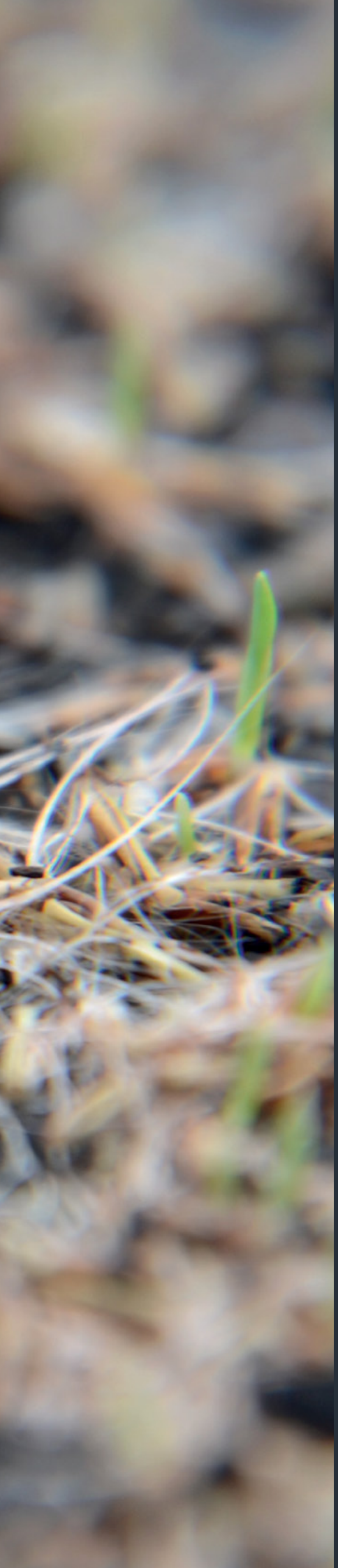
Sugar Research Australia

VARIETY GUIDE 2018/2019

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

(Cover page) *Ms Judi Bull (now retired), Ms Laura MacGillycuddy, and Ms Wilma Tomasin screening parents in the breeding program for yellow spot and orange rust. Every year, the Tully Pathology team inspects seedling and parent clones in Meringa for these two diseases. The data collected for yellow spot and orange rust will be analysed and a rating will be assigned to the inspected clones and will be stored in the SRA database, called SPIDNet.*

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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 non-voting members to ensure transparency in the decision making process.

The Northern RVC (Sugarcane Biosecurity Zone 1) membership is drawn from grower, miller and productivity services groups from 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 majority 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: ***www.sugarresearch.com.au/growers-and-millers/varieties/regional-variety-committees/***

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

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
Overall Performance			**107**	**107**	**112**	**97**	**15.5**	**15.9**	**15.8**	**16.3**	**16**
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.								

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	103	99	15.3	15.5	15.5	16.1	4
Overall Performance			**112**	**107**	**112**	**97**	**16.0**	**15.9**	**15.8**	**16.3**	**16**
Available from 2018											
Comments:			SRA15Φ's results are from FATs planted in 2013 and 2016 (data from the 2016 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.								

Variety: SRA10Φ	QN06-807	Parentage: QN92-157 x QN91-3898 / Summary: Equal tonnes cane; equal 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	16.4	4
2015	2R	97	99	103	90	16.2	15.8	16.2	15.9	4
(2015 series FATs): 2016	Plant	109	119	115	109	15.8	15.1	15.0	15.9	4
2017	1R	97	102	103	94	15.6	15.0	14.9	16.1	4
(2016 series FATs): 2017	Plant	90	105	103	99	16.1	15.5	15.5	16.1	4
Overall Performance		**99**	**103**	**101**	**96**	**16.3**	**15.7**	**15.9**	**16.4**	**24**
Available from 2017										
Comments:	SRA10Φ's results are from FATs planted in 2012, 2015 and 2016 (data from the 2015 and 2016 FATs is still being collected). Equal cane yields were observed when compared to commercial standards. CCS trial results for SRA10Φ were consistently higher than Q200Φ and Q208Φ and often similar to Q250Φ. Resistant to leaf scald; intermediate resistance to smut and Pachymetra root rot.									

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	121	119	115	109	13.7	15.1	15.0	15.9	4
2017	1R	104	102	103	94	13.9	15.0	14.9	16.1	4
(2016 series FATs): 2017	Plant	105	105	103	99	14.1	15.5	15.5	16.1	4
Overall Performance		**112**	**104**	**107**	**98**	**14.6**	**15.8**	**15.8**	**16.4**	**36**
Available from 2016										
Comments:	SRA7Φ was planted in FATs across four years (2011, 2014, 2015 and 2016). SRA7Φ's cane yield was above-average, and CCS on average -1.0 units, when compared with commercial standards. Cane yields were consistently maintained above the commercial standards across ratoon crops and soil types (where tested). 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
(2016 series FATs): 2017	Plant	97	105	103	99	14.7	15.5	15.5	16.1	4
Overall Performance		**107**	**104**	**107**	**98**	**15.2**	**15.8**	**15.8**	**16.4**	**24**
Available from 2016										
Comments:	SRA6Φ was planted in FATs across four years (2011, 2014, 2015 & 2016). 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. Early crop establishment can be slower, followed by accelerated growth from Autumn. Resistant to smut, Pachymetra root rot and leaf scald.									

