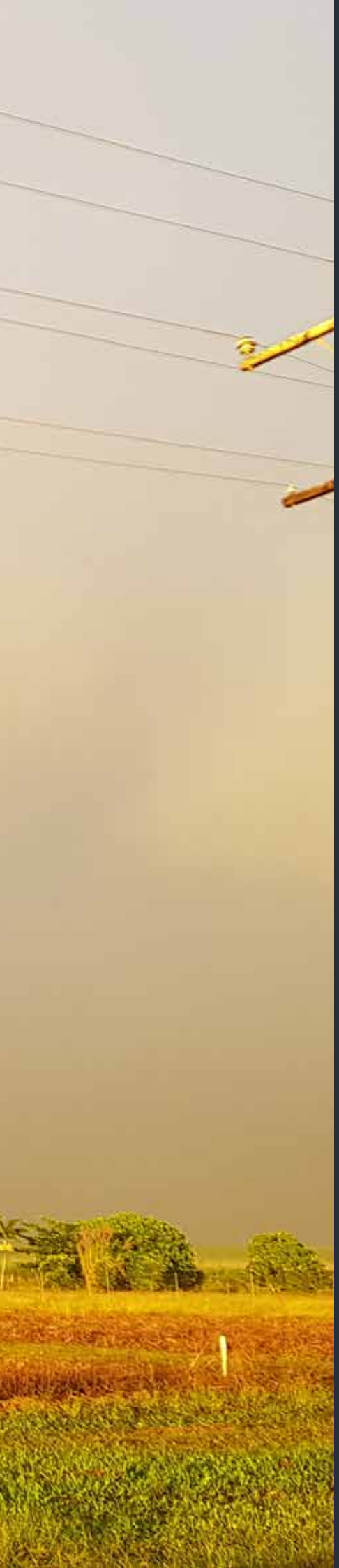
Sugar Research Australia

VARIETY GUIDE 2019/2020

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 ***www.sugarresearch.com.au***

ISSN 2208-7761 (Online) ISSN 2208-7753 (Print)

NEW & RECENT VARIETIES AVAILABLE IN THE NORTHERN REGION

New Variety Recommendation and Release Process

Regional Variety Committees (RVC) 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 will continue to be 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 nonvoting 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: SRA10Φ QN06-807 — ***Parentage:*** *QN92-157 x QN91-3898* **/** ***Summary:*** *Yield decline into ratoons; higher CCS*

TRIAL HARVEST YEAR		CROP CLASS	YIELD (TCH)				CCS				# OF HARVESTS
			SRA10Φ	Q200Φ	Q208Φ	Q250Φ	SRA10Φ	Q200Φ	Q208Φ	Q250Φ	
(2012 series FATs):	2013	Plant	106	102	94	96	17.6	16.9	17.4	18.2	4
	2014	1R	96	91	90	92	16.4	16.1	16.3	16.5	4
	2015	2R	94	99	103	90	16.2	15.8	16.2	15.9	4
(2015 series FATs):	2016	Plant	115	126	124	116	15.7	15.1	15.0	16.0	4
	2017	1R	111	119	123	111	15.7	15.0	14.9	16.1	4
	2018	2R	75	95	98	83	17.7	17.3	17.3	18.2	4
(2016 series FATs):	2017	Plant	91	105	102	100	16.2	15.5	15.5	16.1	4
	2018	1R	69	83	90	80	17.4	16.8	16.9	17.5	4
(2017 series FATs):	2018	Plant	95	99	96	94	17.4	17.1	17.2	18.1	4
Overall Performance			**95**	**102**	**102**	**96**	**16.7**	**16.2**	**16.3**	**16.9**	**36**
Available from 2017											
Comments:		SRA10Φ's results are from FATs planted in 2012, 2015, 2016 and 2017 (ratoon data from the 2016 and 2017 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 to smut and Pachymetra root rot.								

Variety: SRA26 QN08-2282 — ***Parentage:*** *QN97-2122 x Q146* **/** ***Summary:*** *Equal tonnes cane; equal CCS*

TRIAL HARVEST YEAR		CROP CLASS	YIELD (TCH)				CCS				# OF HARVESTS
			SRA26	Q200Φ	Q208Φ	Q250Φ	SRA26	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	110	99	96	94	17.1	17.1	17.2	18.1	4
Overall Performance			**110**	**104**	**109**	**97**	**15.9**	**15.9**	**15.8**	**16.4**	**16**
Available from 2019											
Comments:		SRA26's results are from FATs planted in 2014 and 2017 (data from the 2017 FATs are still being collected). In these trials SRA26 was competitive with both Q200Φ and Q208Φ for cane yield and CCS across all sites and crop classes. SRA26 has good canopy closure, moderate stalk numbers and is erect in habit for good harvest presentation. SRA26 has an excellent disease profile with resistance to all major diseases including smut, Pachymetra root rot and Leaf Scald.								

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 series FATs): 2012	Plant	116	98	93	101	15.6	16.5	16.4	17.1	4
2013	1R	121	106	113	101	16.2	17.1	17.4	18.1	4
2014	2R	105	93	98	80	15.3	16.3	16.5	16.7	4
(2014 series FATs): 2015	Plant	110	101	103	99	14.1	15.5	15.5	16.1	4
2016	1R	123	116	128	108	14.4	15.6	15.4	15.8	4
2017	2R	106	99	109	88	13.9	15.1	15.1	15.7	4
(2015 series FATs): 2016	Plant	128	126	124	116	13.8	15.1	15.0	16.0	4
2017	1R	121	119	123	111	13.9	15.0	14.9	16.1	4
2018	2R	94	95	98	83	16.4	17.3	17.3	18.2	4
(2016 series FATs): 2017	Plant	104	105	102	100	14.0	15.5	15.5	16.1	4
2018	1R	87	83	90	80	15.6	16.8	16.9	17.5	4
(2017 series FATs): 2018	Plant	106	99	96	94	16.0	17.1	17.2	18.1	4
Overall Performance		**110**	**103**	**106**	**97**	**14.9**	**16.1**	**16.1**	**16.8**	**48**
Available from 2016										
Comments:	SRA7Φ was planted in five FAT series (2011, 2014, 2015, 2016 and 2017). SRA7Φ's cane yield was above-average, and CCS on average -1.0 unit, when compared with commercial standards. Cane yields were consistently maintained above the commercial standards across ratoon crops and soil types (where tested). SRA7Φ is resistant to Leaf Scald; intermediate resistance to smut and Pachymetra root rot.									

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 series FATs): 2012	Plant	102	98	93	101	16.1	16.5	16.4	17.1	4
2013	1R	118	106	113	101	16.9	17.1	17.4	18.1	4
2014	2R	106	93	98	80	15.9	16.3	16.5	16.7	4
(2014 series FATs): 2015	Plant	100	101	103	99	14.8	15.5	15.5	16.1	4
2016	1R	119	116	128	108	14.5	15.6	15.4	15.8	4
2017	2R	101	99	109	88	14.3	15.1	15.1	15.7	4
(2015 series FATs): 2016	Plant	117	119	115	109	14.5	15.1	15.0	15.9	4
2017	1R	108	102	103	94	14.8	15.0	14.9	16.1	4
2018	2R	98	95	98	83	17.0	17.3	17.3	18.2	4
(2016 series FATs): 2017	Plant	97	105	103	99	14.7	15.5	15.5	16.1	4
2018	1R	92	83	90	80	16.4	16.8	16.9	17.5	4
(2017 series FATs): 2018	Plant	94	99	96	94	16.6	17.1	17.2	18.1	4
Overall Performance		**106**	**103**	**106**	**97**	**15.6**	**16.1**	**16.1**	**16.8**	**48**
Available from 2016										
Comments:	SRA6Φ was planted in five FAT series (2011, 2014, 2015, 2016 & 2017). SRA6Φs 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. SRA6Φ has an excellent disease resistance profile to all major diseases, including smut, Pachymetra root rot and Leaf Scald.									

