Sugar Research Australia

VARIETY GUIDE 2021/2022

Northern Region

HOW TO USE THIS GUIDE

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

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 AND RECENT VARIETIES AVAILABLE IN THE NORTHERN REGION

Variety Recommendation and Release Process

Regional Variety Committees (RVCs) have replaced Variety Approval Committees (VAC) in line with changes to Queensland biosecurity legislation. With membership drawn from growers, millers and productivity service groups specific to the region, the 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 Northern RVC (Sugarcane Biosecurity Zone 1) membership consists of 1 grower and 1 miller representative from each of the Mossman, Mulgrave, South Johnstone, Tully and Tablelands regions. The Northern 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 release and regional variety committees***, please visit the SRA website: ***sugarresearch.com.au/growers-and-millers/varieties/regional-variety-committees/***

Presented below are the results of trials conducted in the Northern region. Cane yield (TCH) and CCS for each new variety are compared with the trial results of various standard varieties.

Variety: SRA28Φ QS08-8776 — ***Parentage:*** *Q233Φ x Q135* / ***Summary:*** *Equal tonnes cane; equal CCS.*

TRIAL HARVEST YEAR	CROP CLASS	YIELD (TCH)				CCS				# OF HARVESTS
		SRA28Φ	Q200Φ	Q208Φ	Q250Φ	SRA28Φ	Q200Φ	Q208Φ	Q250Φ	
(2015 series FATs): 2016	Plant	126	126	124	116	15.3	15.1	15.0	16.0	4
2017	1R	122	119	123	111	15.4	15.0	14.9	16.1	4
2018	2R	100	95	98	83	17.5	17.3	17.3	18.2	4
(2018 series FATs): 2019	Plant	81	81	83	72	16.1	16.7	16.2	17.3	4
2020	1R	106	94	103	82	16.0	16.5	15.9	16.9	4
(2019 series FATs): 2020	Plant	87	80	81	83	15.7	15.9	15.6	16.4	4
Overall performance		**104**	**99**	**102**	**91**	**16.0**	**16.1**	**15.8**	**16.8**	**24**
Available from 2020										

Comments: SRA28Φ results are from FATs planted in 2015, 2018 and 2019 (data from the 2018 and 2019 FATs are still being collected). In these trials SRA28Φ was competitive with both Q200Φ and Q208Φ for cane yield and CCS across all sites and crop classes. SRA28Φ is a reliable germinator but may be sensitive to hot water treatment; advise sourcing planting material younger than 12 months of age for best germination. Its initial growth and tillering can be slower than some commercial varieties. It has good canopy closure, moderate stalk numbers and is erect or open in habit for good harvest presentation. It is also a sparse to moderate flowering variety and can sucker. SRA28Φ has a good disease profile to most of our major diseases. It is resistant to Pachymetra root rot and leaf scald, and intermediate-resistant to smut.

Variety: SRA27 QA04-1448 — ***Parentage:*** *QN80-4316 x Q173Φ* / ***Summary:*** *Lower tonnes cane (poorer ratoons); equal to lower CCS*

TRIAL HARVEST YEAR	CROP CLASS	YIELD (TCH)				CCS				# OF HARVESTS
		SRA27	Q200Φ	Q208Φ	Q250Φ	SRA27	Q200Φ	Q208Φ	Q250Φ	
(2012 and 2015 series FATs - Mulgrave and Tully only)	Plant	97	105	102	98	16.3	16.3	16.7	17.5	3
	1R	109	121	120	113	15.9	15.7	15.9	16.6	3
	2R	87	122	126	105	16.7	17.0	17.1	17.5	1
Overall Coastal FAT Performance		**101**	**114**	**113**	**105**	**16.2**	**16.1**	**16.4**	**17.1**	**7**

TRIAL HARVEST YEAR	CROP CLASS	YIELD (TCH)			CCS			# OF HARVESTS
		SRA27	Q208Φ	Q256Φ	SRA27	Q208Φ	Q256Φ	
(2015 series TAB RVT): 2016	Plant	144	129	129	12.9	13.4	13.4	1
2017	1R	107	116	117	15.4	15.4	15.4	1
2018	2R	127	155	158	16.0	15.8	16.0	1
Overall Tableland RVT Performance		**126**	**133**	**134**	**14.8**	**14.9**	**14.9**	**3**
Available from 2019 in Tableland only								

Comments: Due to poor germination during propagation, SRA27 has only been tested in 3 FATs and 1 Regional Variety Trial (RVT) on the Tablelands. The limited trial results indicate SRA27 is not commercially competitive in the Northern Coastal areas, with below average cane yield being more pronounced in ratoon crops. CCS was equal to or below the commercial standards in all trials. SRA27 has a modest disease resistance profile being intermediate-susceptible to Pachymetra root rot, intermediate to smut, and resistant to Leaf Scald. The Northern RVC approved the release of SRA27 as a niche option for the Tablelands only, and does not recommend broad adoption and production.

Performance of SRA27 by FAT series can be found in the 2020/2021 Northern Variety Guide available on sugarresearch.com.au.

NEW AND RECENT VARIETIES AVAILABLE IN THE NORTHERN REGION (CONT)

Variety: SRA26Φ QN08-2282	Parentage: QN97-2122 x Q146 / Summary: Equal tonnes cane; equal CCS								
TRIAL HARVEST YEAR	CROP CLASS	YIELD (TCH)				CCS				# OF HARVESTS
		SRA26Φ	Q200Φ	Q208Φ	Q250Φ	SRA26Φ	Q200Φ	Q208Φ	Q250Φ	
(2014 series FATs): 2015	Plant	103	101	103	99	15.4	15.5	15.5	16.1	4
2016	1R	123	116	128	108	15.8	15.6	15.4	15.8	4
2017	2R	104	99	109	88	15.4	15.1	15.1	15.7	4
(2017 series FATs): 2018	Plant	107	97	95	92	17.2	17.0	17.2	18.0	4
2019	1R	90	86	89	81	16.9	16.9	16.5	17.6	4
2020	2R	104	94	108	92	16.3	16.3	15.9	16.7	4
(2018 series FATs): 2019	Plant	80	81	83	72	16.7	16.7	16.2	17.3	4
2020	1R	87	94	103	82	16.3	16.5	15.9	16.9	4
(2019 series FATs): 2020	Plant	86	80	81	83	16.0	15.9	15.6	16.4	4
Overall Performance		**98**	**94**	**100**	**89**	**16.2**	**16.2**	**15.9**	**16.7**	**36**
Available from 2019										
Comments:	SRA26Φ results are from FATs planted in 2014, 2017, 2018 and 2019 (data from the 2018 and 2019 FATs are still being collected). In these trials SRA26Φ was competitive with both Q200Φ and Q208Φ for cane yield and CCS across all sites and crop classes. Initial maturity results indicate SRA26Φ is better suited to being harvested mid to late season, similar to Q200Φ. SRA26Φ presents a prostrate habit early in its growth after germination, but will straighten up to stand erect. It has a pale green top with good canopy closure, a moderate to high stalk population and is erect in habit for good harvest presentation. It is also a sparse flowering variety. SRA26Φ has an excellent disease profile with resistance to all major diseases including smut, Pachymetra root rot and leaf scald.									

Variety: SRA25Φ QN08-1898	Parentage: Q241Φ x QC89-432 / Summary: Equal tonnes cane; lower CCS								
TRIAL HARVEST YEAR	CROP CLASS	YIELD (TCH)				CCS				# OF HARVESTS
		SRA25Φ	Q200Φ	Q208Φ	Q250Φ	SRA25Φ	Q200Φ	Q208Φ	Q250Φ	
(2014 series FATs): 2015	Plant	105	101	103	99	14.7	15.5	15.5	16.1	4
2016	1R	129	116	128	108	14.9	15.6	15.4	15.8	4
2017	2R	109	99	109	88	14.7	15.1	15.1	15.7	4
(2017 series FATs): 2018	Plant	88	97	95	92	17.1	17.0	17.2	18.0	4
2019	1R	94	86	89	81	16.7	16.9	16.5	17.6	4
2020	2R	102	94	108	92	16.0	16.3	15.9	16.7	4
(2018 series FATs): 2019	Plant	81	81	83	72	16.0	16.7	16.2	17.3	4
2020	1R	91	94	103	82	16.0	16.5	15.9	16.9	4
(2019 series FATs): 2020	Plant	91	80	81	83	15.6	15.9	15.6	16.4	4
Overall Performance		**99**	**94**	**100**	**89**	**15.7**	**16.2**	**15.9**	**16.7**	**36**
Available from 2019										
Comments:	SRA25Φ results are from FATs planted in 2014, 2017, 2018 and 2019 (data from the 2018 and 2019 FATs are still being collected). In these trials SRA25Φ was competitive with both Q200Φ and Q208Φ for cane yield and but lower in CCS across all sites and crop classes. SRA25Φ has a modest canopy cover, moderate to high numbers of thin (trashy) stalks, and an open stool which can sprawl in larger crops. It is also a sparse flowering variety. SRA25Φ has a good disease resistance profile for some of our major diseases; it is resistant to Pachymetra root rot and leaf scald, intermediate-susceptible to smut, and susceptible to red rot.									

Variety: SRA16Φ	QS06-8817	Parentage: QN97-2328 x QN96-1162 / Summary: Equal tonnes cane; lower CCS								
TRIAL HARVEST YEAR	CROP CLASS	YIELD (TCH)				CCS				# OF HARVESTS
		SRA16Φ	Q200Φ	Q208Φ	Q250Φ	SRA16Φ	Q200Φ	Q208Φ	Q250Φ	
(2013 series FATs): 2014	Plant	95	89	97	86	16.1	16.5	16.1	16.6	4
2015	1R	119	119	126	110	15.4	15.8	15.8	16.0	4
2016	2R	113	114	121	91	15.5	15.8	15.8	16.5	4
(2016 series FATs): 2017	Plant	103	104	99	99	15.1	15.5	15.6	16.2	4
2018	1R	92	84	88	79	16.6	16.9	17.0	17.5	4
2019	2R	86	84	81	78	16.1	16.7	16.6	17.3	4
(2017 series FATs): 2018	Plant	93	97	95	92	16.7	17.0	17.2	18.0	4
2019	1R	87	86	89	81	15.9	16.9	16.5	17.6	4
2020	2R	98	94	108	92	15.6	16.3	15.9	16.7	4
(2018 series FATs): 2019	Plant	79	81	83	72	16.2	16.7	16.2	17.3	4
2020	1R	94	94	103	82	15.8	16.5	15.9	16.9	4
(2019 series FATs): 2020	Plant	81	80	81	83	15.6	15.9	15.6	16.4	4
Overall Performance		**95**	**94**	**97**	**87**	**15.9**	**16.4**	**16.2**	**17.0**	**48**
Available from 2018										
Comments:	SRA16Φ results are from the FATs planted in 2013, 2016, 2017, 2018 and 2019 (data from the 2018 and 2019 FATs are still being collected). In these FATs SRA16Φ's cane yield was competitive with the commercial standards; SRA16Φ's CCS was comparatively lower in FATs. SRA16Φ has good canopy closure, moderate-high stalk numbers and has an open stool which can sprawl in higher yielding crops. It is also a sparse flowering variety. SRA16Φ has an excellent disease profile with resistance to all major diseases including smut, Pachymetra root rot and leaf scald.									