*SRA16*Φ

*SRA15*Φ

*SRA10*Φ

*SRA7*Φ

*SRA6*Φ

For more information on *variety field trials* contact:

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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
SRA16Φ	N, T	R	R	R		R				I	R	
SRA15Φ	N, T	I-S	I	R		R				R	R	
SRA10Φ	N, T	I	I	R		R		I		S	S	
SRA7Φ	N, T	I	I	R		R		R		I	R	I-R
SRA6Φ	N, T	R	R	R		R		I		S	R	S
SRA3Φ	N, T	I-S	I-S	I		R	R	I-R		S	R	S
SRA1Φ	N, T	R	I	R		R	R	I		I	R	S
Q256Φ	T	S	S	R		R		I	R	R	I	S
Q253Φ	N, T	R	I	R		R	I-S	I	S	S	R	S
Q252Φ	N, T	I	I	R		R		R	I	I	R	I-R
Q251Φ	N, T	S	R	I-S		R		I-S	I-R	R	I-R	S
Q250Φ	N, T	R	I-S	R		I		I	I-R	S	I-R	I-R
Q245Φ	N	R	R	R		R		S	R	R	R	I-S
Q242Φ	N	I	R	R	I	R		I-R	R	R	R	S
Q241Φ	N, T	R	R	R		R	R	R	R	I-R	I-R	I
Q240Φ	N, T	R	I	R	I-R	R		R	I	I-S	R	I-R
Q238Φ	N, T	R	R	R	S	R	R	I-R	S	I-R	R	I
Q237Φ	N, T	I	I-S	I			R	I		I	R	I
Q232Φ	N, T	R	I	R	R	R		I-R	R	I	R	I
Q231Φ	N, T	I-R	R	I-R		R		R	I	S	I-R	I-R
Q230Φ	N, T	S	I-R	R		I-S		I	R	R	R	I-R
KQ228Φ	N, T	R	I	R	S	R	R	R	I	I	R	S
Q219Φ	N, T	R	R	R		R		R		S	S	I-R
Q208Φ	N, T	I-R	I	R	R	R	R	R	R	I-S	R	I-R
Q200Φ	N, T	R	I	R	I	R	R	R	I-R	I	R	I-R
Q183Φ	N, T	I-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 **www.sugarresearch.com.au**

- Resistant **(R)**
- Resistant -Intermediate **(I-R)**
- Intermediate **(I)**
- Intermediate- Susceptible **(I-S)**
- Susceptible **(S)**

N Northern Coastal
T Tableland

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
SRA16ф	Average	Average	Average	Free	Good
SRA15ф	Average	Good	Good	Average	Unknown
SRA10ф	Good	Good	Good	Average	Good
SRA7ф	Poor	Average	Poor	Free	Average
SRA6ф	Average	Average	Average	Free	Good
SRA3ф	Poor	Average	Good	Average	Unknown
SRA1ф	Good	Good	Average	Free	Low
Q253ф	Poor	Average	Average	Free-Average	Good
Q252ф	Average	Good	Average	Free	Good
Q251ф	Average	Good	Average	Free	Good
Q250ф	Good	Good	Good	Free-Average	Average
Q245ф	Poor	Average	Average	Unknown	Unknown
Q242ф	Poor	Average	Average	Average-Tight	Unknown
Q241ф	Poor	Poor	Average	Tight	Average
Q240ф	Average	Good	Good	Free-Average	Average
Q238ф	Average	Average	Average	Free	Average
Q237ф	Average	Good	Poor	Tight	Good
Q232ф	Poor	Good	Poor	Free-Average	Unknown
Q231ф	Average	Average	Poor	Tight	Unknown
Q230ф	Good	Good	Average	Unknown	Average
KQ228ф	Good	Average	Poor	Tight	Average
Q219ф	Poor	Average	Good	Unknown	Average
Q208ф	Average	Good	Good	Free	Average
Q200ф	Average	Good	Good	Free	Average
Q183ф	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
SRA16ф	Average	Average	Average	Free	Average
SRA15ф	Average	Average	Average	Average	Good
SRA10ф	Good	Good	Good	Average	Average
SRA7ф	Poor	Poor	Poor	Free	Average
SRA6ф	Poor	Poor	Poor	Free	Average
SRA3ф	Poor	Average	Good	Average	Average
SRA1ф	Good	Good	Average	Free	Unknown
Q256ф	Poor	Poor	Poor	Free-Average	Poor
Q253ф	Poor	Average	Average	Free-Average	Unknown
Q252ф	Average	Good	Average	Free	Unknown
Q251ф	Poor	Good	Average	Free- Average	Good
Q250ф	Good	Good	Good	Free	Average
Q241ф	Poor	Poor	Average	Tight	Unknown
Q240ф	Poor	Average	Average	Free-Average	Average
Q238ф	Average	Average	Poor	Free	Unknown
Q237ф	Average	Good	Poor	Tight	Good
Q232ф	Poor	Good	Poor	Free-Average	Average
Q231ф	Average	Poor	Poor	Tight	Good
Q230ф	Good	Good	Average	Unknown	Good
KQ228ф	Good	Good	Poor	Tight	Good
Q219ф	Poor	Average	Good	Unknown	Unknown
Q208ф	Average	Average	Average	Free	Average
Q200ф	Poor	Average	Average	Free	Average
Q183ф	Poor	Poor	Average	Free- Average	Good