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	102	105	103	99	15.0	15.5	15.5	16.1	4
2018	1R	91	83	90	80	16.6	16.8	16.9	17.5	4
(2017 series FATs): 2018	Plant	95	99	96	94	16.8	17.1	17.2	18.1	4
Overall Performance		**102**	**101**	**105**	**94**	**15.9**	**16.3**	**16.2**	**16.8**	**24**
Available from 2018										
Comments:	SRA16Φ's results are from the FATs planted in 2013 and 2016 (data from the 2016 FATs is 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 is resistant to all major diseases including smut, Leaf Scald and Pachymetra root rot.									

SRA27

SRA26

SRA25

SRA16(◊)

SRA15(◊)

SRA10(◊)

SRA7(◊)

SRA6(◊)

For more information on *variety field trials* contact:

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Variety: SRA25	QN08-1898	*Parentage: Q241Φ x QC89-432 / Summary: Equal tonnes cane; lower CCS*								
TRIAL HARVEST YEAR	CROP CLASS	YIELD (TCH)				CCS				# OF HARVESTS
		SRA25	Q200Φ	Q208Φ	Q250Φ	SRA25	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	99	96	94	17.1	17.1	17.2	18.1	4
Overall Performance		**108**	**104**	**109**	**97**	**15.3**	**15.9**	**15.8**	**16.4**	**16**
Available from 2019										
Comments:		SRA25's results are from FATs planted in 2014 and 2017 (data from the 2017 FATs are still being collected). In these trials SRA25 was competitive with both Q200Φ and Q208Φ for cane yield and but lower in CCS across all sites and crop classes. SRA25 has a modest canopy cover, moderate to high numbers of thin stalks, and an open stool which can sprawl in larger crops. SRA25 has a good disease resistance profile for most major diseases; it is resistant to Pachymetra root rot and Leaf Scald, intermediate to smut, and susceptible to Red Rot.								

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	111	105	102	100	15.5	15.5	15.5	16.1	4
2018	1R	92	83	90	80	17.2	16.8	16.9	17.5	4
(2017 series FATs): 2018	Plant	89	99	96	94	17.6	17.1	17.2	18.1	4
Overall Performance		**105**	**101**	**105**	**94**	**16.5**	**16.3**	**16.2**	**16.8**	**24**
Available from 2018										
Comments:		SRA15Φ's results are from FATs planted in 2013, 2016 and 2017 (data from the 2016 and 2017 FATs is still being collected). In these FATs SRA15Φ was competitive with the commercial standards for both cane yield and CCS. SRA15Φ is resistant to Leaf Scald; intermediate resistance to Pachymetra root rot; intermediate-susceptible to smut. Recommend planting heat-treated cane with Sinker to protect against smut infection (smut may be found in SRA15Φ under moderate to high spore-load when grown in drier areas of the Wet Tropics).								

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 series FATs - Mulgrave and Tully): 2013	Plant	87	96	92	91	16.9	16.9	17.4	18.2	2
2014	1R	80	91	91	91	16.1	15.8	16.1	16.4	2
(2015 series FAT - Tully): 2016	Plant	118	122	122	112	14.9	15.2	15.4	16.0	1
2017	1R	169	180	177	157	15.4	15.3	15.4	17.1	
2018	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**	**17.0**	**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.								

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 RECOMMENDED	SMUT	PACHYMETRA	LEAF SCALD	CHLOROTIC STREAK	ORANGE RUST	BROWN RUST	RED ROT	YELLOW SPOT	FIJI LEAF GALL	MOSAIC	RSD
SRA27	T	I	I-S	R		R	R	I		R	R	S
SRA26	N, T	R	R	R				R		I	S	
SRA25	N, T	I	R	R				S		S	S	
SRA16ф	N, T	R	R	R		R		R		I	R	
SRA15ф	N, T	I-S	I	R		R		R		R	R	
SRA10ф	N, T	I	I	R		R		I		S	S	
SRA7ф	N, T	I-R	I	R		R		R		I	R	I-R
SRA6ф	N, T	I-R	R	R		R		I		S	R	S
SRA3ф	N, T	I-S	I-S	I		R	R	I-R		S	R	S
SRA1ф	N, T	I-R	I	R		R	R	I		I	R	S
Q256ф	T	S	S	R		R		I	R	R	I	S
Q253ф	N, T	R	I	R		R	I-S	I	S	S	R	S
Q252ф	N, T	I-R	I	R		R		R	I	I	R	I-R
Q251ф	N, T	S	R	I-S		R		I-S	I-R	R	I-R	S
Q250ф	N, T	R	I-S	R		I		I	I-R	S	I-R	I-R
Q245ф	N	R	R	R		R		S	R	R	R	I-S
Q242ф	N	I-R	R	R	I	R		I-R	R	R	R	S
Q241ф	N, T	R	R	R		R	R	R	R	I-R	I-R	I
Q240ф	N, T	R	I	R	I-R	R		R	I	I-S	R	I-R
Q238ф	N, T	R	R	R	S	R	R	I-R	S	I-R	R	I
Q237ф	N, T	I	I-S	I			R	I		I	R	I
Q232ф	N, T	I-R	I	R	R	R		I-R	R	I	R	I
Q231ф	N, T	R	R	I-R		R		R	I	S	I-R	I-R
Q230ф	N, T	S	I-R	R		I-S		I	R	R	R	I-R
KQ228ф	N, T	I	I	R	S	R	R	R	I	I	R	S
Q219ф	N, T	R	R	R		R		R		S	S	I-R
Q208ф	N, T	I-R	I	R	R	R	R	R	R	I-S	R	I-R
Q200ф	N, T	I	I	R	I	R	R	R	I-R	I	R	I-R
Q183ф	N, T	R	R	I	S	R	R	I	I-S	R	R	I