Variety: SRA15Φ	QS06-9119	Parentage: QS91-7008 x Q200Φ / Summary: Equal tonnes cane; equal CCS								
TRIAL HARVEST YEAR	CROP CLASS	YIELD (TCH)				CCS				# OF HARVESTS
		SRA15Φ	Q200Φ	Q208Φ	Q250Φ	SRA15Φ	Q200Φ	Q208Φ	Q250Φ	
(2013 series FATs): 2014	Plant	94	89	97	86	16.7	16.5	16.1	16.6	4
2015	1R	122	119	126	110	16.0	15.8	15.8	16.0	4
2016	2R	122	114	121	91	15.8	15.8	15.8	16.5	4
(2016 series FATs): 2017	Plant	109	104	99	99	15.6	15.5	15.6	16.2	4
2018	1R	91	84	88	79	17.2	16.9	17.0	17.5	4
2019	2R	89	84	81	78	16.8	16.7	16.6	17.3	4
(2017 series FATs): 2018	Plant	89	97	95	92	17.5	17.0	17.2	18.0	4
2019	1R	89	86	89	81	16.3	16.9	16.5	17.6	4
2020	2R	102	94	108	92	16.1	16.3	15.9	16.7	4
(2018 series FATs): 2019	Plant	87	81	83	72	16.7	16.7	16.2	17.3	4
2020	1R	100	94	103	82	16.1	16.5	15.9	16.9	4
(2019 series FATs): 2020	Plant	79	80	81	83	16.0	15.9	15.6	16.4	4
Overall Performance		**98**	**94**	**97**	**87**	**16.4**	**16.4**	**16.2**	**17.0**	**48**
Available from 2018										
Comments:	SRA15Φ results are from the FATs planted in 2013, 2016, 2017, 2018 and 2019 (data from the 2018 and 2019 FATs are still being collected). In these trials SRA15Φ was competitive with the commercial standards for both cane yield and CCS across all sites and crop classes. SRA15Φ is a moderate to profuse flowering variety with protruding eyes and can side-shoot when heavily flowered; ideal to use plant source less than 12 months of age. SRA15Φ is resistant to leaf scald, intermediate-resistant to Pachymetra root rot, and intermediate-susceptible to smut (smut may be found in SRA15Φ under moderate to high spore-load when grown in the drier areas of the wet tropics).									

NEW AND RECENT VARIETIES AVAILABLE IN THE NORTHERN REGION (CONT)

Variety: SRA10Φ QN06-807		Parentage: QN92-157 x QN91-3898 / Summary: Yield decline possible into ratoons; higher CCS								
TRIAL HARVEST YEAR	CROP CLASS	YIELD (TCH)				CCS				# OF HARVESTS
		SRA10Φ	Q200Φ	Q208Φ	Q250Φ	SRA10Φ	Q200Φ	Q208Φ	Q250Φ	
(2012, 2015, 2016, 2017 and 2018 series FATs)	Plant	96	102	99	93	16.8	16.3	16.3	17.0	19
	1R	87	95	98	88	16.8	16.3	16.1	17.0	19
	2R	82	93	98	94	17.0	16.5	16.5	17.3	16
Overall Performance		**89**	**97**	**98**	**89**	**16.8**	**16.3**	**16.3**	**17.1**	**54**
Available from 2017										
Comments:	SRA10Φ results are from FATs planted in 2012, 2015, 2016, 2017 and 2018 (ratoon data from the 2018 FATs is still being collected). In 2017 the Northern RVC considered the issue of the declining yield of SRA10Φ in second ratoon data from the 2012 series FATs, and recommended a limited release of SRA10Φ while further ratooning data was being collected due to its CCS profile similar to Q250Φ. SRA10Φ's most recent ratoon data confirms SRA10Φ's tendency to decline in yield into ratoons relative to commercial standards in FATs. SRA10Φ is resistant to leaf scald, and intermediate-resistant to Pachymetra root rot, and intermediate to smut (smut may be found in SRA10Φ under moderate to high spore-load when grown in the drier areas of the wet tropics). Performance of SRA10Φ by FAT series can be found in the 2020/2021 Northern Variety Guide available on sugarresearch.com.au.									

Variety: SRA7Φ QN05-1071		Parentage: QS87-8032 x QN86-139 / Summary: Higher tonnes cane; lower CCS								
TRIAL HARVEST YEAR	CROP CLASS	YIELD (TCH)				CCS				# OF HARVESTS
		SRA7Φ	Q200Φ	Q208Φ	Q250Φ	SRA7Φ	Q200Φ	Q208Φ	Q250Φ	
(2011, 2014, 2015,2016 and 2017 series FATs)	Plant	113	105	103	101	14.7	15.9	16.0	16.6	20
	1R	110	102	108	95	15.0	16.3	16.3	16.8	20
	2R	100	93	99	85	15.0	16.3	16.3	17.0	20
Overall Performance		**107**	**100**	**103**	**94**	**14.9**	**16.2**	**16.2**	**16.8**	**60**
Available from 2016										
Comments:	SRA7Φ was planted in five FAT series (2011, 2014, 2015, 2016 and 2017). SRA7Φ's cane yield was equal to above-average, and CCS on average -1.3 units, when compared with commercial standards. Cane yields were consistently maintained above the commercial standards across ratoon crops and soil types (where tested), however, initial commercial results have been modest. It is also a sparse flowering variety. SRA7Φ is resistant to leaf scald, intermediate-resistant to smut, and intermediate to Pachymetra root rot. Performance of SRA7Φ by FAT series can be found in the 2020/2021 Northern Variety Guide available on sugarresearch.com.au.									

Variety: SRA6Φ QN05-507		Parentage: QN80-3425 x QH93-1197 / Summary: Equal tonnes cane; lower CCS								
TRIAL HARVEST YEAR	CROP CLASS	YIELD (TCH)				CCS				# OF HARVESTS
		SRA6Φ	Q200Φ	Q208Φ	Q250Φ	SRA6Φ	Q200Φ	Q208Φ	Q250Φ	
(2011, 2014, 2015, 2016 and 2017 series FATs)	Plant	103	105	103	101	15.3	15.9	16.0	16.6	20
	1R	109	102	108	95	15.7	16.3	16.3	16.8	20
	2R	99	93	99	85	15.6	16.3	16.3	17.0	20
Overall Performance		**104**	**100**	**103**	**94**	**15.5**	**16.2**	**16.2**	**16.8**	**60**
Available from 2016										
Comments:	SRA6Φ was planted in five FAT series (2011, 2014, 2015, 2016 and 2017). SRA6Φ's cane yield was equal to above-average, and CCS on average -0.5 units, when compared with commercial standards. Equally good performance over different soil types where tested, but early indications are that SRA6Φ may be less suitable to poor/dry conditions. Initial germination is rapid and reliable, with early crop growth often slower followed by accelerated growth from Autumn. SRA6Φ has a (dense) larger stalk population relative to other varieties, but height of the crop is often shorter. It is also a sparse flowering variety. SRA6Φ has an excellent disease profile with resistance to all major diseases including smut, Pachymetra root rot and leaf scald. Performance of SRA6Φ by FAT series can be found in the 2020/2021 Northern Variety Guide available on sugarresearch.com.au.									

SRA28[Φ]

SRA27

SRA26[Φ]

SRA25[Φ]

SRA16[Φ]

SRA15[Φ]

SRA10[Φ]

SRA7[Φ]

SRA6[Φ]

For more information on *variety field trials* contact:

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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 Q200$^{\Phi}$ has been tested in 28 trials and has a narrow confidence interval from 4.4 to 5.8 while the new variety SRA28$^{\Phi}$ has only been tested in 5 trials and ranges from 2.9 to 5.5. 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 Q200(ф) has been tested in 34 trials and has a narrow confidence interval from 4.3 to 5.4 while the new variety SRA28(ф) has only been tested in 5 trials and ranges from 1.7 to 4.0. Rating confidence will improve as more data are collected. The Pachymetra rating for Q253(ф) has been revised from Intermediate to Resistant using this new method of analysis, with its confidence interval ranging from 2.5 to 4.1 from 7 trials.

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.

Northern Coastal Harvest Management					
VARIETY	EARLY SUGAR	MID SUGAR	LATE SUGAR	TRASHING	LODGING
SRA28Φ	Average	Good	Good	Free-Average	Good
SRA26Φ	Average	Good	Good	Free-Average	Good
SRA25Φ	Poor	Average	Average	Average-Tight	Average
SRA16Φ	Average	Average	Average	Free-Average	Good
SRA15Φ	Average	Good	Good	Average	Average
SRA10Φ	Good	Good	Good	Average-Tight	Average
SRA7Φ	Poor	Average	Poor	Free-Average	Average
SRA6Φ	Average	Average	Average	Tight	Good
SRA3Φ	Poor	Average	Average	Average	Average
SRA1Φ	Good	Good	Average	Free	Poor
Q253Φ	Average	Average	Average	Free-Average	Good
Q252Φ	Average	Good	Average	Free	Good
Q251Φ	Average	Good	Average	Free-Average	Good
Q250Φ	Good	Good	Good	Free-Average	Average
Q247Φ	Average	Good	Good	Free-Average	Average-Poor
Q245Φ	Poor	Average	Average	Average	Average-Poor
Q242Φ	Poor	Average	Average	Average-Tight	Average-Poor
Q241Φ	Poor	Poor	Average	Tight	Average
Q240Φ	Average	Good	Good	Average	Average
Q238Φ	Average	Average	Average	Free-Average	Average
Q237Φ	Average	Good	Poor	Tight	Good
Q232Φ	Poor	Good	Poor	Average	Average
Q231Φ	Average	Average	Poor	Tight	Average
Q230Φ	Good	Good	Average	Loose	Average
KQ228Φ	Good	Average	Poor	Tight	Average
Q219Φ	Poor	Average	Good	Free-Average	Average
Q208Φ	Average	Good	Good	Free	Average
Q200Φ	Average	Good	Good	Free	Average
Q183Φ	Poor	Poor	Average	Free-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
- LOW / AVERAGE-POOR
- POOR
- UNKNOWN