Good
Average
Low
Poor
Unknown

Trashing

Free
Free-Average
Average
Average-Tight
Tight

VARIETY ADOPTION IN EACH MILL AREA

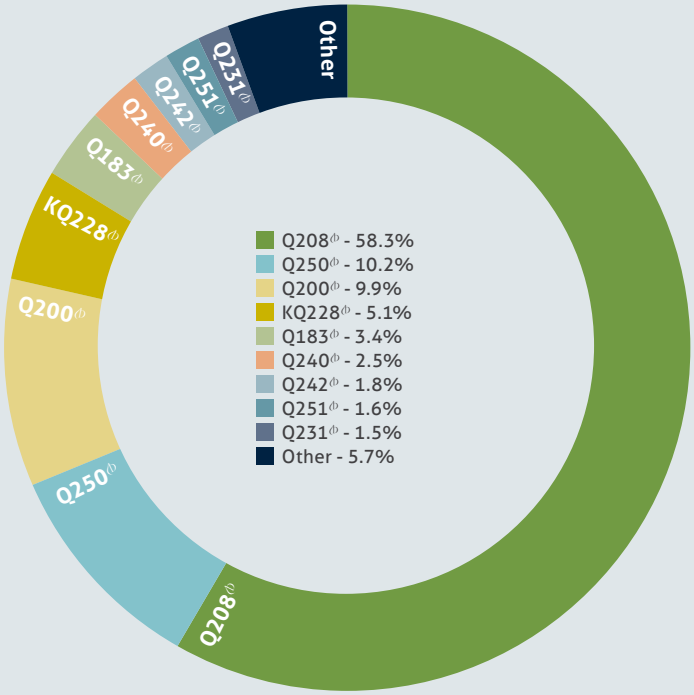
Data below can be found in QCANESelect® under the regional reporting tab. Use this information to assess yield performance of varieties over a number of years. Caution should be taken when comparing commercial performance of newer varieties (from plant and young ratoons) to older/ established varieties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

Mulgrave (% TONNES 2017)

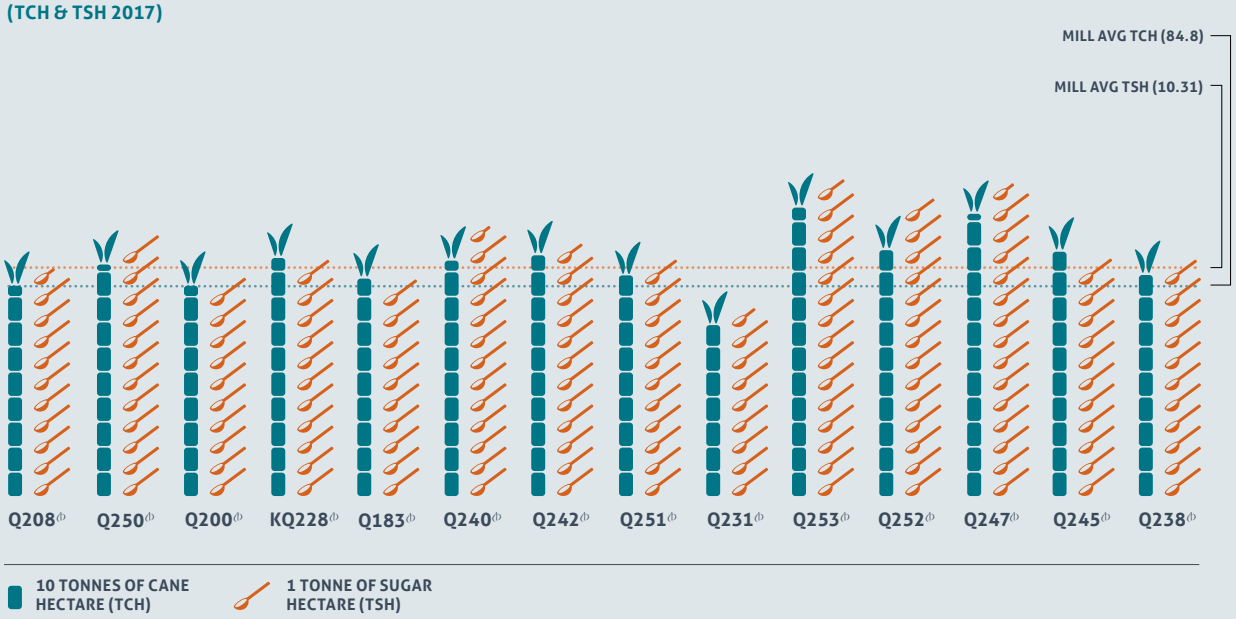
The Mulgrave Mill region reported a total of 1,020,656 tonnes of cane harvested from 12,036.9 hectares. The mill average TCH was 85 and mill average CCS was 12.16.