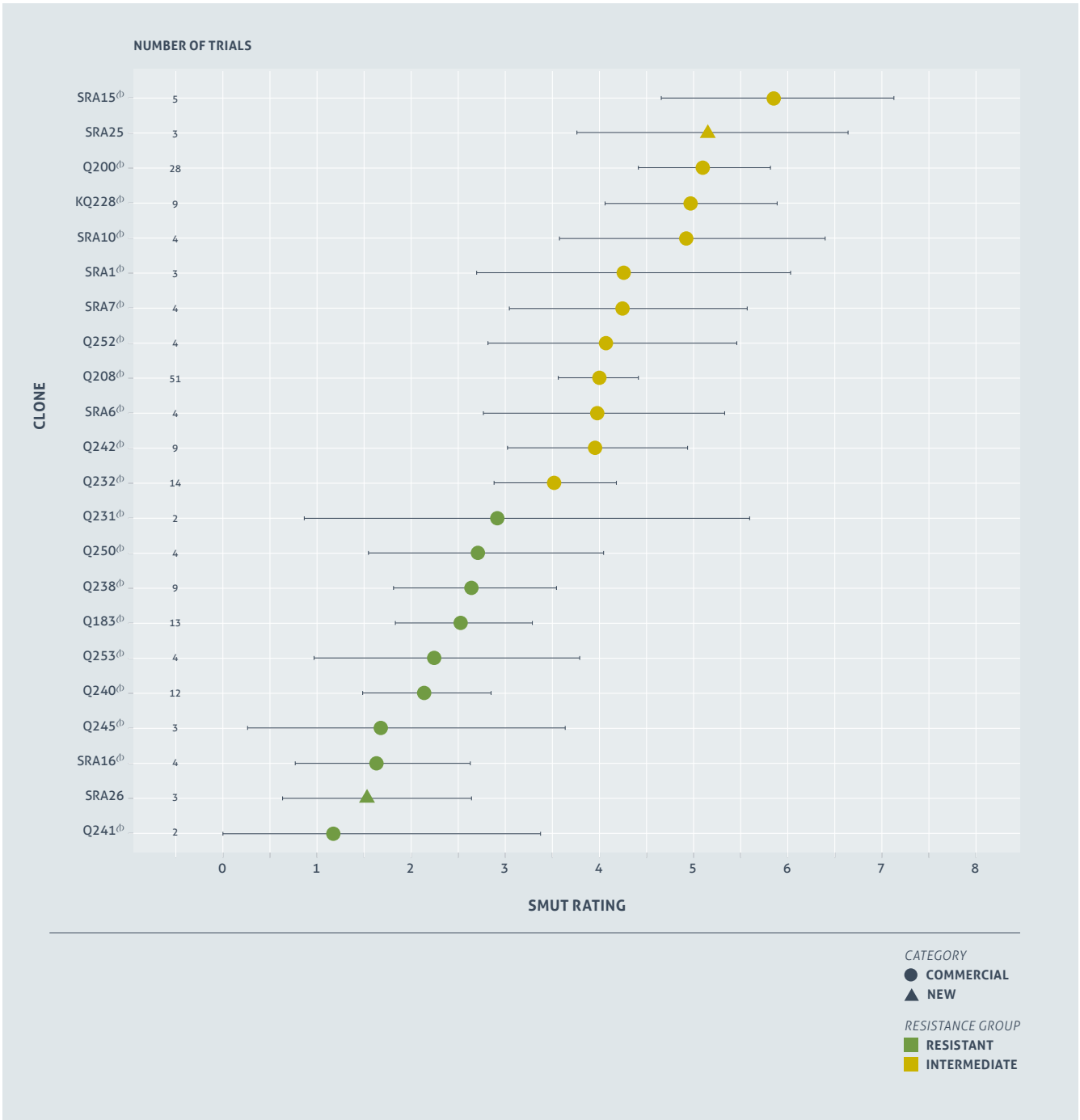
Rotation of varieties is important in the management of diseases. Arrange for your local productivity services officer to inspect your farm for disease. The Diseases of Australian Sugarcane Field Guide provides information on diseases including how to identify and manage them. The guide is available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

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

N NORTHERN COASTAL
T TABLELAND

NEW PRESENTATION FORMAT FOR SMUT RATINGS

Smut resistance ratings are calculated from the incidence and severity of infection compared to standard varieties in inoculated field trials. The graphic includes the rating and the 95% confidence interval for each variety. The confidence interval is influenced by factors such as the number of trials and the uniformity of smut infection. For example the variety Q200◊ has been tested in 28 trials and has a narrow confidence interval from 4.4 to 5.8 while the new variety SRA25 has only been tested in 3 trials and ranges from 3.75 to 6.8. Rating confidence will improve as more data is collected.



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
SRA26	Average	Good	Good	Free-Average	Good
SRA25	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	Average
Q251Φ	Average	Good	Average	Free-Average	Good
Q250Φ	Good	Good	Good	Free-Average	Average
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	Free-Average	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
- POOR
- UNKNOWN

TRASHING

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

Tableland Harvest Management					
VARIETY	EARLY SUGAR	MID SUGAR	LATE SUGAR	TRASHING	LODGING
SRA27	Poor	Average	Average	Free	Average
SRA26	Average	Good	Good	Free-Average	Good
SRA25	Poor	Average	Average	Average-Tight	Average
SRA16Φ	Average	Average	Average	Free-Average	Average
SRA15Φ	Average	Average	Average	Average	Good
SRA10Φ	Good	Good	Good	Average-Tight	Average
SRA7Φ	Poor	Poor	Poor	Free-Average	Average
SRA6Φ	Poor	Poor	Poor	Tight	Good
SRA3Φ	Poor	Average	Average	Average	Average
SRA1Φ	Good	Good	Average	Free	Average-Poor
Q256Φ	Poor	Poor	Poor	Free-Average	Poor
Q253Φ	Average	Average	Average	Free-Average	Good
Q252Φ	Average	Good	Average	Free	Average
Q251Φ	Poor	Good	Average	Free- Average	Good
Q250Φ	Good	Good	Good	Free-Average	Average
Q241Φ	Poor	Poor	Average	Tight	Average
Q240Φ	Poor	Average	Average	Average	Average
Q238Φ	Average	Average	Poor	Free-Average	Average
Q237Φ	Average	Good	Poor	Tight	Good
Q232Φ	Poor	Good	Poor	Average	Average
Q231Φ	Average	Poor	Poor	Tight	Good
Q230Φ	Good	Good	Average	Fee-Average	Good
KQ228Φ	Good	Good	Poor	Tight	Good
Q219Φ	Poor	Average	Good	Free-Average	Average
Q208Φ	Average	Average	Average	Free	Average
Q200Φ	Poor	Average	Average	Free	Average
Q183Φ	Poor	Poor	Average	Free- Average	Good

GOOD
AVERAGE
LOW
POOR
UNKNOWN

TRASHING

FREE
FREE-AVERAGE
AVERAGE
AVERAGE-TIGHT
TIGHT

VARIETY BY HERBICIDE SCREENING TRIALS

Sugarcane varieties can have sensitive responses to herbicides with some being more impacted than others. Data outlining susceptibility can be important 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:

- 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 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. Weekly phytotoxicity ratings are conducted in the pot trials using the EWRC (European Weed Research Council) rating scale and the aerial plant dry biomass is measured 10 weeks after spraying. Field trials are conducted on plant cane and yield is measured at harvest using a weigh truck. In all trials, KQ228$^{(\phi)}$ is used as a reference variety.

A range of factors including environmental conditions and plant health status strongly influence herbicide efficacy on target weeds and sugarcane. The screening trials are intended to identify varieties with sensitivity to particular herbicides, and do not predict the outcome in all situations.