TRASHING

- LOOSE
- FREE
- FREE-AVERAGE
- AVERAGE
- AVERAGE-TIGHT
- TIGHT

Tableland Harvest Management					
VARIETY	EARLY SUGAR	MID SUGAR	LATE SUGAR	TRASHING	LODGING
SRA28ф	Good	Good	Good	Free-Average	Good
SRA27	Poor	Average	Average	Free	Average
SRA26ф	Average	Good	Good	Free-Average	Good
SRA25ф	Poor	Average	Average	Average-Tight	Average
SRA16ф	Average	Average	Average	Free-Average	Average
SRA15ф	Average	Average	Average	Average	Good
SRA10ф	Good	Good	Good	Average-Tight	Average
SRA7ф	Poor	Poor	Poor	Free-Average	Average
SRA6ф	Poor	Poor	Poor	Tight	Good
SRA3ф	Poor	Poor	Poor	Average	Average
SRA1ф	Good	Good	Average	Free	Average-Poor
Q256ф	Poor	Poor	Poor	Free-Average	Poor
Q253ф	Average	Average	Average	Free-Average	Good
Q252ф	Average	Good	Average	Free	Good
Q251ф	Poor	Good	Average	Free-Average	Good
Q250ф	Good	Good	Good	Free-Average	Average
Q247ф	Average	Good	Good	Free-Average	Average
Q241ф	Poor	Poor	Average	Tight	Average
Q240ф	Average	Average	Average	Average	Good
Q238ф	Average	Average	Poor	Free-Average	Average
Q237ф	Average	Good	Poor	Tight	Good
Q232ф	Poor	Good	Poor	Average	Average
Q231ф	Average	Poor	Poor	Tight	Good
Q230ф	Good	Good	Average	Loose	Good
KQ228ф	Good	Good	Average	Tight	Good
Q219ф	Poor	Average	Good	Free-Average	Average
Q208ф	Average	Average	Average	Free	Average
Q200ф	Poor	Average	Average	Free	Average
Q183ф	Poor	Poor	Average	Free-Average	Good

GOOD
AVERAGE
LOW / AVERAGE-POOR
POOR
UNKNOWN

TRASHING
LOOSE
FREE
FREE-AVERAGE
AVERAGE
AVERAGE-TIGHT
TIGHT

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. White indicates unknown.

Northern Disease Ratings

VARIETY	REGION*	SMUT	PACHYMETRA	LEAF SCALD	CHLOROTIC STREAK	ORANGE RUST	BROWN RUST	RED ROT	YELLOW SPOT	FIJI LEAF GALL	MOSAIC
SRA28Φ	N, T	I-R	R	R		R		R	R	I	R
SRA27	T	I-R	I-S	R		R	R	I		R	R
SRA26Φ	N, T	R	R	R		R		R	R	I	S
SRA25Φ	N, T	I-S	R	R		R		S	I-R	S	S
SRA16Φ	N, T	R	R	R		R		R		S	R
SRA15Φ	N, T	I-S	I-R	R		R		R		R	R
SRA10Φ	N, T	I	I-R	R		R		I	R	S	S
SRA7Φ	N, T	I-R	I	R		R		R	R	I	R
SRA6Φ	N, T	R	R	R		R		I	I-R	I	R
SRA3Φ	N, T	I	I-R	I		R	R	I-R	I-R	S	R
SRA1Φ	N, T	I-R	I-R	R		R	R	I	I-R	I	R
Q256Φ	T	I	I-S	R		R		I	R	R	R
Q253Φ	N, T	R	R	R		R	I-S	I	S	S	R
Q252Φ	N, T	I-R	I	R		R		R	I	I	R
Q251Φ	N, T	I-S	R	I-S		R		I-S	I-R	R	I-R
Q250Φ	N, T	R	I	R		I		I	I-R	I-S	I-R
Q247Φ	N	I-R	R	R		R		R	S	R	R
Q245Φ	N	R	R	R		R		S	R	R	R
Q242Φ	N	I-R	R	R	I	R		I-R	R	R	R
Q241Φ	N, T	R	R	R		R	R	R	R	R	I-R
Q240Φ	N, T	R	I	R	I-R	R		R	I	I-S	R
Q238Φ	N, T	R	R	R	S	R	R	I-R	S	I-R	R
Q237Φ	N, T	S	S	I			R	I		I	R
Q232Φ	N, T	I-R	I	R	R	R		I-R	R	I	R
Q231Φ	N, T	R	R	I-R		R		R	I	S	I-R
Q230Φ	N, T	S	I-R	R		I-S		I	R	R	R
KQ228Φ	N, T	I	I	R	S	R	R	R	I	I	R
Q219Φ	N, T	R	R	R		R		R		S	S
Q208Φ	N, T	I-R	I	R	R	R	R	R	R	I-S	R
Q200Φ	N, T	I	I	R	I	R	R	R	I-R	R	R
Q183Φ	N, T	R	R	I	S	R	R	I	I-S	R	R

* Region recommended

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

N NORTHERN COASTAL
T TABLELAND

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 **sugarresearch.com.au.**

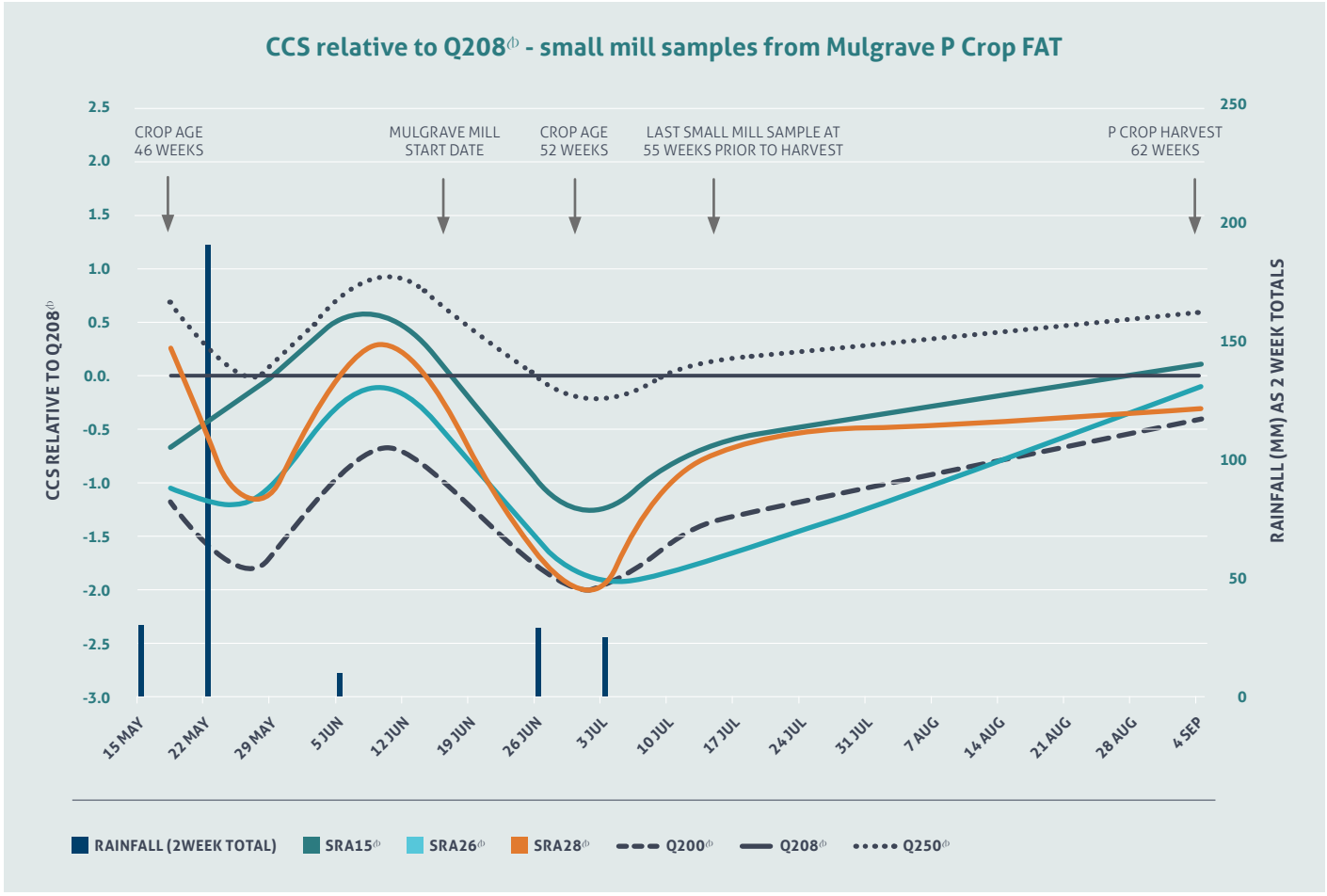
You will note that RSD resistance ratings are not included in this variety guide. Varietal resistance is not one of the three pillars of RSD disease management; growers should continue to ensure that disease-free seed cane is used to establish crops, that crops are planted into volunteer-free land and 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, Q253Φ, SRA1Φ and SRA3Φ.

MATURITY PROFILES

The CCS values for new varieties from Final Assessment Trials (FATs) are typically harvested in August to October at 12 months of age. They are a good guide to CCS potential compared to established varieties but provide limited insight into early season sugar or response to rainfall. To provide initial information on target harvest windows for new varieties, cane was sampled from a Mulgrave trial at two-week intervals from mid-May to mid-June. CCS values were added to the final harvest result to generate maturity curves over the 2020 season.



Q208Φ was used as the benchmark variety. CCS of the other varieties is expressed relative to Q208Φ in the Figure below so it can be considered like a 'mill average'. Q200Φ exhibits a later maturing profile with initial CCS values significantly below Q208Φ before becoming progressively more competitive as the season progressed. Q250Φ shows early maturing behaviour with CCS values above Q208Φ from the first sampling time in mid-May. Both Q200Φ and Q250Φ had larger reductions in CCS than Q208Φ following the rainfall events in May and late June/early July (rainfall totals shown on right axis). This response is indicative of varieties rapidly switching to vegetative growth before reverting back to maturation and sugar accumulation as conditions dry over the course of the season.

The new varieties SRA15Φ, SRA26Φ and SRA28Φ were included in the trial to begin to understand their maturity profiles. SRA26Φ responded most like Q200Φ, although with generally better CCS. This suggests harvesting SRA26Φ in the first round might be avoided and similar harvest times to Q200Φ should be targeted.

SRA28Φ showed the most pronounced CCS changes in response to the rainfall events in late May and late June/early July. This indicates it was rapidly adding biomass with a growth behaviour and maturity response similar to Q253Φ. Varieties like this typically respond well to crop ripeners. There is also potentially value in maturity testing SRA28Φ blocks prior to harvest after significant rainfall events to maximise its CCS potential.

SRA15Φ showed the most promise of the three new varieties as an option to be harvested in the first round. Its CCS values were above Q208Φ during early June and the shape of the maturity curve is like Q250Φ.

These results are from one location in one season and further data is being collected in 2021 to further characterise the maturity profiles of new varieties.

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$^{(\phi)}$ is assessed and used as a susceptible reference variety to compare to other tested varieties.

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

Tables 3 and 4 summarise all phytotoxicity, biomass and yield results obtained in the pot and field trials from 2014 to 2020.

