		1.8			2.1	1.5	2.9
Q242 <sup>®</sup>	1.6		1.8		1.9			2.2	1.6	3.0
Q250 <sup>®</sup>	1.6		1.8		1.9			2.2	1.6	3.0
Q252 <sup>®</sup>	1.6		1.7		1.8			2.1	1.5	3.0
Q253 <sup>®</sup>	1.7		1.8		1.9			2.2	1.6	3.0
SP801816	1.7		1.8		2.0			2.3	1.3	3.1
SRA9 <sup>®</sup>	1.4	1.7		1.1	1.7		3.4	2.0	1.7	2.8
SRA12 <sup>®</sup>	1.7	2.1		1.4	2.0		3.8	2.3	1.4	3.1
SRA13 <sup>®</sup>	1.7	2.0		1.4	1.9		3.7	2.2	1.6	3.0
SRA21 <sup>®</sup>	1.6	1.9		1.3	1.8	1.3		2.1	1.5	2.9
SRA22 <sup>®</sup>	1.9	2.2		1.6	2.2	1.7		2.5	1.9	3.3
SRA26 <sup>®</sup>	1.6	2.0		1.4	1.9	1.4		2.2	1.6	3.0

The predicted EWRC scores and associated colour code are presented for each tested combination of herbicides by variety. The predicted EWRC scores derive from the average EWRC scores for each trial series, using KQ228<sup>®</sup> as 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 derive 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	AMICARBAZONE	ASULAM	DIURON	FLUMIOXAZIN	METOLACHLOR	METRIBUZIN	MSMA
KQ228 <sup>®</sup>	-19%	-46%	-55%	-15%	-16%	-14%	-36%	no reduction	-25%	-21%
Q208 <sup>®</sup>	-29%		-33%		-12%			-51%	-21%	-50%
Q232 <sup>®</sup>	-13%		-42%		-26%			-33%	-13%	-33%
Q238 <sup>®</sup>	-40%		-34%		-62%			-35%	-32%	-39%
Q240 <sup>®</sup>	-36%		-28%		-41%			-7%	-21%	-37%
Q242 <sup>®</sup>	-14%		-12%		no reduction			no reduction	-7%	-12%
Q250 <sup>®</sup>	-49%		-53%		-66%			-56%	-20%	-63%
Q252 <sup>®</sup>	-38%		-11%		no reduction			-6%	-20%	-26%
Q253 <sup>®</sup>	-29%		-49%		-52%			-18%	-51%	-54%
SP80-1816	-26%		-9%		-10%			-35%	-32%	-33%
SRA9 <sup>®</sup>	-13%	-22%		-29%	-37%		-43%	no reduction	-2%	-28%
SRA12 <sup>®</sup>	-9%	no reduction		no reduction	no reduction		-12%	no reduction	no reduction	no reduction
SRA13 <sup>®</sup>	-23%	-26%		-27%	-7%		-80%	-41%	no reduction	-63%
SRA21 <sup>®</sup>	-10%	-47%		-14%	-32%	-14%		no reduction	-36%	-9%
SRA22 <sup>®</sup>	-39%	-28%		no reduction	-68%	-22%		no reduction	-20%	-34%
SRA26 <sup>®</sup>	-35%	-44%		-26%	-27%	-21%		-12%	-34%	-47%

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 KQ228<sup>®</sup> as 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 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)

VARIETY	2,4-D	AMETRYN	AMETRYN+TRIFLOXY-SULFURON	AMI-CARBAZONE	ASULAM	METO-LACHLOR	METRI-BUZIN	MSMA
KQ228 <sup>®</sup>	no reduction	-11%		-7%	-1%		no reduction	-1%
Q232 <sup>®</sup>			-6%			no reduction	-4%	-1%
Q238 <sup>®</sup>			-8%			-3%	-5%	-13%
Q242 <sup>®</sup>			no reduction			-3%	-2%	-11%
Q250 <sup>®</sup>			-1%			no reduction	-1%	-5%
SRA9 <sup>®</sup>					-3%			
SRA12 <sup>®</sup>	-7%				no reduction			
SRA13 <sup>®</sup>	-5%							