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

TABLE 1 Summary of phytotoxicity ratings and symptoms obtained on the reference variety KQ228$^{(\phi)}$

	2,4-D	METRIBUZIN	AMETRYN+ TRIFLOXY SULFURON	ASULAM	MSMA	2,4-D + IOXYNIL	METOLACHLOR	AMETRYN	FLUMIOXAZIN	AMICARBAZONE
SYMPTOM DESCRIPTION	small white spotty discolorations	slight yellowing of the whole plant	slight yellow blotching	bright yellow blotching	large necrotic lesions	small yellow spotty discolorations	small necrotic lesions	yellowing of the whole plant	large necrotic lesions	small white spotty discolorations
SYMPTOM PICTURE						NA				
SYMPTOM SEVERITY ON KQ228$^{(\phi)}$	mild	mild	mild	medium	medium to severe	mild	medium	medium	severe	mild
KQ228$^{(\phi)}$ PHYTO RATING RANGE	1.2 to 1.7	1.2 to 1.8	1.3	1.2 to 2.6	1.7 to 3.5	1.2	1.4 to 2.8	1.8 to 2.7	3.9 to 4.1	1.4 to 1.5
NUMBER OF TRIALS	4	4	1	4	4	1	4	3	2	2

MILD
MEDIUM
MEDIUM TO SEVERE
SEVERE

Herbicide toxicity symptoms for all tested varieties are compared to KQ228ϕ in Table 2. Green cells indicate varieties that display less severe symptoms than KQ228ϕ. White cells indicate varieties with similar symptoms to KQ228ϕ and red cells indicate varieties that display more severe symptoms than KQ228ϕ.

- SYMPTOMS LESS SEVERE THAN KQ228ϕ
- SYMPTOMS SLIGHTLY LESS SEVERE THAN KQ228ϕ
- SYMPTOMS SLIGHTLY MORE SEVERE THAN KQ228ϕ
- SYMPTOMS MORE SEVERE THAN KQ228ϕ
- -- COMBINATION OF HERBICIDE BY VARIETY NOT TESTED

TABLE 2 Visual symptoms of herbicide toxicity compared to KQ228ϕ.
This table indicates if varieties display more or less phytotoxicity symptoms than KQ228ϕ

KQ228ϕ COMPARED TO:	2,4-D	METRIBUZIN	AMETRYN+ TRIFLOXY SULFURON	ASULAM	MSMA	2,4-D + IOXYNIL	METOLACHLOR	AMETRYN	FLUMIOXAZIN	AMICARBAZONE
SRA1ϕ			--			--			--	--
SRA3ϕ			--			--			--	--
SRA6ϕ			--			--			--	--
SRA7ϕ			--			--			--	--
SRA10ϕ			--			--				
SRA15ϕ			--			--				
SRA16ϕ			--			--				
Q208ϕ								--	--	--
Q232ϕ								--	--	--
Q238ϕ								--	--	--
Q240ϕ								--	--	--
Q242ϕ								--	--	--
Q250ϕ								--	--	--
Q252ϕ								--	--	--
Q253ϕ										

Biomass reduction in pot trials and yield loss in field trials in response to herbicide application is shown in Table 3. Dry cane biomass was measured 10 weeks after spraying and was compared to the biomass of the untreated variety. Green cells indicate varieties whose biomass was not reduced by the herbicide. Red cells indicate varieties with reduced biomass due to the herbicide treatment compared to the untreated control. Cells with a star display the combinations of herbicide by variety tested in the field to date. The orange star indicates varieties with yield reduced by more than 10% compared to the untreated control (no yield loss was significantly different to the untreated control at p = 0.05).

- NO BIOMASS REDUCTION COMPARED TO UNTREATED
- NO SIGNIFICANT BIOMASS REDUCTION COMPARED TO UNTREATED
- SLIGHT BIOMASS REDUCTION COMPARED TO UNTREATED
- SIGNIFICANT BIOMASS REDUCTION COMPARED TO
- -- UNTREATED
- ★ COMBINATION OF HERBICIDE BY VARIETY NOT TESTED COMBINATION TESTED IN FIELD TRIAL WITH YIELD
- ★ LOSS < 10% COMPARED TO UNTREATED COMBINATION TESTED IN FIELD TRIAL WITH YIELD LOSS > 10% COMPARED TO UNTREATED

TABLE 3 Biomass and yield difference compared to the untreated control of the same variety

	2,4-D	METRIBUZIN	AMETRYN+ TRIFLOXY SULFURON	ASULAM	MSMA	2,4-D + IOXYNIL	METOLACHLOR	AMETRYN	FLUMIOXAZIN	AMICARBAZONE
SRA1ϕ		★	--	★	★	--			--	--
SRA3ϕ		★	--	★	★	--			--	--
SRA6ϕ		★	--	★	★	--			--	--
SRA7ϕ		★	--	★	★	--			--	--
SRA10ϕ			--			--				
SRA15ϕ			--			--				
SRA16ϕ			--			--				
Q208ϕ								--	--	--
Q232ϕ		★		★	★			--	--	--
Q238ϕ		★		★	★			--	--	--
Q240ϕ								--	--	--
Q242ϕ		★		★	★			--	--	--
Q250ϕ		★		★	★			--	--	--
Q253ϕ								--	--	--
Q252ϕ								--	--	--
KQ228ϕ biomass reduction range	0-49%	13-60% ★	40%	0-48% ★	9-56% ★	12%	0-35%	38-80%	37-55%	0-36%
Number of trials where KQ228ϕ was tested	4	4	1	4	4	1	4	3	2	2

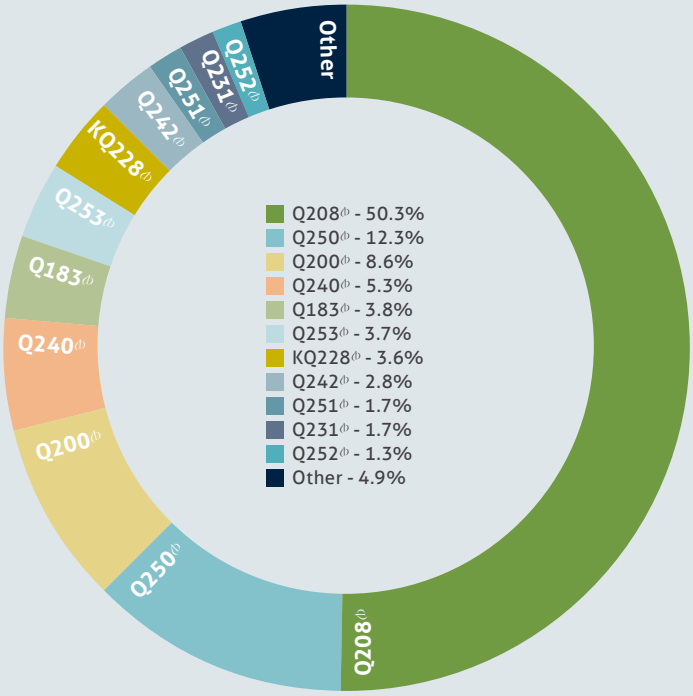
Some herbicides should only be applied as a directed spray – always consult the chemical label.