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

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$^{(\phi)}$

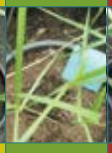
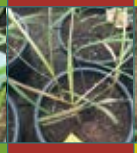
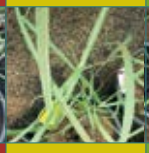
	2,4-D	2,4-D+ IOXYNIL	AMETRYN	AMETRYN+ TRIFLOXY SULFURON	AMICARBAZONE	ASULAM	DIURON	FLUMIOXAZIN	METOLACHLOR	METRIBUZIN	MSMA
DESCRIPTION OF SYMPTOMS	Small white spotty discolorations	Small yellow spotty discolorations	Yellowing of the whole plant	Slight yellow blotching	Small white spotty discolorations	Bright yellow blotching	Slight yellowing of the whole plant	Large necrotic lesions	Small necrotic lesions	Slight yellowing of the whole plant	Large necrotic lesions
PHOTOGRAPH OF SYMPTOMS		NA									
SYMPTOM SEVERITY ON KQ228$^{(\phi)}$	Mild	Mild	Medium to severe	Mild	Mild	Medium	Mild	Severe	Medium	Mild	Medium to severe
KQ228$^{(\phi)}$ 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

Table 3 *(overpage)* - Herbicide symptoms severity on the cane foliage for all tested varieties. Average EWRC scores and associated colour code are presented for each tested combination of herbicides by variety. In each trial, KQ228$^{(\phi)}$ was used as our reference variety. Note that symptoms severity on KQ228$^{(\phi)}$ can vary between trials: weather conditions at application, and/or during the trial can alter cane growth and herbicide response. These EWRC scores are average scores for the 10-week assessment period, which means higher symptoms intensity and scores have been recorded during the assessment period.

Table 4 *(overpage)* - Sugarcane dry biomass reduction in the pot trials measured 10 weeks after spraying and yield reduction in the field trial measured at harvest. The biomass reduction in the pot trials is represented in a green-to-red scale. The percentage value compared to the untreated is indicated

in the table (a negative value indicates a biomass reduction compared to the untreated, a value in bold indicates a significant biomass loss and, a positive value indicates a non-significant biomass gain compared to the untreated). 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. When available, yield reductions compared to the untreated from the field trials were also added in brackets. Red font 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). In each trial, KQ228ϕ was used as our reference variety: note that the biomass reduction can vary between trials: weather conditions at application, and/or during the trial can alter cane growth and herbicide response.

TABLE 3 PHYTOTOXICITY SEVERITY OF SYMPTOMS (LEGEND: REFER TO TABLE 1 ON THE LEFT)

TRIAL ID	VARIETY	2,4-D	2,4-D+ IOXYONIL	AMETRYN	AMETRYN+ TRIFLOXY-SULFURON	AMI-CARBAZONE	ASULAM	DIURON	FLUMI-OXAZIN	METO-LACHLOR	METRIBUZIN	MSMA
#2014	Q208ϕ	1.1	1.1		1.3		1.2			1.5	1.3	1.8
#2014	Q240ϕ	1.2	1.2		1.3		1.2			1.5	1.2	1.8
#2014	Q250ϕ	1.2	1.2		1.3		1.2			1.6	1.2	1.8
#2014	Q252ϕ	1.2	1.2		1.3		1.2			1.5	1.2	1.8
#2014	Q253ϕ	1.3	1.2		1.3		1.2			1.6	1.2	1.8
#2014	*Ref KQ228ϕ*	*1.2*	*1.2*		*1.3*		*1.2*			*1.4*	*1.2*	*1.7*
#2016 & #2020	SRA6ϕ	1.9		2.4		2.3	3.4	1.9		2.1	1.9	3.7
#2016	*Ref KQ228ϕ*	*1.7*		*2.3*			*2.3*			*1.8*	*1.7*	*3.0*
#2017	SRA10ϕ	1.5		2.2		1.3	1.8		3.6	2.3	1.3	2.9
#2017	*Ref KQ228ϕ*	*1.6*		*2.4*		*1.5*	*1.8*		*3.7*	*2.1*	*1.6*	*3.2*
#2018	SRA15ϕ	1.3		1.9		1.5	1.6		3.8	2.2	1.4	3.3
#2018	SRA16ϕ	1.6		2.5		2.0	2.3		3.7	2.7	1.8	3.4
#2018	*Ref KQ228ϕ*	*1.5*		*2.7*		*1.5*	*2.0*		*3.9*	*2.8*	*1.8*	*3.5*
#2019	SRA26ϕ	2.0		2.9		1.4	1.1	1.6		1.1	1.5	3.6
#2019	*Ref KQ228ϕ*	*1.9*		*3.2*		*1.3*	*1.1*	*1.8*		*1.1*	*1.6*	*3.1*
#2020	SRA28ϕ	1.1		1.5		1.2	3.5	1.2		1.6	1.1	3.1
#2020	*Ref KQ228ϕ*	*1.3*		*1.8*		*1.7*	*2.4*	*1.3*		*1.5*	*1.1*	*3.0*

TABLE 4 BIOMASS REDUCTION (POT TRIAL)/YIELD REDUCTION (FIELD TRIAL)

TRIAL ID	VARIETY	2,4-D	2,4-D+ IOXYONIL	AMETRYN	AMETRYN+ TRIFLOXY-SULFURON	AMI-CARBAZONE	ASULAM	DIURON	FLUMI-OXAZIN	METO-LACHLOR	METRIBUZIN	MSMA
#2014	Q208ϕ	-1%	-11%		-28%		9%			-22%	-12%	-29%
#2014	Q240ϕ	-5%	-7%		-23%		-10%			8%	-11%	-19%
#2014	Q250ϕ	-12%	-11%		-35% (0%)		-23%			-21% (+8%)	-9% (+2%)	-31% (-7%)
#2014	Q252ϕ	-7%	6%		-13%		22%			10% (+12%)	-12%	-13%
#2014	Q253ϕ	-1%	-11%		-29%		-13%			1%	-24%	-23%
#2014	*Ref KQ228ϕ*	*6%*	*-12%*		*-40%*		*7%*			*15%*	*-13%*	*-9%*
#2016 & #2020	SRA6ϕ	**-41%**		**-53%**		**-70%**	-44% (-11%)	-59%		9%	-32% (+3%)	**-53%** (-12%)
#2016	*Ref KQ228ϕ*	*-37%*		*-47%*			*-45% (+14%)*			*-35%*	*-47% (+5%)*	*-33% (+3%)*
#2017	SRA10ϕ	27%		**-63%**		-36%	-35%		**-59%**	-23%	**-46%**	**-52%**
#2017	*Ref KQ228ϕ*	*-31% (+2%)*		***-80%***		*-36% (-10%)*	***-48%*** *(-9%)*		***-55%***	*-15%*	***-60%***	***-56%***
#2018	SRA15ϕ	-24%		**-52%** (-15%)		-18%	-16%		**-58%**	-21%	-42%	-38%
#2018	SRA16ϕ	-53% (-6%)		-53% (-1%)		3%	-47% (-8%)		-47%	-9%	-25%	-37%
#2018	*Ref KQ228ϕ*	*-49% (+2%)*		*-38% (-18%)*		*16%*	*-25% (-9%)*		*-37%*	*16%*	*-45%*	*-14%*
#2019	SRA26ϕ	-21%		**-63%**		-30%	-8%	**-50%**		-13%	-42%	**-54%**
#2019	*Ref KQ228ϕ*	*-9%*		***-63%***		*-22%*	*0%*	*-44%*		*-2%*	*-35%*	*-36%*
#2020	SRA28ϕ	**-63%**		**-58%**		-65%	**-72%**	-19%		-57%	-24%	**-73%**
#2020	*Ref KQ228ϕ*	*-40%*		*-40%*		*-41%*	*-48%*	*-12%*		*46%*	*26%*	*-14%*

Legend

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

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

(% VALUE) = YIELD REDUCTION (-10% OR MORE SEVERE) IN THE FIELD TRIAL COMPARED TO THE UNTREATED

SLIGHT BIOMASS REDUCTION IN POT TRIAL COMPARED TO UNTREATED

SEVERE BIOMASS REDUCTION IN POT TRIAL COMPARED TO UNTREATED

NO BIOMASS REDUCTION IN POT TRIAL COMPARED TO UNTREATED

MODERATE BIOMASS REDUCTION IN POT TRIAL COMPARED TO UNTREATED

COMBINATION OF HERBICIDE BY VARIETY NOT TESTED

VARIETY ADOPTION IN EACH MILL AREA

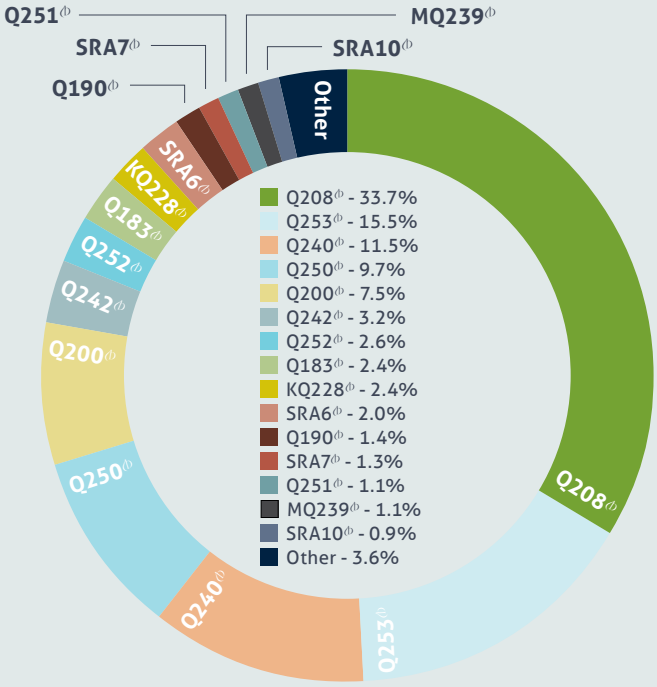
Data below can be found in QCANESelect® under the regional reporting tab. Use this information to assess yield performance of varieties over a number of years. Caution should be taken when comparing commercial performance of newer varieties (from plant and young ratoons) to older/established varieties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

Mulgrave (% TONNES 2020)

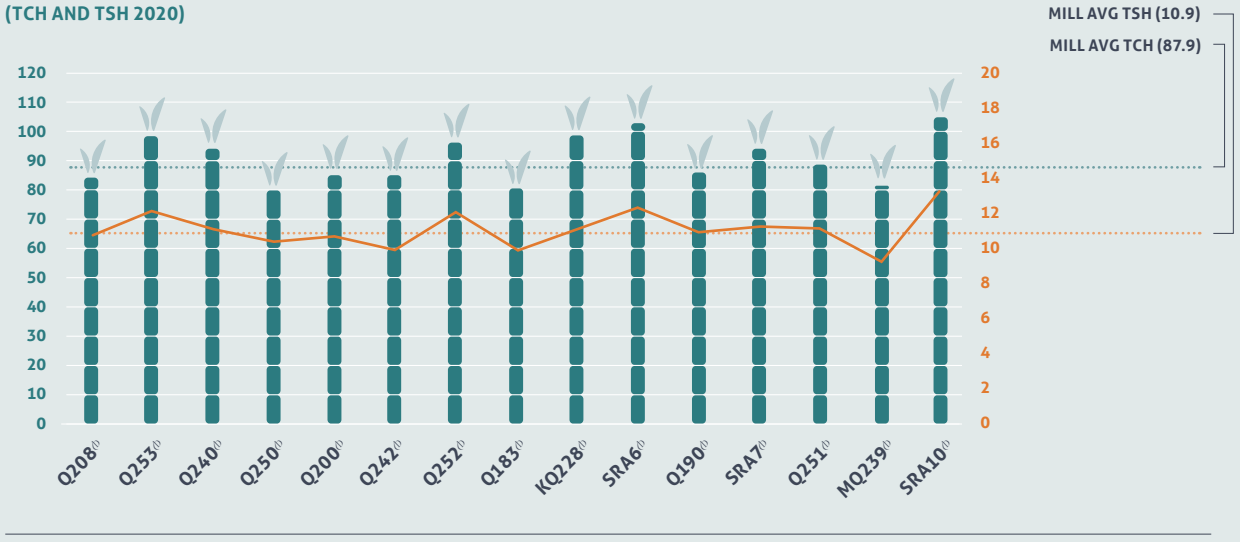
The Mulgrave mill reported a total of 1,002,143 tonnes of cane from 11,402 hectares in 2020 with an average yield of 88 t/ha and CCS of 12.41. The mill average yield for 2020 was 8 t/ha higher and the CCS was approximately 0.5 units below the 2019 average. This resulted in an overall increase in average TSH from 9.8 in 2019 to 10.9 in 2020.