2017 saw a 5% decline in Q208Φ's dominance of the Mulgrave harvest down to 58.3%. Q250Φ has overtaken Q200Φ in second place claiming 10.2% of the total harvest. KQ228Φ declined slightly to 5.1% and Q183Φ remains steady at 3.4%. Q240Φ has increased to 2.5% of the total harvest.

Q251Φ, Q250Φ, KQ228Φ and Q238Φ performed above mill average for both TCH and TSH. Recently released varieties Q253Φ, Q252Φ, Q247Φ, Q245Φ Q242Φ and Q240Φ also performed above mill average for TCH & TSH however these are mostly plant and young ratoon canes from small sample sizes.



(TCH & TSH 2017)

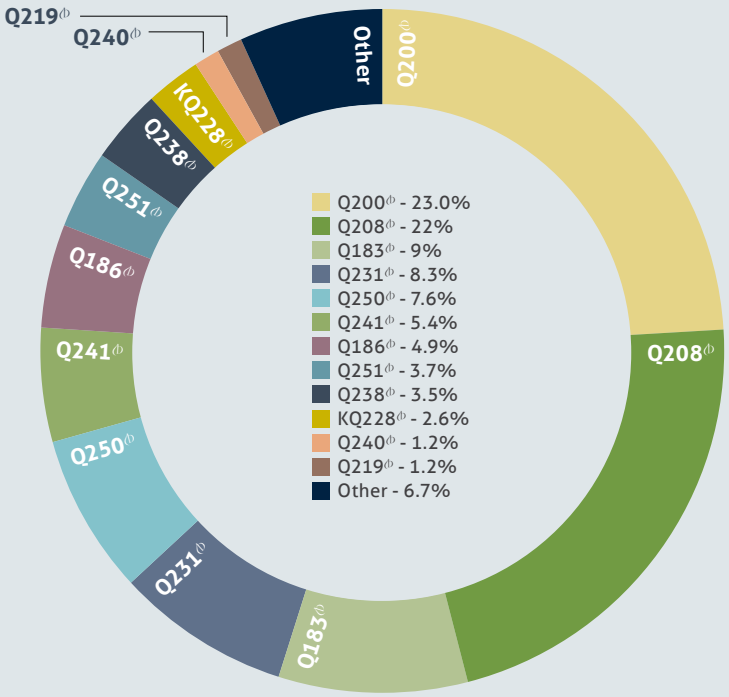


South Johnstone (% TONNES 2017)

In 2017 South Johnstone region harvested 1,801,903 tonnes from 22,708 hectares. Mill averages of 80 TCH and 12.02 CCS were achieved in 2017 .

Q200Φ overtook Q208Φ as the most favoured variety in the region equating for 23.9% of the total harvest. Q208Φ followed closely at 22%. Q250Φ increased marginally to 7.6%. Q183Φ and Q241Φ recorded a slight decline to 9% and 5.4% respectively and Q231Φ remained at 8.3% of the total harvest.

Q200Φ and Q208Φ both returned around mill average for TCH and TSH. KQ228Φ, Q230Φ, Q237Φ, Q238Φ, Q250Φ and Q251Φa ll achieved above mill average for TCH and TSH. Recently released varieties Q253Φ, Q252Φ, Q247Φ, Q240Φ and Q249Φ also performed above mill averages remembering these are relatively young canes with small sample sizes.



(TCH & TSH 2017)

The top five Australian varieties in 2017 were Q208Ⓓ, Q183Ⓓ, Q240Ⓓ, KQ228Ⓓ, and Q232Ⓓ, representing a combined 73 percent of the entire crop.

Mossman (% TONNES 2017)

The Mossman harvest includes both coastal and tableland components recording a total of 1,178,515 tonnes of cane harvested from 12,762 hectares in 2017. The combined mill averages for TCH was 92 and CCS was 13.38.

Coastal Mossman*

Q208Ⓓ continues to dominate the crop at 55% of the total harvest in 2017. Q231Ⓓ, Q183Ⓓ, and Q200Ⓓ contributed 9.2%, 7.7% and 6.7% respectively to the coastal harvest in 2017. Q250Ⓓ remained stable at 4.6% in 2017.