VARIETY ADOPTION IN EACH MILL AREA

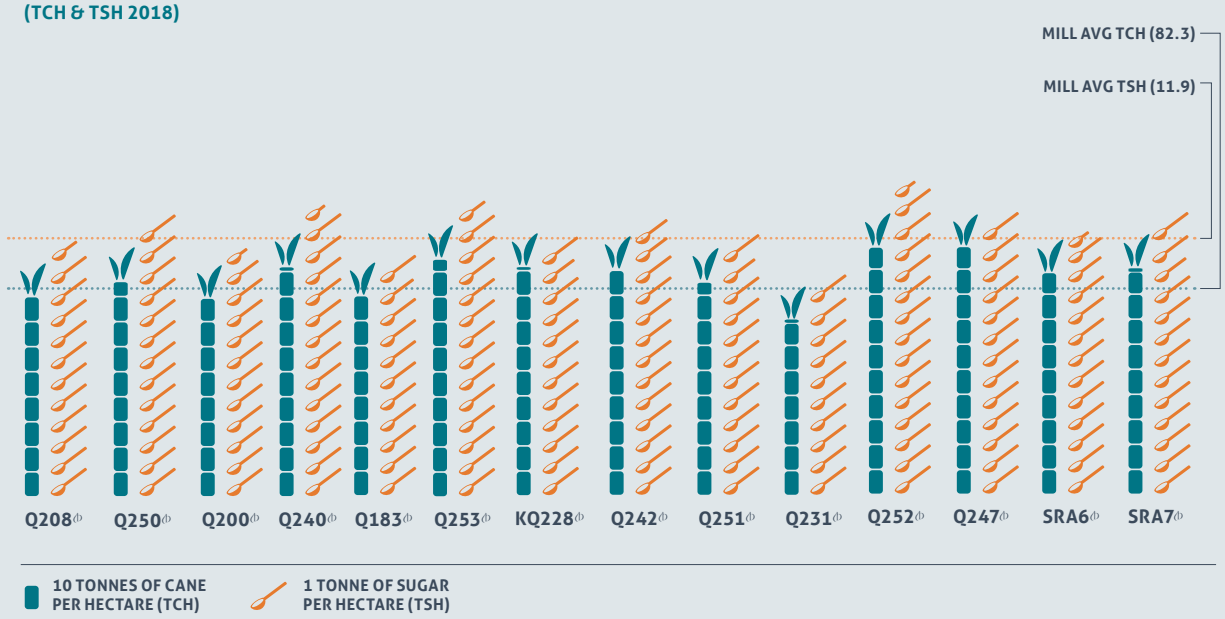
Data below can be found in QCANESelect® under the regional reporting tab. Use this information to assess yield performance of varieties over a number of years. Caution should be taken when comparing commercial performance of newer varieties (from plant and young ratoons) to older/ established varieties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

Mulgrave (% TONNES 2018)

The Mulgrave mill reported a total of 976,499 tonnes of cane from 11,861 hectares in 2018 with an average yield of 82 t/ha and CCS of 14.49. While the mill average yield for 2018 was slightly lower than 2017, the CCS was over 2 units greater. Q208Φ remains the dominant variety but decreased by 8% in production to 50%. Q250Φ continues to increase in popularity, comprising 12% of production. A sizeable increase in the production of recently released varieties Q240Φ, Q242Φ, Q252Φ and Q253Φ has resulted in a decrease in production of Q200Φ and KQ228Φ. This trend is likely to continue. With half the overall production as Q208Φ, it is not surprising Q208Φ performed at mill average for CCS and TSH. Q250Φ demonstrated its higher CCS potential by averaging 0.6 units of CCS and 0.9 TSH above the mill average. Recently released varieties Q240Φ, Q242Φ, Q247Φ, Q252Φ and Q253Φ also performed well above the mill average for cane yield and TSH, as did the new varieties SRA6Φ and SRA7Φ; however SRA6Φ and SRA7Φ are mostly plant cane of small sample sizes.

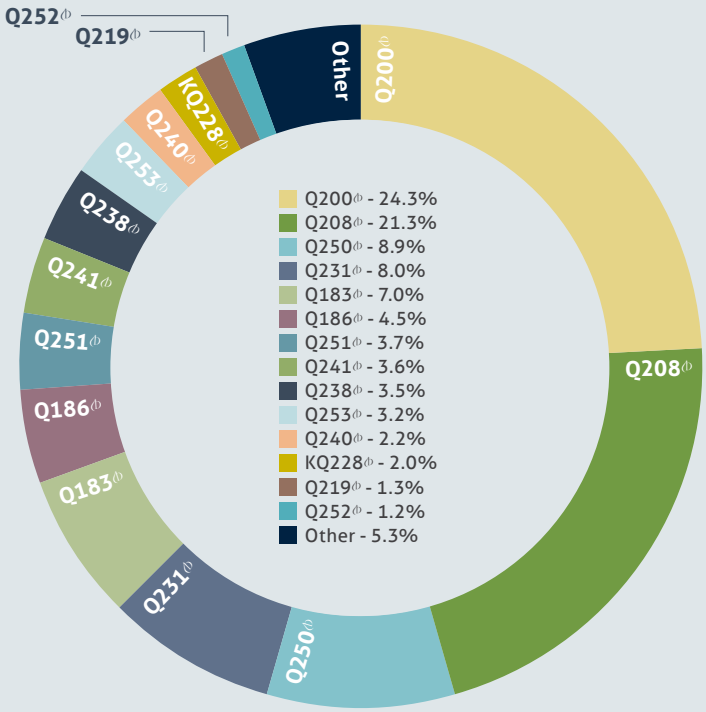


(TCH & TSH 2018)

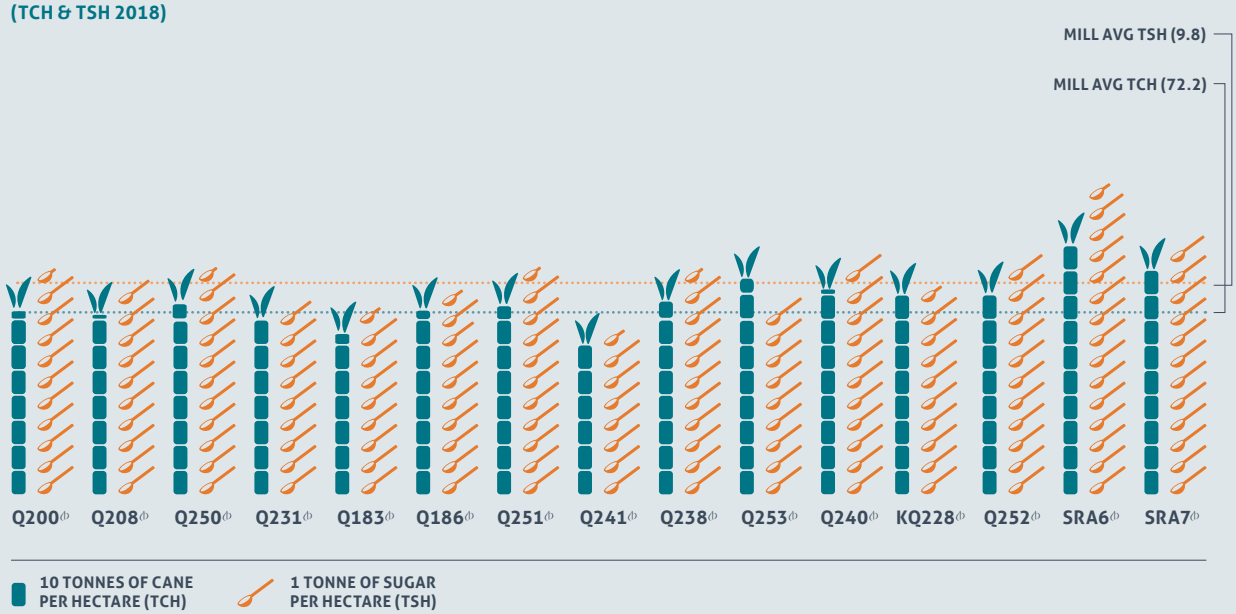


South Johnstone (% TONNES 2018)

In 2018 the South Johnstone region harvested 1,602,948 tonnes from 22,203 hectares. The mill average for TCH of 72 t/ha was slighly below 2018, while CCS increased substantially from 12.02 in 2017 to 13.62 in 2018. Varietal composition for South Johnstone in 2018 did not vary much from 2017. Q200Φ and Q208Φ remain the dominant varieties, comprising a combined 45% of production. A slight increase in production of Q240Φ and Q250Φ has resulted in an equivalent decrease in Q183Φ and Q241Φ. Of the major varieties, Q208Φ returned production figures equal to mill average, while Q200Φ and Q250Φ were above mill average for CCS and TSH. Of the recently released varieties, Q240Φ, Q252Φ and Q253Φ performed well above the mill average for cane yield and TSH. The new varieties SRA6Φ and SRA7Φ also exceeded the mill averages however these are mostly plant cane of small sample sizes.