While Q208Φ remains the dominant variety, it decreased by 7% in production to 34%. Q250Φ has also decreased in production from 12% to 10%. The reduction in Q208Φ and Q250Φ is a result of the continued popularity of Q253Φ and Q240Φ which now comprise almost 16% and 12% of overall production. Q253Φ is likely to increase in production in 2021, while Q240Φ is likely to remain constant at 12%.

The increase in adoption and strong performance of Q253Φ and Q240Φ relative to Q208Φ has resulted in mill average for TCH perform above Q208Φ for the first time despite its market dominance. This trend is likely to persist in coming years. Other recently released varieties, Q252Φ, SRA6Φ and SRA10Φ, also performed well above the mill average for TCH and TSH; however, SRA6Φ and SRA10Φ are mostly plant and first ratoon crops of small sample sizes.



(TCH AND TSH 2020)

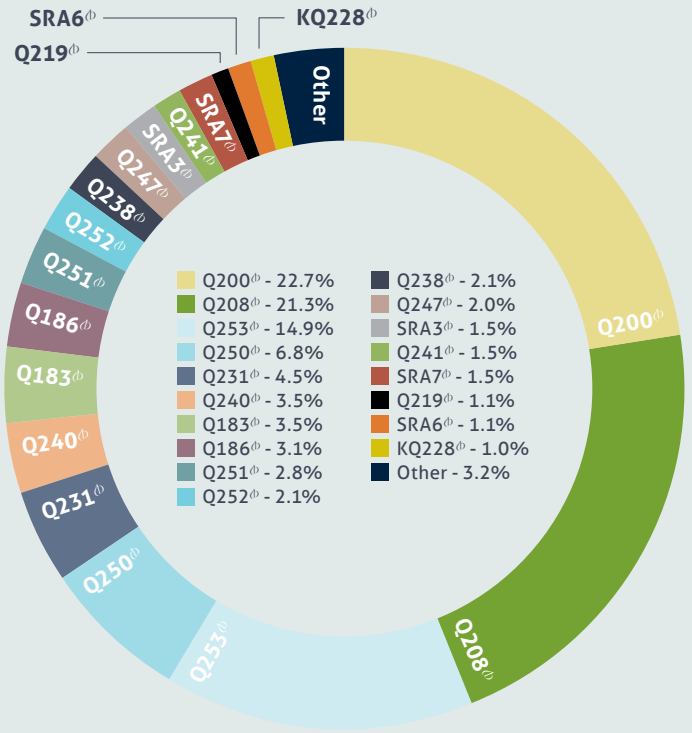


South Johnstone (% TONNES 2020)

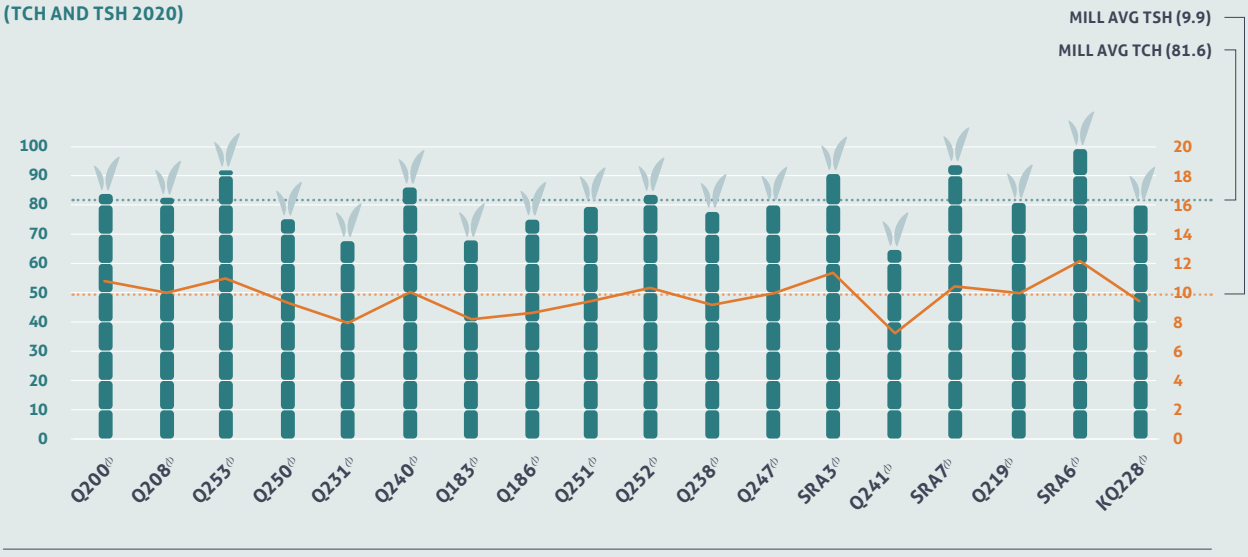
In 2020 the South Johnstone region harvested 1,771,356 tonnes from 21,708 hectares. The TCH mill average of 81.6 t/ha was 10 t/ha higher than 2019, while CCS decreased from 12.95 in 2019 to 12.23 in 2020. This resulted in an overall increase in average TSH from 9.1 in 2019 to 9.9 in 2020.

Varietal composition for South Johnstone in 2020 did not vary much from 2019. Q200Φ and Q208Φ remain dominant varieties, comprising a combined 44% of production. An increase in production of Q253Φ has resulted in an equivalent decrease in Q250Φ, Q231Φ and Q183Φ, which is unsurprising given Q253Φ's strong performance for TCH and TSH in 2020 relative to mill average and especially the three declining varieties. Q240Φ's production did not increase much from 2019.

Of the major varieties, Q200Φ and Q208Φ returned production figures equal to or near mill average, while Q253Φ performed well above mill average for CCS and TSH. Of the recent and newly released varieties, SRA3Φ, SRA6Φ and SRA7Φ also exceeded mill averages for cane yield and TSH; however, these are mostly plant and first ratoon cane of small sample sizes.



(TCH AND TSH 2020)

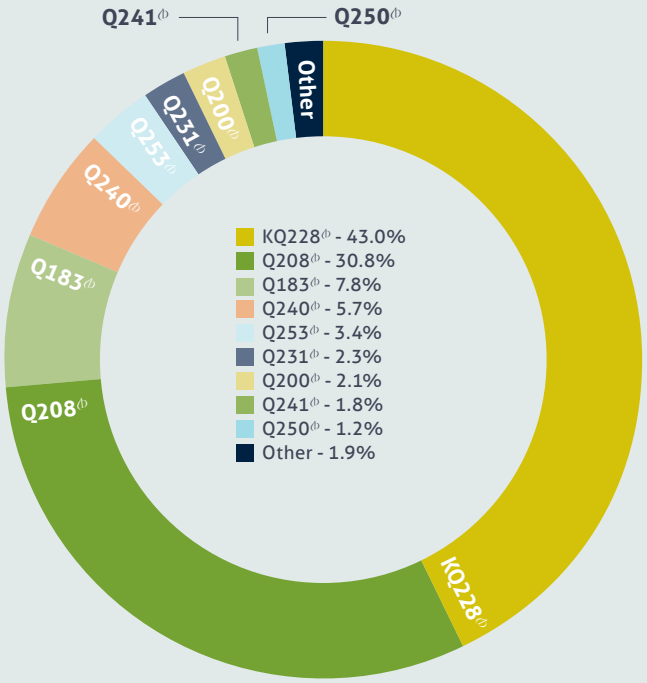


VARIETY ADOPTION IN EACH MILL AREA

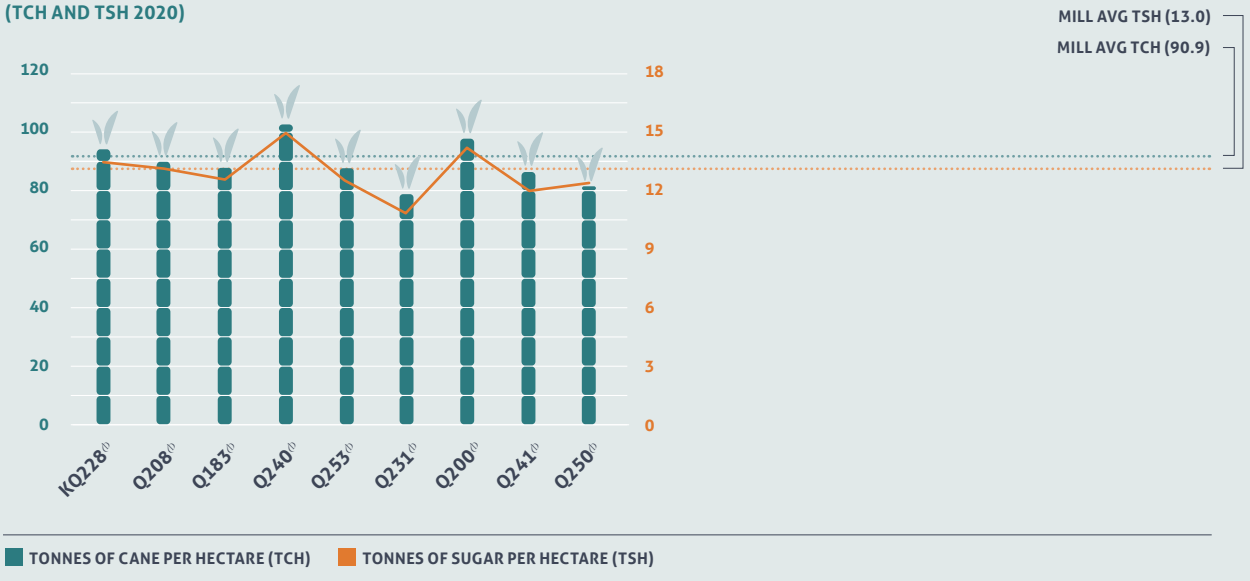
Tableland (% TONNES 2020)

The Tableland mill processed 486,217 tonnes of cane from 5,346 hectares in 2020; the average yield of 91 tonnes cane per hectare equals the 2019 harvest year while the 2020 season's CCS of 14.35 is a slight increase.