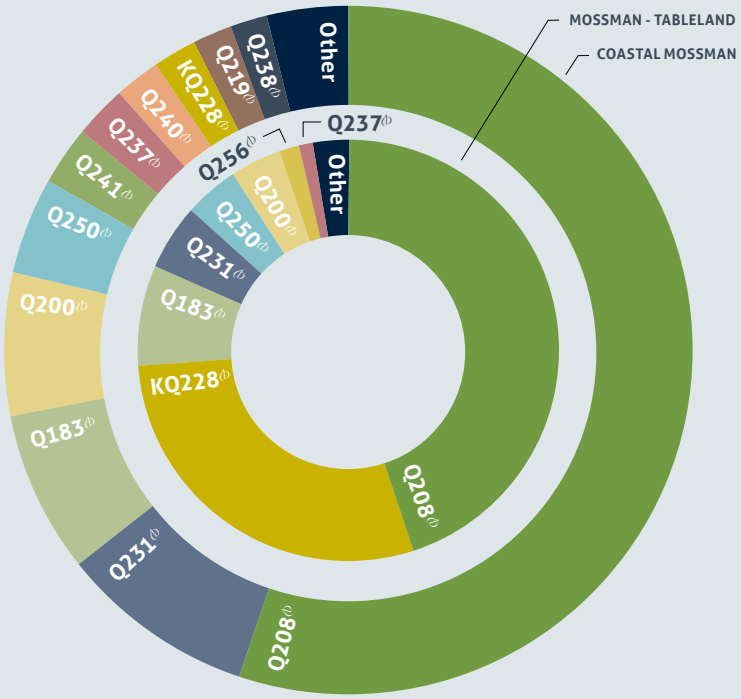
Q183Ⓓ, Q208Ⓓ, Q238Ⓓ, Q250Ⓓ and Q251Ⓓ all performed above mill average for TCH and TSH in 2017. Of the newer varieties Q240Ⓓ, Q242Ⓓ, Q245Ⓓ, Q247Ⓓ and Q249Ⓓ also performed above mill average values however these are mostly plant cane from very small sample sizes.

Mossman - Tableland*

Q208Ⓓ also dominated the tableland crop at 45% of total harvest in 2017. KQ228Ⓓ accounted for 28.8% of the harvest whilst Q183Ⓓ contributed 7.7%. Minor contributions to the total harvest were recorded for Q231Ⓓ, Q250Ⓓ and Q200Ⓓ at 5.1%, 4.1% and 3.9% respectively.

KQ228Ⓓ performed above mill average for TCH and CCS. Q240Ⓓ and Q256Ⓓ also performed above mill average for TCH and CCS however these are mostly plant or young ratoon cane from very small sample sizes. Q208Ⓓ and Q250Ⓓ both exceeded mill average for CCS.

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



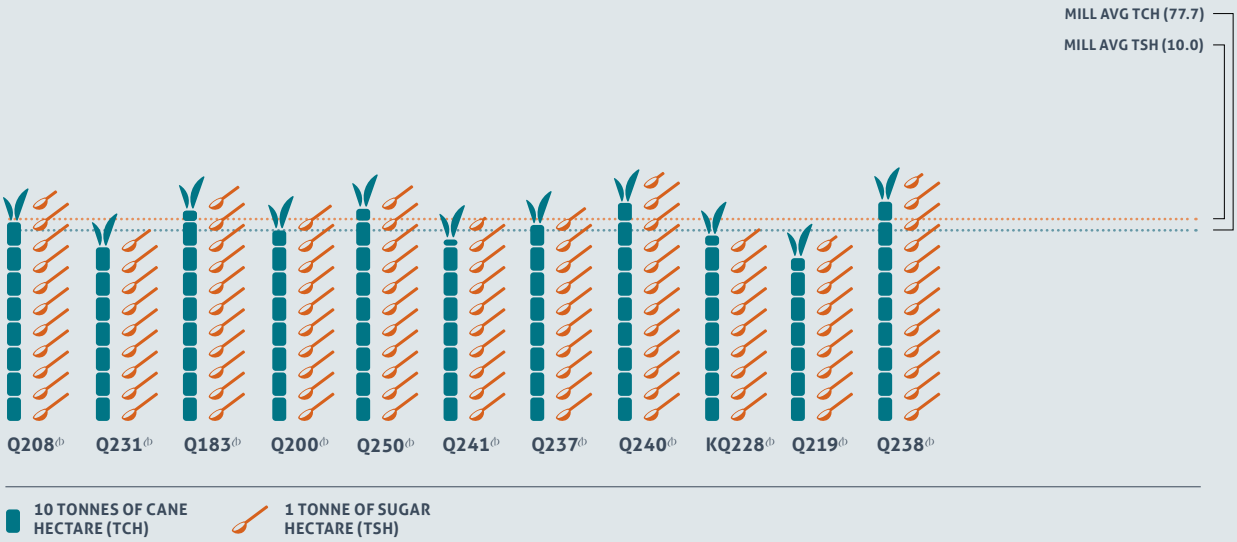
COASTAL MOSSMAN

- Q208Ⓓ - 55.1%
- Q231Ⓓ - 9.2%
- Q183Ⓓ - 7.7%
- Q200Ⓓ - 6.7%
- Q250Ⓓ - 4.6%
- Q241Ⓓ - 2.8%
- Q237Ⓓ - 2.3%
- Q240Ⓓ - 2.2%
- KQ228Ⓓ - 2.0%
- Q219Ⓓ - 1.9%
- Q238Ⓓ - 1.7%
- Other - 3.8%