(TCH & TSH 2018)



Mossman (% TONNES 2018)

The Mossman harvest includes coastal and Tablelands production. The combined mill averages for TCH was 91.2 and CCS was 14. Q240Φ was the stand-out performer in both districts.

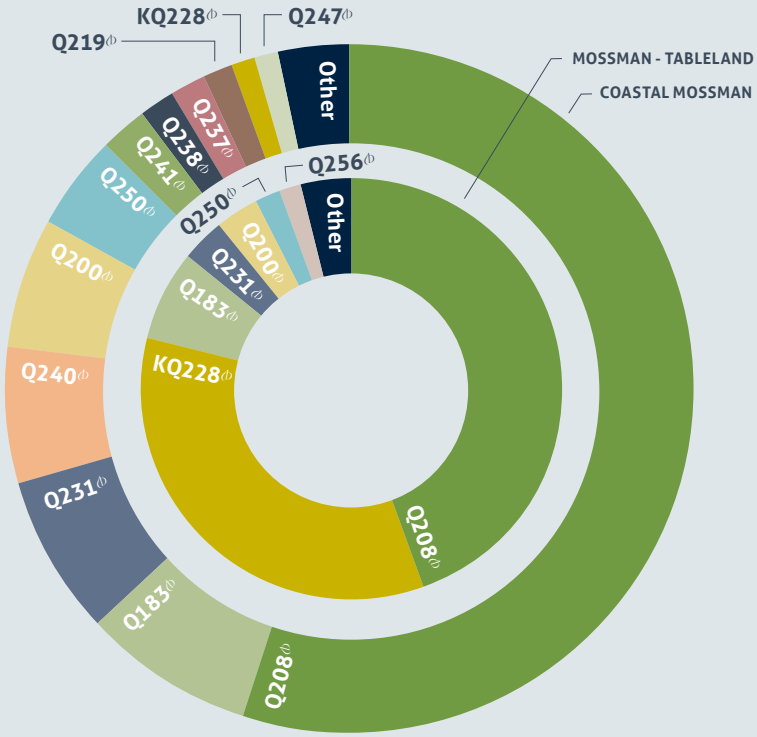
Coastal Mossman*

The most significant change to variety composition was the increase in Q240Φ to represent over 6% of production. Q208Φ was 55% of the crop which is unchanged from 2017. The newest varieties in commercial production are SRA6Φ with just under 1000 tonnes and SRA7Φ with almost 2000 tonnes milled. Among the established varieties only Q208Φ and Q240Φ performed above the mill average for both TCH and TSH. The new varieties SRA6Φ and SRA7Φ also exceeded the mill averages however these are mostly plant cane and are small sample sizes.

Mossman - Tableland*

Q208Φ contributed 45% of production which is similar to the previous year. KQ228Φ increased by 5% to represent 34% of production, largely at the expense of Q183Φ, Q231Φ and Q200Φ. Q240Φ grew to 1.2% of production and is likely to continue to increase. KQ228Φ, Q240Φ and Q256Φ exceeded the mill average for both TCH and TSH, while Q208Φ and Q250Φ were close to the average.

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



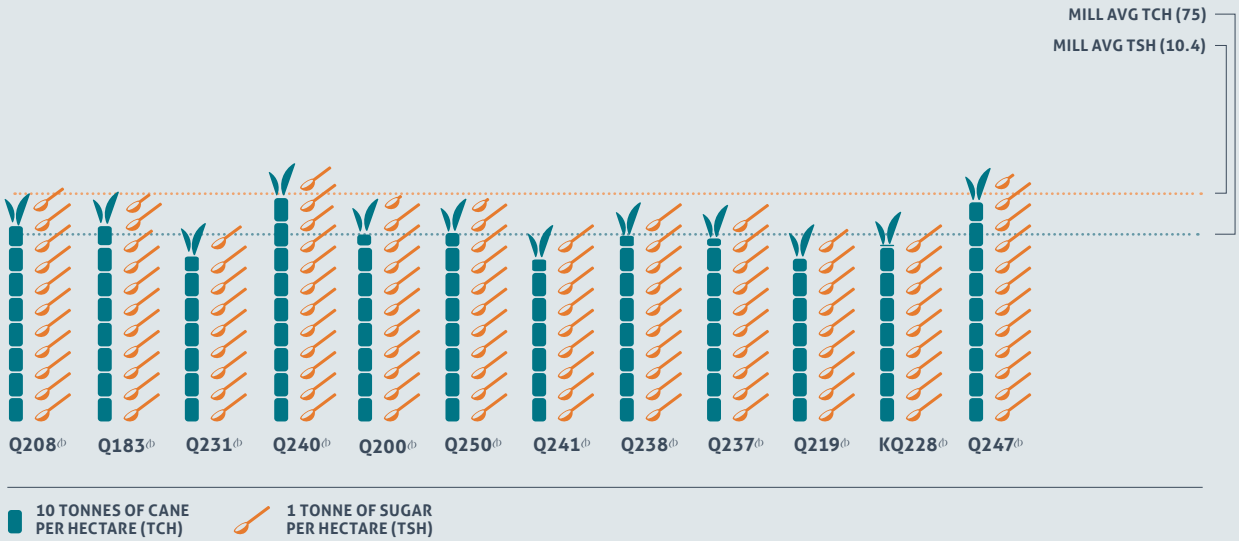
COASTAL MOSSMAN

- Q208Φ - 55.1%
- Q183Φ - 8.1%
- Q231Φ - 7.4%
- Q240Φ - 6.3%
- Q200Φ - 6.1%
- Q250Φ - 4.5%
- Q241Φ - 2.1%
- Q238Φ - 1.8%
- Q237Φ - 1.6%
- Q219Φ - 1.3%
- KQ228Φ - 1.2%
- Q247Φ - 1.0%
- Other - 3.3%