Production of KQ228Φ decreased by 3% but remains the dominant variety with 43% of production, while Q208Φ only marginally increased to 31% of production. As market share of KQ228Φ and Q208Φ is a combined 74% of overall production, it is not surprising the Tableland mill average sits comfortably in between their performances. KQ228Φ was slightly above the mill average for CCS and TSH, while Q208Φ was slightly below. Only two other varieties yielded above mill average for both cane yield and TSH, and were at or near mill the Tableland mill average CCS of 14.35; Q200Φ and Q240Φ. The biggest change in varietal composition for Tableland was also seen in Q240Φ with an increase in overall production of almost 5%. Further adoption of Q240Φ is likely to contribute to an increase in overall productivity for the Tableland region. Q253Φ's 2020 performance was disappointingly poorer for both TCH and TSH than in 2019 when it was the second most productive variety.



(TCH AND TSH 2020)

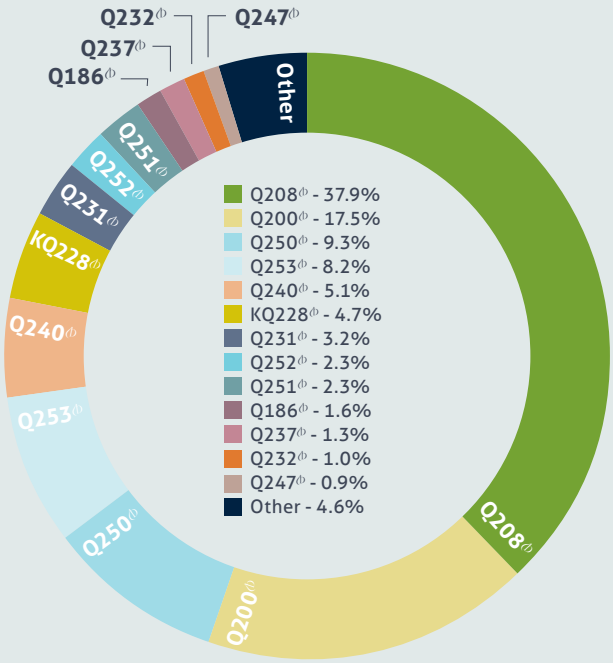


Tully (% TONNES 2020)

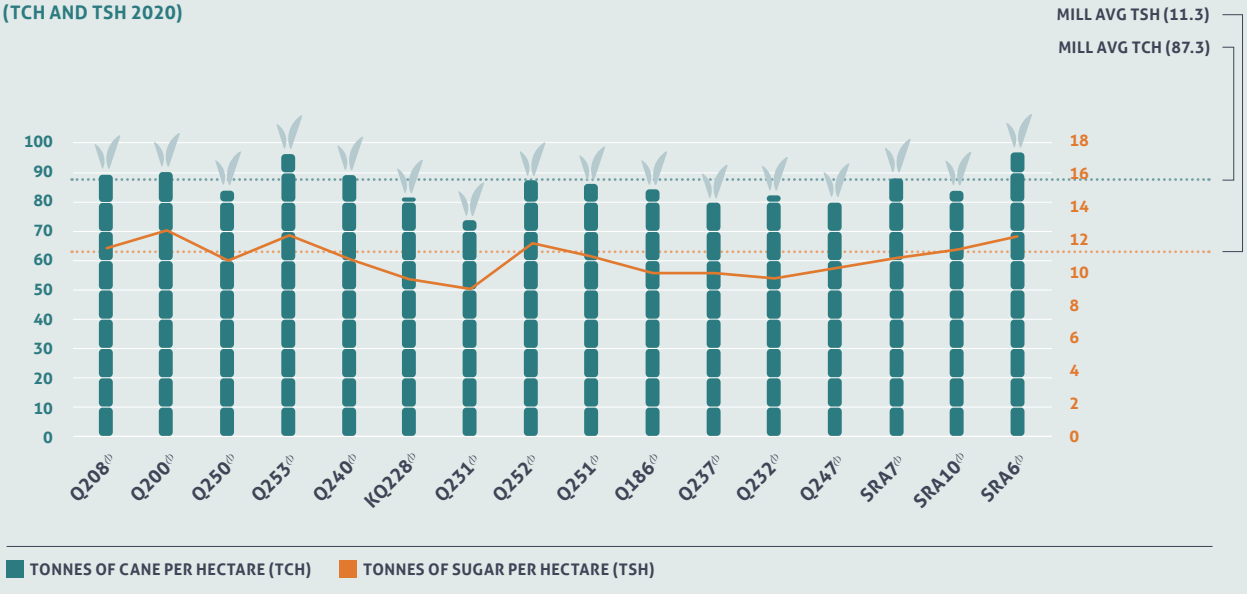
28,210 hectares were harvested in the Tully region in 2020 with a yield of 2,463,558 tonnes. The TCH result of 87.3 t/ha was up from 2019 production figures by 13 t/ha while the CCS was of 12.95 was down by 0.61 units of CCS. This resulted in an overall increase in average TSH from 10.1 in 2019 to 11.3 in 2020.

Varietal composition for Tully has remained stable over the past three years, with only minimal changes of approximately 1% in production for most varieties. The biggest decrease was seen in Q231Φ by 2%, while Q253Φ had the most notable increase in overall production of 4%.

Of the established varieties, only Q200Φ and Q253Φ performed at least 1 unit of TSH higher than the mill average. When comparing the new varieties SRA6Φ and SRA7Φ to mill average for TCH and TSH, both performed at or above average for TCH, with only SRA6Φ producing higher TSH than mill average. These are smaller sample sizes and don't include older ratoons.

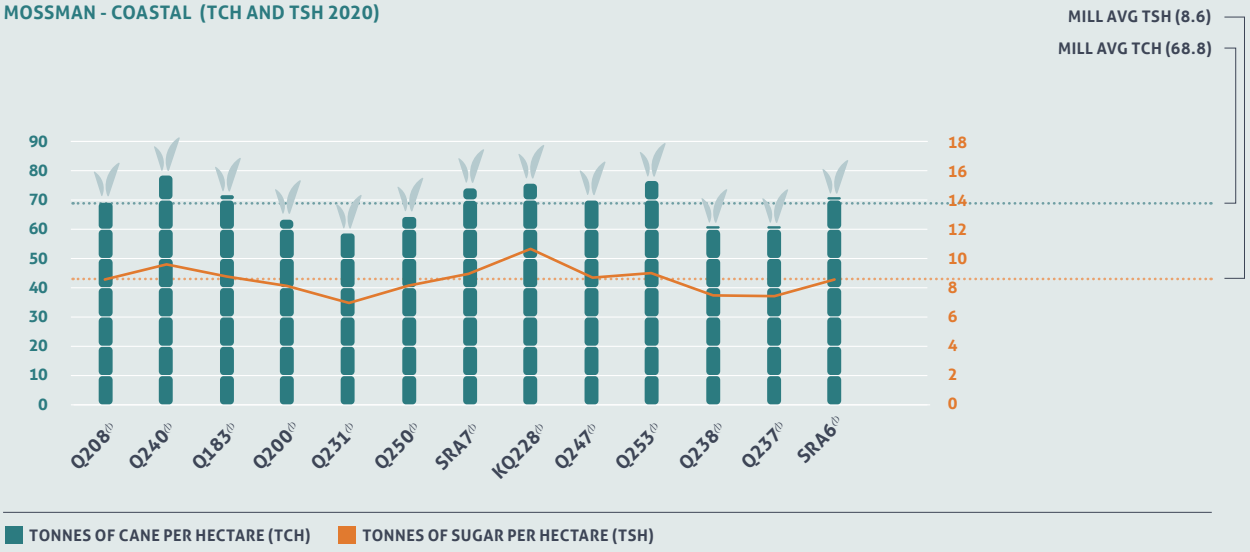


(TCH AND TSH 2020)

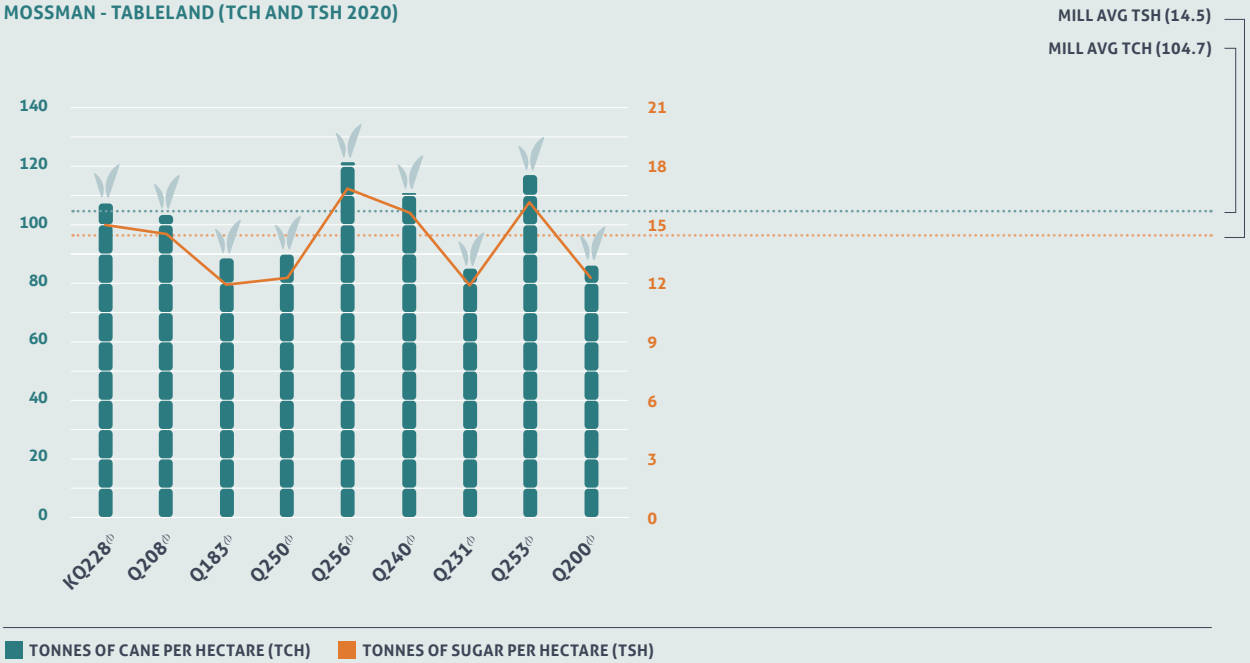


VARIETY ADOPTION IN EACH MILL AREA

MOSSMAN - COASTAL (TCH AND TSH 2020)



MOSSMAN - TABLELAND (TCH AND TSH 2020)



Mossman (% TONNES 2020)

The 2020 Mossman harvest includes coastal and Tableland production. The combined mill averages for TCH was 78.9 and CCS was 12.98, very similar to the 2019 harvest year.