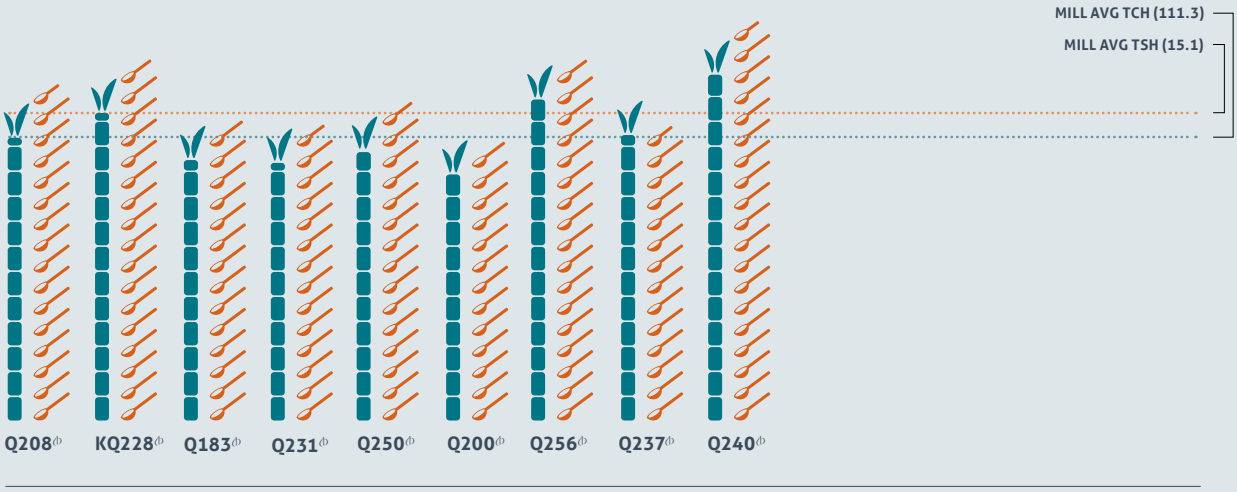
MOSSMAN - TABLELAND

- Q208Ⓓ - 45.1%
- KQ228Ⓓ - 28.8%
- Q183Ⓓ - 7.7%
- Q231Ⓓ - 5.1%
- Q250Ⓓ - 4.1%
- Q200Ⓓ - 3.9%
- Q256Ⓓ - 1.6%
- Q237Ⓓ - 1.0%
- Other - 2.8%

COASTAL MOSSMAN (TCH & TSH 2017)



MOSSMAN - TABLELAND (TCH &TSH 2017)



Tableland (% TONNES 2017)

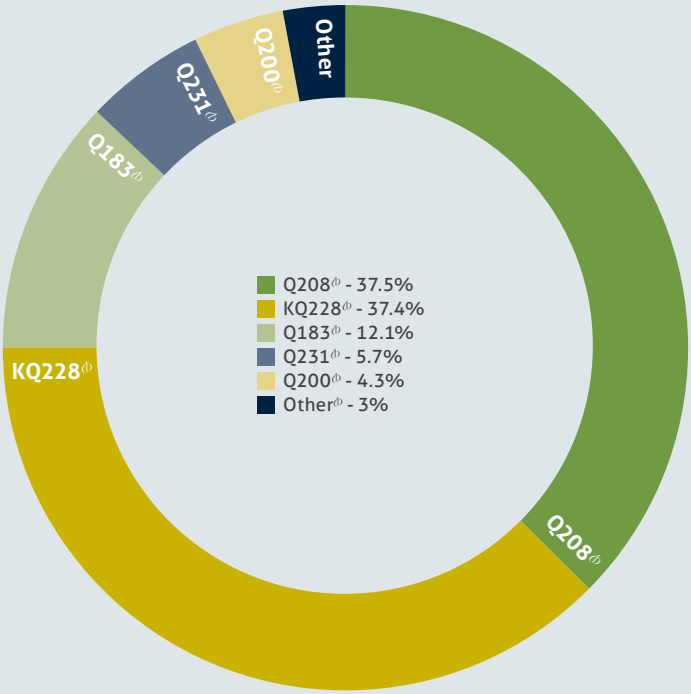
The Tableland mill performed similarly to the 2016 season, harvesting 405,935 tonnes of cane from 4,343 hectares. 2017 mill average TCH was 94 and CCS was 14.0.

Q208Φ remains the dominant variety for the region despite a 5% reduction to 37.5% of total tonnes harvested in 2017. Q208Φ returned close to mill average for TCH and TSH.