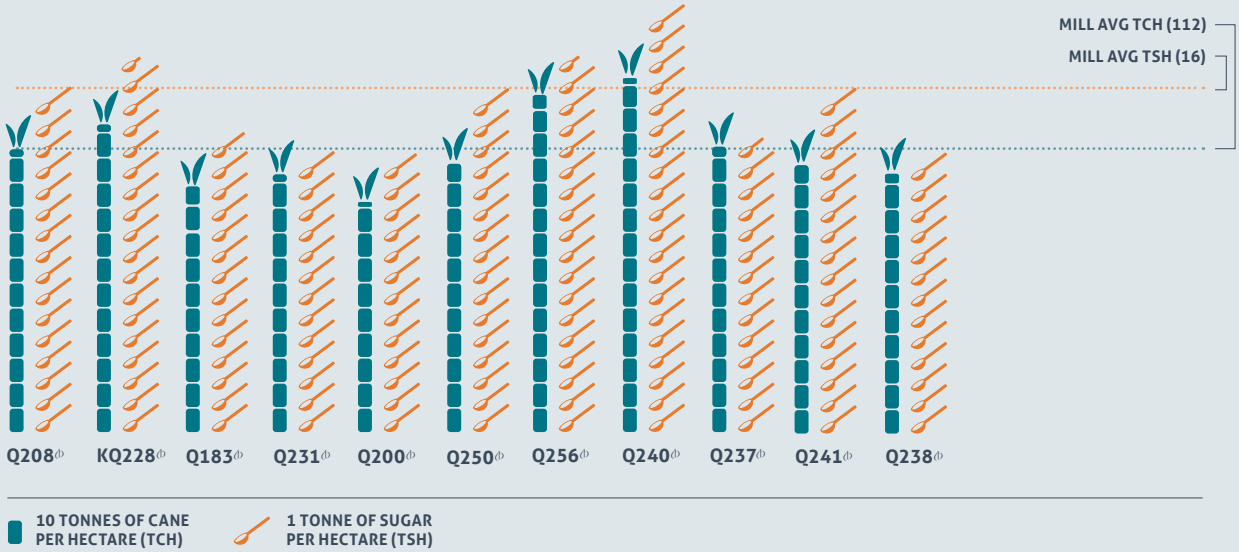
MOSSMAN - TABLELAND

- Q208Φ - 44.7%
- KQ228Φ - 34.2%
- Q183Φ - 7.0%
- Q231Φ - 3.3%
- Q200Φ - 3.3%
- Q250Φ - 2.1%
- Q256Φ - 1.6%
- Other - 3.8%

COASTAL MOSSMAN (TCH & TSH 2018)

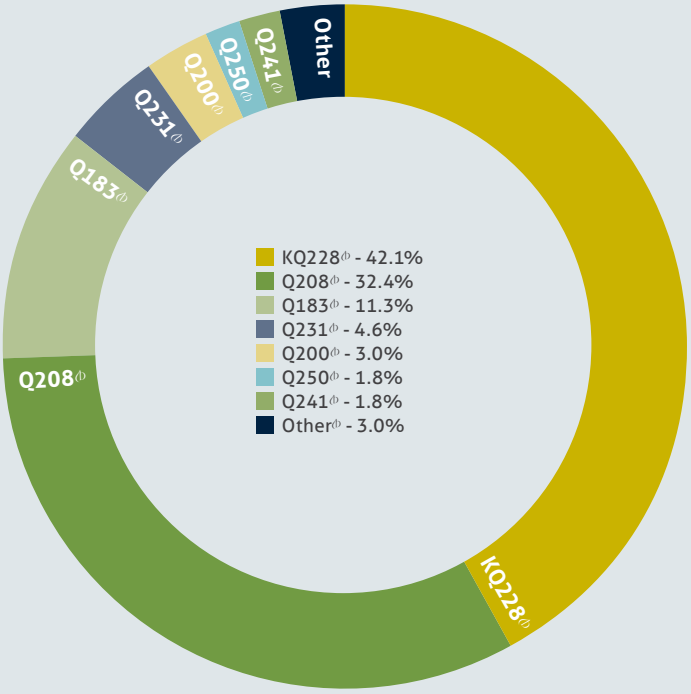


MOSSMAN - TABLELAND (TCH &TSH 2018)

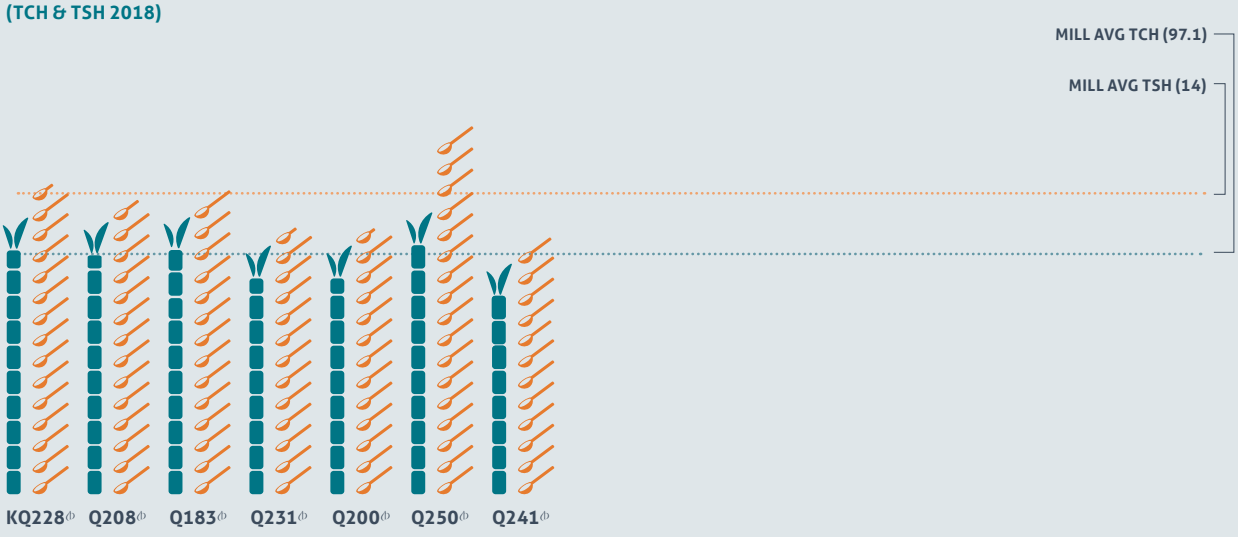


Tableland (% TONNES 2018)

The Tableland mill processed 402,032 tonnes of cane in 2018 with an average yield of 97 t/ha and CCS of 14.4 which is a slight increase on recent years. Production of KQ228ф increased by almost 5% to be the dominant variety with 42% of production, while Q208ф has fallen by 10% over the last two years to be 32%. KQ228ф was slightly above the mill average for CCS and TSH, while Q208ф was slightly below. Q250ф continues to be the best performing variety averaging 1 unit CCS above the mill and 12 t/ha above the district cane yield.



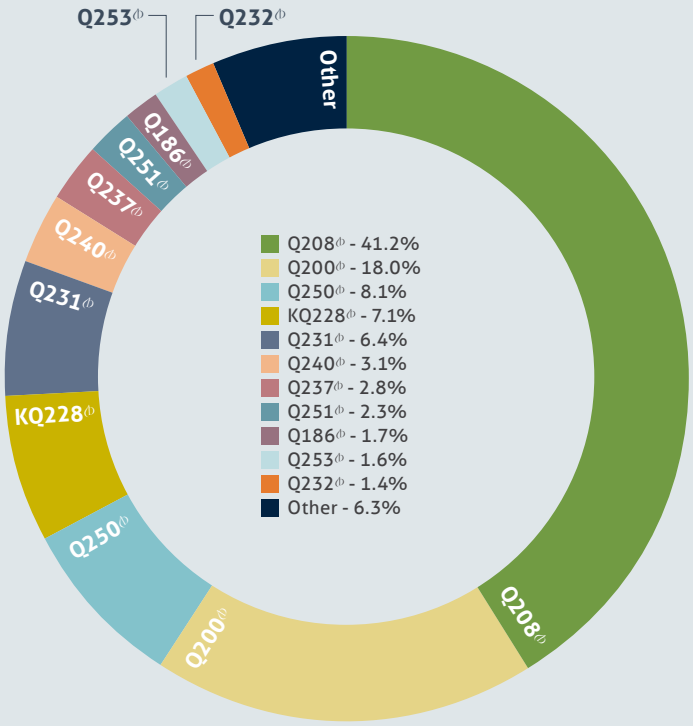
(TCH & TSH 2018)