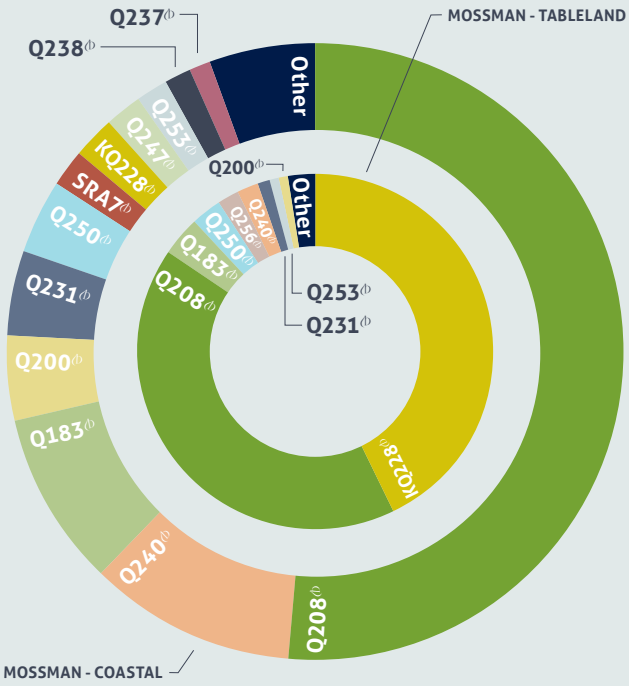
Mossman Coastal*

Varietal composition for Mossman Coastal remains similar to the 2019 harvest year, with only minimal changes has remained stable over the past three years, with only minimal changes of up to approximately 2% in production for most varieties. The biggest decrease was seen in Q208Φ by almost 3% but remains the dominant variety at just over 51% of overall production. The most significant increase in production was again in Q240Φ, increasing by almost 3% to 11% of overall production, and displacing Q183Φ as the second dominant variety. The continued increase in adoption of Q240Φ is not surprising given it was one of the most productive varieties for both TCH and TSH relative to mill average along with KQ228Φ. A slow decline in Q200Φ, Q231Φ and Q250Φ production is likely to continue in 2021 with their 2019 and 2020 harvest performances for TCH and TSH below mill average, in favour of newer varieties Q253Φ, SRA6Φ and SRA7Φ whose initial productivity data are equal to or greater than mill average for TCH and TSH; however, these are mostly plant and first ratoon samples of smaller size. Other varieties new in commercial production are recently released varieties SRA15Φ and SRA16Φ, both with under 1,000 tonnes milled.

Mossman Tableland*

KQ228Φ has continued to increase in overall production and is now the dominant variety at 43% of overall production largely at the expense of Q208Φ and Q183Φ. However, KQ228Φ and Q208Φ have a combined market share of 85% of overall production with their performance driving mill average for TCH and TSH. Q240Φ and Q253Φ have both shown strong results in Mossman Tableland production over the 2019 and 2020 harvest years, and both have excellent smut resistance. Despite these benefits, Q240Φ and Q253Φ have only marginally increased in production from 2019 which is in contrast to their adoption in other areas. The only other variety to exceed mill average for both TCH and TSH was Q256Φ.

** Data for variety breakdown between Coastal and Tableland was supplied by Mossman Mill.*



MOSSMAN - COASTAL

- Q208Φ - 51.6%
- Q240Φ - 10.9%
- Q183Φ - 9.0%
- Q200Φ - 4.6%
- Q231Φ - 4.5%
- Q250Φ - 3.7%
- SRA7Φ - 2.1%
- KQ228Φ - 2.1%
- Q247Φ - 1.9%
- Q253Φ - 1.7%
- Q238Φ - 1.5%
- Q237Φ - 1.2%
- Other - 5.3%

MOSSMAN - TABLELAND

- KQ228Φ - 42.9%
- Q208Φ - 41.8%
- Q183Φ - 3.6%
- Q250Φ - 2.7%
- Q256Φ - 2.1%
- Q240Φ - 1.9%
- Q231Φ - 1.1%
- Q253Φ - 0.8%
- Q200Φ - 0.8%
- Other - 2.4%

For more information please visit:
sugarresearch.com.au

RECENT VARIETIES FROM OTHER REGIONS NOT SUITABLE FOR THE NORTHERN REGION

The SRA Variety Development Program has an Interstation Exchange (ISE) process where elite clones are exchanged among regions and trialled in each region, including the North, for local adaptability while they are still being assessed in their region of origin. When any of these elite clones are released in their region of origin, the Northern region already has some local performance data. After assessing the Northern trial data of recently released varieties from other regions, the following varieties were identified by the Northern Regional Variety Committee (RVC) as not being suitable for the Northern region due to their poor yields, CCS, or disease resistance relative to our commercial standard varieties as well as more productive locally bred Northern varieties including SRA26Φ.

Presented below are the results of trials conducted in the Northern region. Cane yield (TCH) and CCS for varieties from other regions are compared with the trial results of Northern standard varieties.

Variety: SRA8		***Region of first release: Burdekin (2016) Northern FAT Summary:*** *Yield decline into ratoons; equal CCS*								
TRIAL HARVEST YEAR	**CROP CLASS**	**YIELD (TCH)**				**CCS**				**# OF HARVESTS**
		SRA8	**Q200Φ**	**Q208Φ**	**Q250Φ**	**SRA8**	**Q200Φ**	**Q208Φ**	**Q250Φ**	
(2013, 2016 and 2017 series FATs)	Plant	90	97	97	93	16.5	16.3	16.3	16.9	12
	1R	81	96	101	90	16.5	16.5	16.4	17.0	12
	2R	80	97	104	86	16.2	16.3	16.1	16.9	12
Overall Coastal FAT Performance		**84**	**97**	**100**	**90**	**16.4**	**16.4**	**16.3**	**16.9**	**36**
Not recommended for Northern growers										
Comments:	SRA8 was released to Burdekin growers in 2016. SRA8 results are from Northern FATs planted in 2013, 2016 and 2017. In 2020 the Northern RVC considered these local results and recommended that SRA8 not be grown in the Northern region due to its declining yields in both first and second ratoon crops. SRA8 is resistant to leaf scald, intermediate-resistant to Pachymetra root rot and intermediate to smut.									

Variety: SRA11Φ		***Region of first release: South and NSW (2018) Northern FAT Summary:*** *Yield decline into ratoons; equal CCS*								
TRIAL HARVEST YEAR	**CROP CLASS**	**YIELD (TCH)**				**CCS**				**# OF HARVESTS**
		SRA11Φ	**Q200Φ**	**Q208Φ**	**Q250Φ**	**SRA11Φ**	**Q200Φ**	**Q208Φ**	**Q250Φ**	
(2016 series FATs)	Plant	101	104	99	99	15.8	15.5	15.6	16.2	4
	1R	78	84	88	79	17.0	16.9	17.0	17.5	4
	2R	71	84	81	78	16.1	16.7	16.6	17.3	4
Overall Coastal FAT Performance		**83**	**91**	**89**	**85**	**16.3**	**16.4**	**16.4**	**17.0**	**12**
Not recommended for Northern growers										
Comments:	SRA11Φ was released to Southern and New South Wales growers in 2018. SRA11Φ results are from Northern FATs planted in 2016. In 2020 the Northern RVC considered these local results and recommended that SRA11Φ not be grown in the Northern region due to its declining yields into second ratoon. SRA11Φ is resistant to leaf scald, Pachymetra root rot and smut.									

Variety: WSRA17Φ		***Region of first release: Burdekin (2018) Northern FAT Summary:*** *Equal to lower tonnes cane; lower CCS*								
TRIAL HARVEST YEAR	**CROP CLASS**	**YIELD (TCH)**				**CCS**				**# OF HARVESTS**
		WSRA17Φ	**Q200Φ**	**Q208Φ**	**Q250Φ**	**WSRA17Φ**	**Q200Φ**	**Q208Φ**	**Q250Φ**	
(2018 series FATs)	Plant	72	81	83	72	15.3	16.7	16.2	17.3	4
	1R	88	94	103	82	15.2	16.5	15.9	16.9	4
Overall Coastal FAT Performance		**80**	**88**	**93**	**77**	**15.2**	**16.6**	**16.1**	**17.1**	**8**
Not recommended for Northern growers										
Comments:	WSRA17Φ was released to Burdekin growers in 2018. WSRA17Φ results are from Northern FATs planted in 2018. Its delay being trialled in Northern FATs was due to its initial smut susceptible disease rating. In 2020 the Northern RVC considered these local results and recommended that WSRA17Φ not be grown in the Northern region due to combination of its modest yields and lower CCS. WSRA17Φ is resistant to leaf scald, intermediate to Pachymetra root rot and intermediate-susceptible to smut.									

Variety: SRA19Φ	Region of first release: South (2019) Northern FAT Summary: Equal to lower tonnes cane; lower CCS							
TRIAL HARVEST YEAR	CROP CLASS	YIELD (TCH)			CCS			# OF HARVESTS
		SRA19Φ	Q200Φ	Q208Φ	SRA19Φ	Q200Φ	Q208Φ	
(2008 and 2011 series FATs)	Plant	101	98	93	15.5	16.8	16.7	8
	1R	104	107	116	15.5	16.6	16.7	7
	2R	59	61	67	16.2	16.8	17.0	2
Overall Coastal FAT Performance		**97**	**97**	**99**	**15.6**	**16.7**	**16.7**	**17**
Not recommended for Northern growers								
Comments:	SRA19Φ was released to Southern growers in 2019. It was originally bred in the North and trialled in Northern FATs in 2008 and 2011 series, and was subsequently discarded from the Northern program due to poor CCS. In 2020 the Northern RVC considered these local results and recommended that SRA19Φ not be grown in the Northern region due to combination of its modest yields and lower CCS. SRA19Φ is resistant to leaf scald and Pachymetra root rot and intermediate to smut.							

Variety: SRA20Φ	Region of first release: South (2019) Northern FAT Summary: Equal to lower tonnes cane; lower CCS								
TRIAL HARVEST YEAR	CROP CLASS	YIELD (TCH)				CCS			# OF HARVESTS
		SRA20Φ	Q200Φ	Q208Φ	Q250Φ	SRA20Φ	Q200Φ	Q208Φ	Q250Φ	
(2018 series FATs)	Plant	75	81	83	72	14.6	16.7	16.2	17.3	4
	1R	83	94	103	82	15.0	16.5	15.9	16.9	4
Overall Coastal FAT Performance		**79**	**88**	**93**	**77**	**14.8**	**16.6**	**16.1**	**17.1**	**8**
Not recommended for Northern growers										
Comments:	SRA20Φ was released to Southern growers in 2019. SRA20Φ results are from Northern FATs planted in 2018. In 2020 the Northern RVC considered these local results and recommended that SRA20Φ not be grown in the Northern region due to its modest yields and lower CCS. SRA20Φ is resistant to smut and Pachymetra root rot and intermediate to leaf scald.									