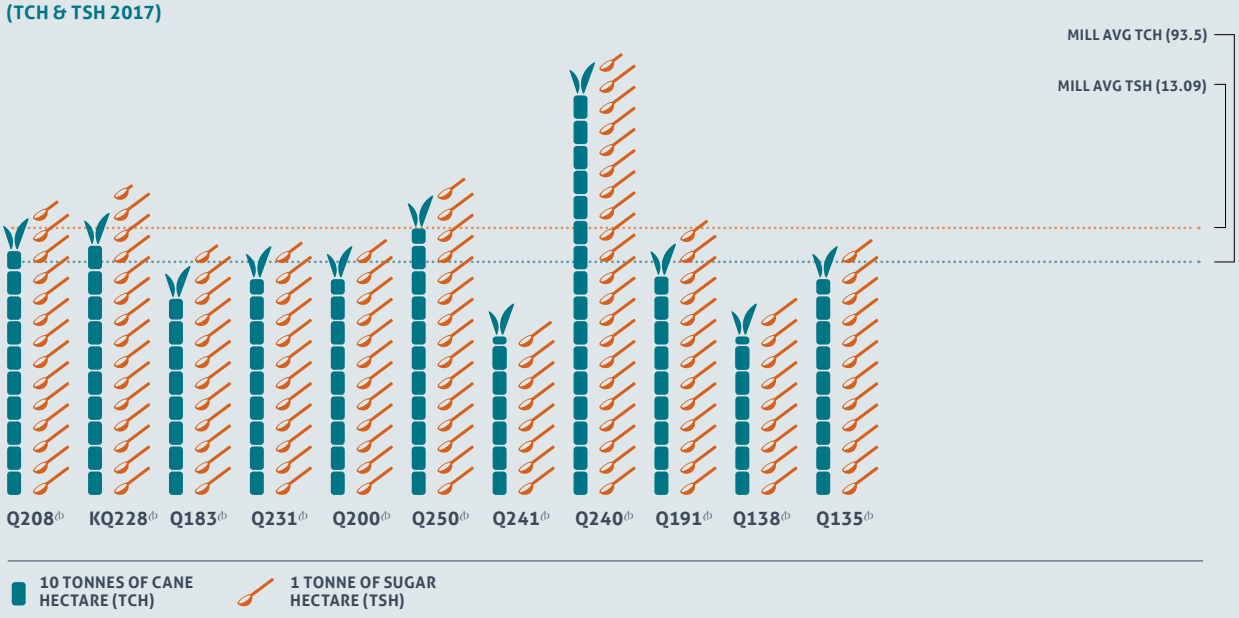
KQ228Φ has increased by 10% to 37.4% of total harvest, challenging Q208Φ as the leading variety on the Tableland. Q183Φ remains stable at 12.1% of the harvest.

Q208Φ and KQ228Φ are both performing above mill average for TCH and TSH.

Q240Φ and Q250Φ are also performing well above mill averages remembering these are young canes from small sample sizes contributing less than 1% to the total harvest.



(TCH & TSH 2017)



For more information please visit:
www.sugarresearch.com.au

Tully (% TONNES 2017)

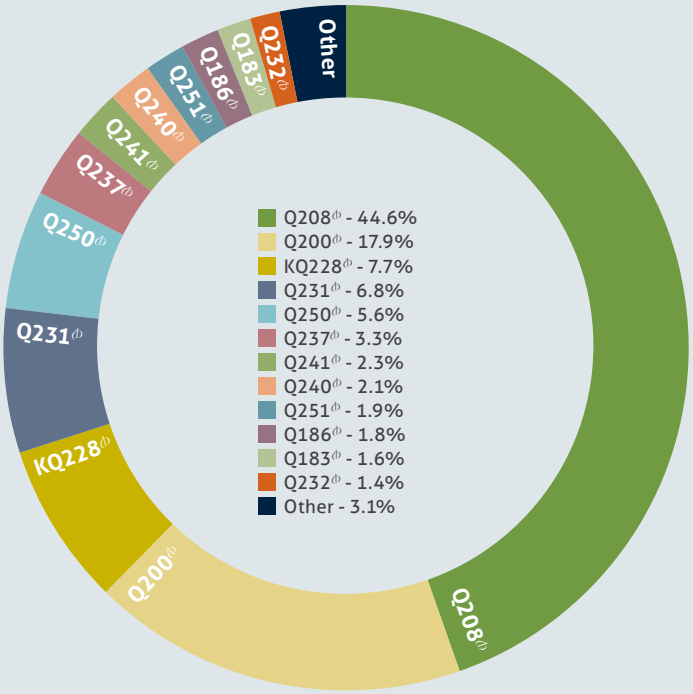
The Tully mill region harvested 29,844 hectares sending a total of 2,496,485 tonnes of cane to the mill. The mill average TCH was 83.7 and CCS of 12.93.

Q208Φ remains the dominant variety for the region declining slightly to 44.6% of total harvest. The other major varieties remained relatively stable within +/- 1% of 2016 figures.