**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

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

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

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

# VARIETY ADOPTION IN EACH MILL AREA

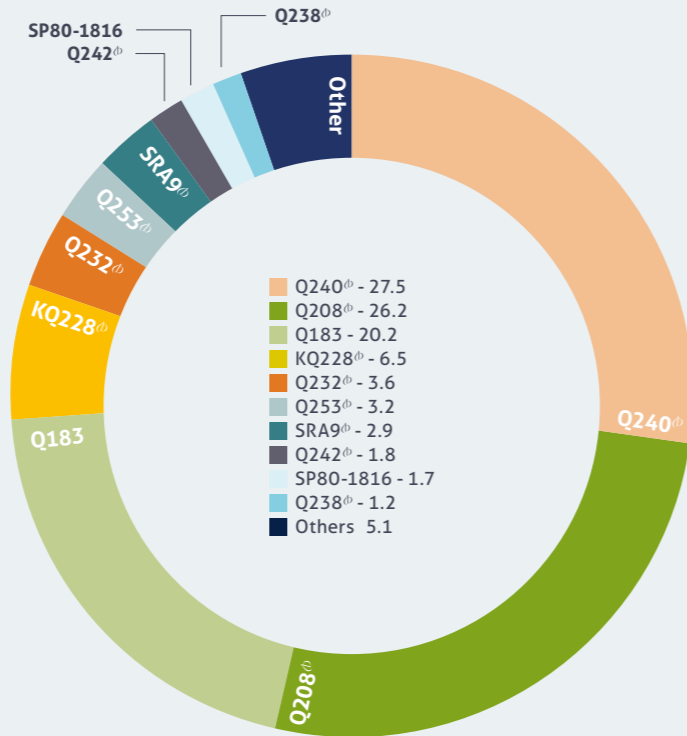
The following graphs are generated from mill statistics from the 2022 season. Use this information to assess yield performance of varieties over a number of years. Caution should be taken when comparing commercial performance of newer varieties (from plant and young ratoons) to older/established varieties (which include older ratoons).

## Proserpine Mill (% TONNES 2022)

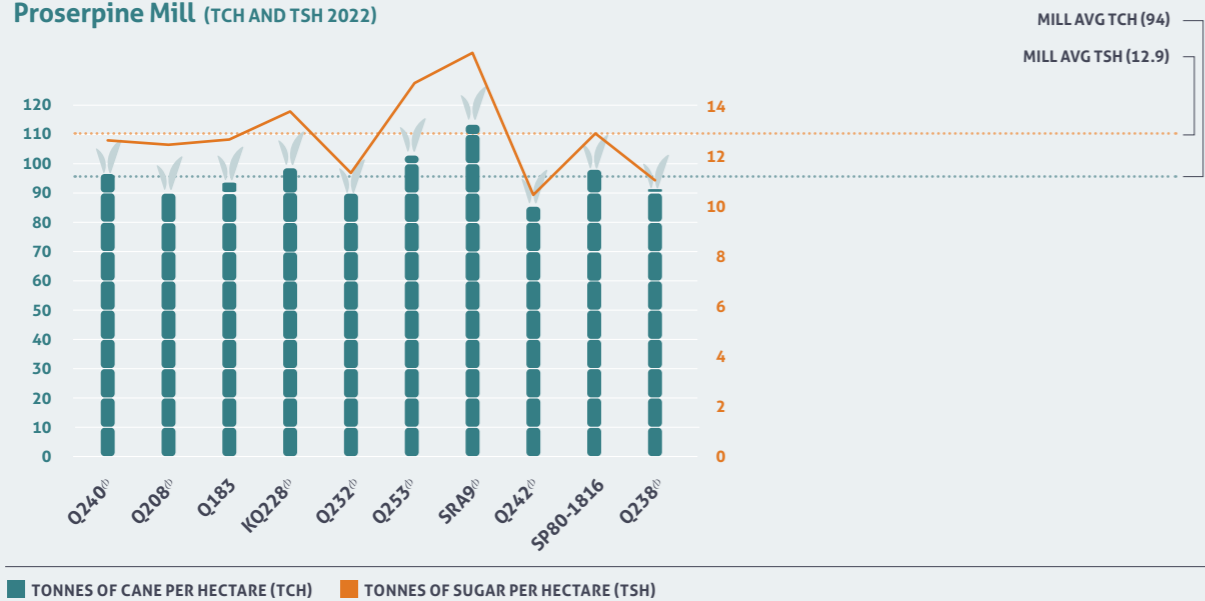
The Proserpine Mill area harvested 1,849,706 tonnes from 19,650 hectares in 2022 at an average of 94 T/Ha, a significant increase from 77 T/Ha in 2021. The mill average CCS decreased considerably from 14.30 in 2021 to 13.56 in 2022.