Variety: SRA21Φ	Region of first release: Central (2019) Northern FAT Summary: Equal to lower tonnes cane; lower CCS								
TRIAL HARVEST YEAR	CROP CLASS	YIELD (TCH)				CCS			# OF HARVESTS
		SRA21Φ	Q200Φ	Q208Φ	Q250Φ	SRA21Φ	Q200Φ	Q208Φ	Q250Φ	
(2017 series FATs)	Plant	96	97	95	92	16.9	17.0	17.2	18.0	4
	1R	76	86	89	81	15.5	16.9	16.5	17.6	4
	2R	92	94	108	92	15.6	16.3	15.9	16.7	4
Overall Coastal FAT Performance		**88**	**92**	**97**	**89**	**16.0**	**16.7**	**16.5**	**17.5**	**12**
Not recommended for Northern growers										
Comments:	SRA21Φ was released to Central growers in 2019. SRA21Φ results are from Northern FATs planted in 2017. In 2020 the Northern RVC considered these local results and recommended that SRA21Φ not be grown in the Northern region due to its modest yields and lower CCS. SRA21Φ is resistant to leaf scald and intermediate-resistant to smut and Pachymetra root rot.									

Variety: SRA22Φ	Region of first release: Central (2020) Northern FAT Summary: Yield decline into 1st ratoons; equal CCS								
TRIAL HARVEST YEAR	CROP CLASS	YIELD (TCH)				CCS			# OF HARVESTS
		SRA22Φ	Q200Φ	Q208Φ	Q250Φ	SRA22Φ	Q200Φ	Q208Φ	Q250Φ	
(2013 series FATs)	Plant	86	89	97	86	16.5	16.5	16.1	16.6	4
	1R	102	119	126	110	15.7	15.8	15.2	16.0	4
Overall Coastal FAT Performance		**94**	**104**	**116**	**98**	**16.1**	**16.1**	**15.7**	**16.3**	**8**
Not recommended for Northern growers										
Comments:	SRA22Φ was released to Central growers in 2020. SRA22Φ results are from Northern FATs planted in 2013. In 2020 the Northern RVC considered these local results and recommended that SRA22Φ not be grown in the Northern region due to its yield decline from plant to first ratoon. SRA22Φ is resistant to smut and Pachymetra root rot and intermediate-resistant to leaf scald.									

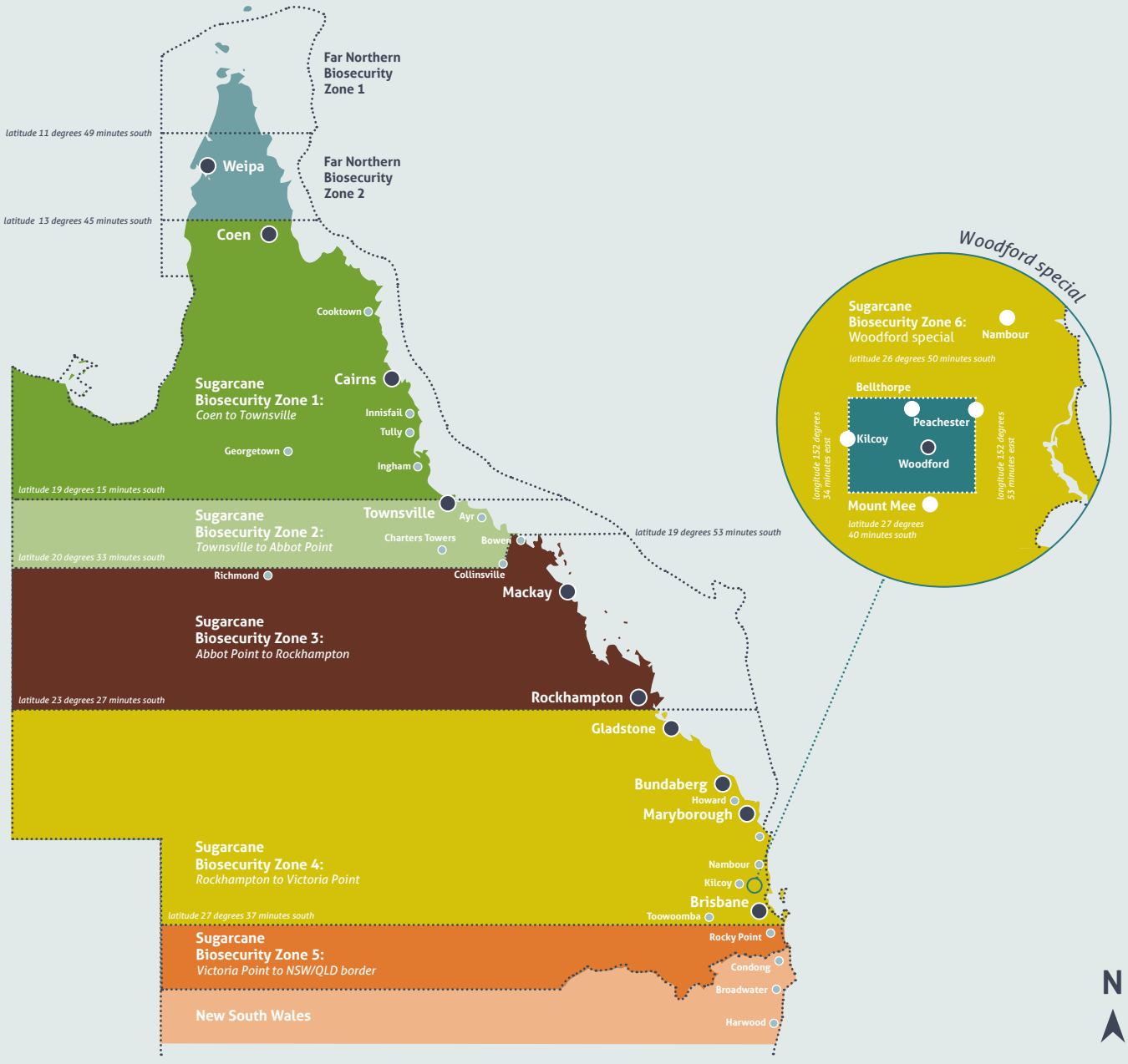
Variety: SRA23Φ	Region of first release: Burdekin (2021) Northern FAT Summary: Equal to lower tonnes cane; lower CCS								
TRIAL HARVEST YEAR	CROP CLASS	YIELD (TCH)				CCS			# OF HARVESTS
		SRA23Φ	Q200Φ	Q208Φ	Q250Φ	SRA23Φ	Q200Φ	Q208Φ	Q250Φ	
(2017 series FATs)	Plant	84	97	95	92	16.7	17.0	17.2	18.0	4
	1R	81	86	89	81	14.0	16.9	16.5	17.6	4
	2R	92	94	108	92	15.1	16.3	15.9	16.7	4
Overall Coastal FAT Performance		**86**	**92**	**97**	**89**	**15.3**	**16.7**	**16.5**	**17.5**	**12**
Not recommended for Northern growers										
Comments:	SRA23Φ was released to Burdekin growers in 2021. SRA23Φ results are from Northern FATs planted in 2017. In 2020 the Northern RVC considered these local results and recommended that SRA23Φ not be grown in the Northern region due to its modest yields and lower CCS. SRA23Φ is resistant to leaf scald and smut and intermediate to Pachymetra root rot.									

VARIETIES FOR RATOONING ONLY

Each year the Northern Regional Variety Committee (RVC) review the Northern variety list for planting and ratooning to assist with regional disease management of major diseases for Sugarcane Biosecurity Zone 1, most importantly leaf scald, and Northern growers meeting one aspect of General Biosecurity Obligation or Duty. The varieties listed below were identified by the Northern RVC to either increase the disease risk for the Northern region and/or their disease susceptibility reduces productivity below economic thresholds. These varieties are no longer available for planting and should be ratooned only. More productive and resistant varieties are available for planting from each of the Northern productivity service organisations.

VARIETY	PLANTING	RATOONING	REASON FOR REMOVAL FROM PLANTING LIST
Q246Φ	NO	YES	Central variety with red rot susceptibility with more productive varieties available
Q229Φ	NO	YES	Cannot be grown due to **leaf scald** and smut susceptibility
Q220Φ	NO	YES	Reduction in productivity and area grown due to smut susceptibility
Q218Φ	NO	YES	Reduction in productivity and area grown due to smut and red rot susceptibility
Q215Φ	NO	YES	No recent commercial plantings recorded across the Northern region & tonnes delivered reducing each year due to more productive varieties now available
Q204Φ	NO	YES	Reduction in productivity and area grown due to smut susceptibility
Q201Φ	NO	YES	Reduction in productivity and area grown due to smut susceptibility
Q199Φ	NO	YES	Cannot be grown due to **leaf scald** susceptibility
Q198Φ	NO	YES	Reduction in productivity and area grown due to smut susceptibility
Q177	NO	YES	Reduction in productivity and area grown due to Pachymetra root rot susceptibility
Q166	NO	YES	Reduction in productivity and area grown due to smut susceptibility
Q160	NO	YES	No recent commercial plantings recorded across the Northern region & tonnes delivered reducing each year due to more productive varieties now available
Q152	NO	YES	Reduction in productivity and area grown due to smut susceptibility
Q151	NO	YES	No recent commercial plantings recorded across the Northern region & tonnes delivered reducing each year due to more productive varieties now available
Q120	NO	YES	Reduction in productivity and area grown due to smut and red rot susceptibility
Q117	NO	YES	Reduction in productivity and area grown due to smut susceptibility
Q114	NO	YES	No recent commercial plantings recorded across the Northern region & tonnes delivered reducing each year due to more productive varieties now available
Q113	NO	YES	Reduction in productivity and area grown due to smut and chlorotic streak susceptibility

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.

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

Yr 1	No. plantlets ordered	100	250	500	1000
	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:
  - > Atradex® 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.

Your local productivity services and agronomy groups:

Canegrowers Tableland - Drewe Burgess:
M 0418 772 317

Innisfail Babinda Cane Productivity Services (IBCPS) - Bianca Spannagle:
M 0428 774 922

Mossman Agricultural Services Ltd (MAS) - Rebecca Stone:
M 0457 020 839

MSF Sugar Ltd
T *Mulgrave Mill* 07 4043 3307
M *Tablelands Mill (Agronomy)* 0448 341 415
M *South Johnstone (Agronomy)* 0427 620 316

Tully Cane Productivity Services Ltd - Peter Sutherland:
M 0429 022 702

Tully Sugar Ltd - Greg Shannon:
M 0400 586 968

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