Q200Φ, Q208Φ , Q230Φ , Q232Φ, Q247Φ all performed at mill average for TCH. KQ228Φ, Q238Φ and Q240Φ exceeded mill average TCH.

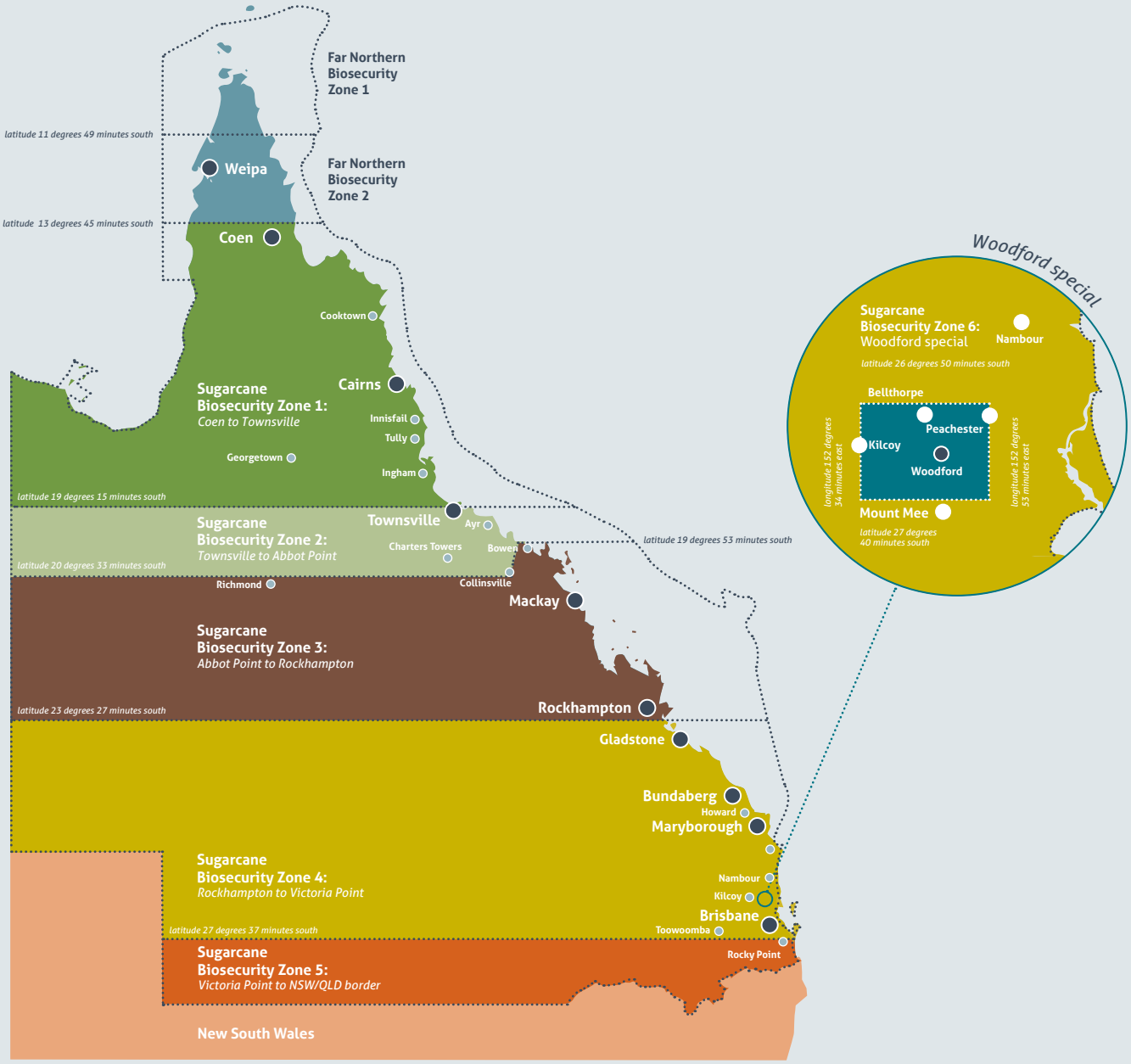
Q251Φ, Q250Φ, Q240Φ, Q200Φ all exceeded mill average TSH.

Recently released varieties Q253Φ and Q252Φ performed well above mill averages remembering these are relatively young ratoon canes with small sample sizes.



(TCH & TSH 2017)

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.

(Contact details - back page)

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 ratoon stunting disease, 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 2018	1 July 2019
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 2019.	Delivery on agreed date between grower, productivity services group and nursery. Available in March 2020.

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 *varieties*, contact:
SRA Adoption Officer **Tracy Hay**
E thay@sugarresearch.com.au **T** 07 4056 4527

For more information on *tissue culture*, contact:
SRA Tissue Culture Manager **Clair Bolton**
E cbolton@sugarresearch.com.au **T** 07 4783 8619

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 its 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 **www.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 - Jordan Villaruz:
M 0429 022 702

Tully Sugar Ltd - Greg Shannon:
M 0400 586 968

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