Q240<sup>th</sup> continued its dominance in Proserpine but reduced from 31.2% in 2021 to 27.5% in 2022. Q208<sup>th</sup> remained in second place with 26.2% of total tonnage harvested in 2022, followed by Q183 with 20.2%. Together these three varieties make up 73.9% of the region.

Cane varieties with more than 1% of production that performed above mill average TSH were KQ228<sup>th</sup>, Q253<sup>th</sup>, SRA9<sup>th</sup>, Q252<sup>th</sup> & Q247<sup>th</sup>.



## Proserpine Mill (TCH AND TSH 2022)

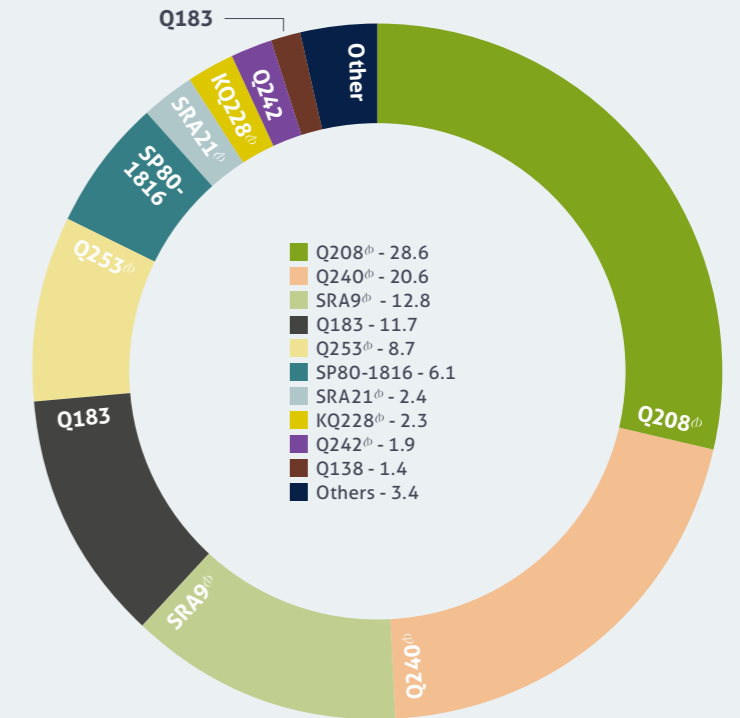


## Mackay Sugar Mills (% TONNES 2022)

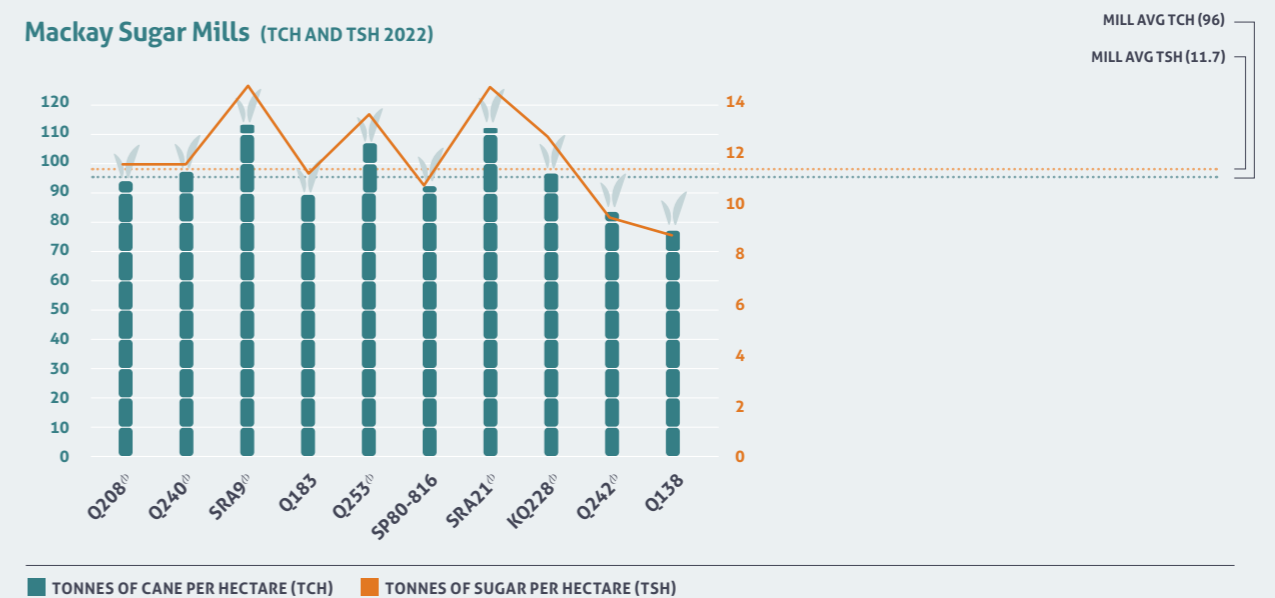
Mackay Sugar Mills reported 5,547,611 tonnes of cane harvested from 57,532 hectares in 2022. The mill average T/Ha increased considerably to 96 T/Ha (85 T/Ha in 2021) and mill average CCS decreased from 14.3 in 2021 to 12.5 in 2022.