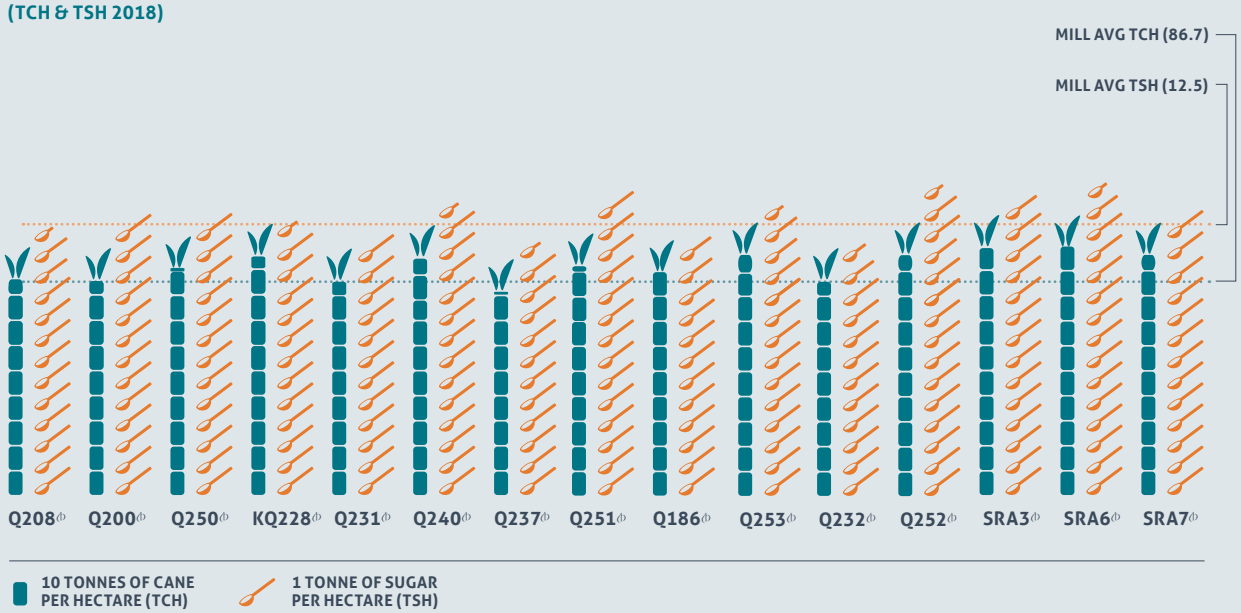
For more information please visit:
sugarresearch.com.au

Tully (% TONNES 2018)

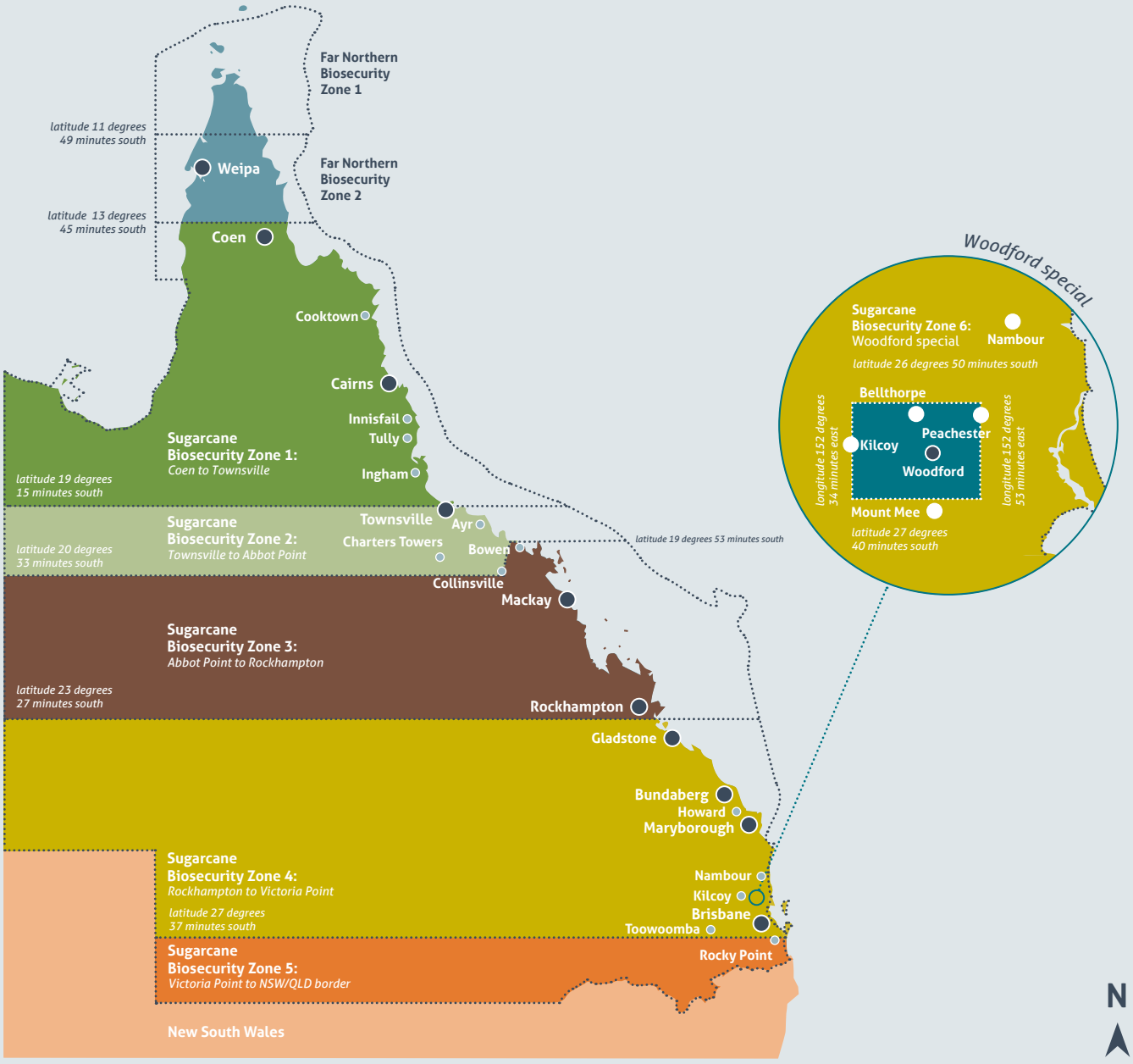
29,701 hectares were harvested the Tully region in 2018 with a yield of 2,575,142 tonnes. The TCH result of 86.7 was slightly above 2017, while CCS significantly increased from 12.93 to a mill average of 14.45 in 2018. Q208Φ remains the dominant variety but it declined by 3% to 41% of production. There was a notable increase in production of Q240Φ, Q250Φ and Q253Φ. Of the established varieties Q251Φ, Q252Φ and Q253Φ returned the highest average TSH. The new varieties SRA3Φ, SRA6Φ and SRA7Φ all performed well above the mill average for both TCH and TSH however these are smaller sample sizes and don't include older ratoons.



(TCH & TSH 2018)



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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