Q208<sup>th</sup> again was the highest for the region at 28.6% of total production. Q240<sup>th</sup> remained in second place with 20.6% in 2022, down from 24.2% in 2021. SRA9<sup>th</sup> finished the 2022 season in 3rd place ahead of Q183, with 12.8% of production, up from 7.5% in 2021. These top three varieties within the mill region accounted for 62% of the total crop in 2022.

Q208<sup>th</sup>, Q240<sup>th</sup>, SRA9<sup>th</sup>, Q253<sup>th</sup>, SRA21<sup>th</sup> and KQ228<sup>th</sup> all produced higher tonnes sugar per Hectare than the district average. Q253<sup>th</sup>, SRA21<sup>th</sup> and SRA9<sup>th</sup> may be influenced by the high proportion of plant cane to ratoon cane harvested. They are being rapidly adopted and are expected to continue expanding in the near future.



## Mackay Sugar Mills (TCH AND TSH 2022)

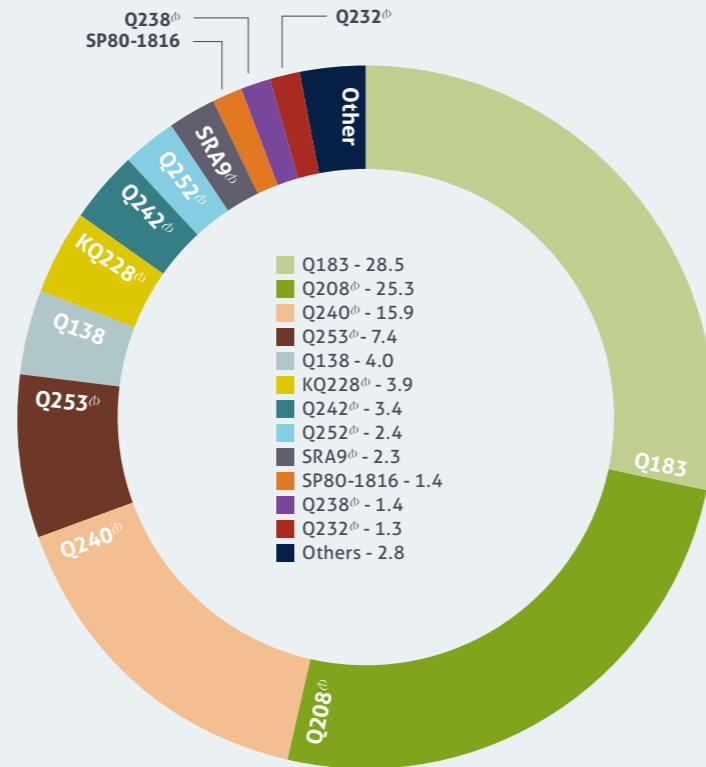




# VARIETY ADOPTION IN EACH MILL AREA (CONT)

## Plane Creek (% TONNES 2022)

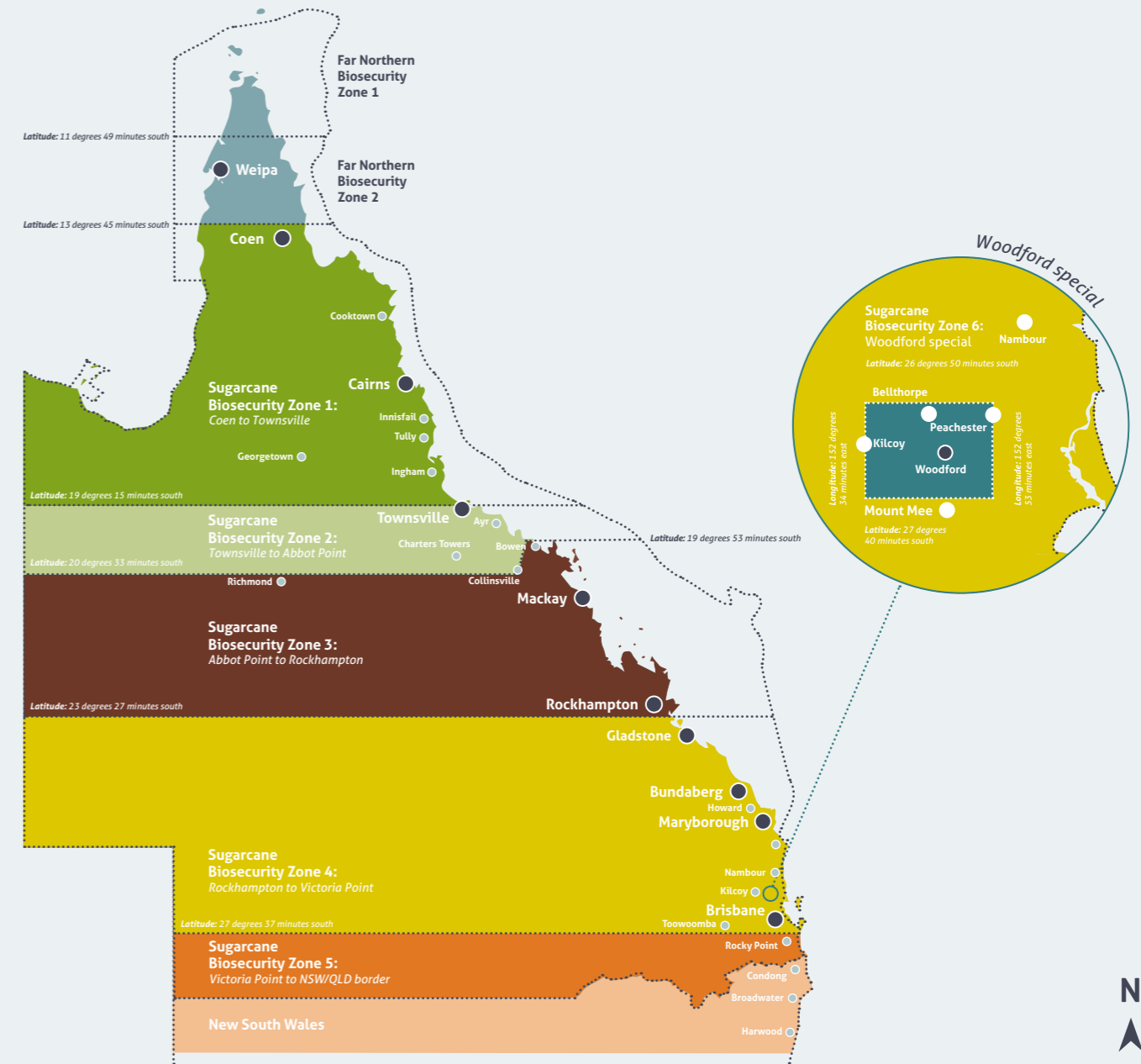
The Plane Creek region harvested 1,482,464 tonnes from 16,400 hectares in 2022, with a mill average CCS of 12.72 and an average T/Ha of 90, up from 78 T/Ha in 2021. Q183 continued to dominate the crop in 2022 with 28.5% of production, followed by Q208<sup>h</sup> (25.3%) and Q240<sup>h</sup> (15.9%) together representing just under 70% of the 2022 crop. The top performers with the highest TSH were SRA21<sup>h</sup> (16.0) and SRA9<sup>h</sup> (15.6) although this data would be highly influenced by the higher proportion of plant cane to ratoon crops. Q253<sup>h</sup> and SRA9<sup>h</sup> are the varieties being rapidly adopted in the Plane Creek mill area.



## Plane Creek (TCH AND TSH 2022)



# 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 organisation for regional advice on varieties (see back page for details). They can supply approved planting material of recommended varieties and place orders for tissue culture plantlets.

## 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](http://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 varieties, contact:

SRA Central Variety Officer Chris Tom

E [ctom@sugarresearch.com.au](mailto:ctom@sugarresearch.com.au) T 0411 589 806

For more information on tissue culture, contact:

SRA Tissue Culture Manager Clair Bolton

E [cbolton@sugarresearch.com.au](mailto: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:
  - > Atradox® 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.

Your local productivity services:



Mackay Area Productivity  
Services (MAPS):  
T 07 4963 6830



Plane Creek Productivity  
Services Ltd:  
T 07 4956 1488



Sugar Services  
Proserpine Ltd:  
T 07 4945 0513

*sra*

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