Sugar Research Australia

VARIETY GUIDE
2022/2023

Southern Region

HOW TO USE THIS GUIDE

This guide is designed to help growers in the Southern 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***

(Cover page) *Tissue culture plantlets hardening off in the growhouse. More time in a controlled environment is required for maximum survival before being transferred outside and finally planted to propagation plots.*
(Opposite) *Fibre component after a milled sample was processed for short fibre evaluation. This is one of three tests used to determine overall fibre quality for upcoming varieties.*

ISSN 2208-7605 (Online) ISSN 2208-7591 (Print)

NEW AND RECENT VARIETIES AVAILABLE IN THE SOUTHERN REGION

Variety Recommendation and Release Process

Regional Variety Committees (RVCs) are responsible for variety release decisions. SRA supports these groups with secretariat support and the provision of technical information to assist the committee to make decisions on particular varieties. RVCs are composed of voting members and observers to ensure transparency in the decision making process.

The Southern RVC (Sugarcane Biosecurity Zone 4 and 5) voting membership consists of one grower representative, one miller representative and one Prod Services representative from Bundaberg, Isis, Maryborough and Rocky Point mill areas, in total 12 voting members. Rocky Point also sits on the RVC in NSW as an observer. The Southern 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: ***sugarresearch.com.au/growers-and-millers/varieties/regional-variety-committees/***

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

Variety: QS10-445 KQ07-4897		***Parentage:*** *QN80-3425 x CP95-1569* **/** ***Summary:*** *High tonnes cane, lower CCS.*								
TRIAL HARVEST YEAR	**CROP CLASS**	**YIELD (TCH)**				**CCS**				**# OF HARVESTS**
		QS10-445	**Q208ⓓ**	**Q240ⓓ**	**KQ228ⓓ**	**QS10-445**	**Q208ⓓ**	**Q240ⓓ**	**KQ228ⓓ**	
(2016 FATs): 2017	Plant	112	100	100	105	14.9	16.0	16.0	15.9	5
2018	1R	110	91	98	99	14.0	14.7	15.1	15.4	5
2019	2R	94	81	80	81	13.9	14.3	14.7	15.0	5
(2018 Repeated FATs): 2019	Plant	98	99	86	90	14.4	14.7	15.2	15.1	4
2020	1R	109	99	93	92	15.4	15.7	16.3	16.1	3
2021	2R	**123**	**114**	**104**	**103**	**14.9**	**15.1**	**15.7**	**15.6**	**4**
Overall Performance		**107**	**97**	**93**	**95**	**14.5**	**15.0**	**15.5**	**15.5**	**26**
Available 2022		Release pending Leaf Scald disease rating								
Comments:		Maintains productivity in ratoons. Resistant to Pachymetra Root Rot, mosaic, smut, and Fiji Leaf Gall. Pending Leaf Scald rating. Good fibre quality trends and high fibre content.								

Variety: SRA38 KQ07-4897		***Parentage:*** *QS92-339 x TCP87-3388* **/** ***Summary:*** *High tonnes cane, moderate CCS.*								
TRIAL HARVEST YEAR	**CROP CLASS**	**YIELD (TCH)**				**CCS**				**# OF HARVESTS**
		SRA38	**Q208ⓓ**	**Q240ⓓ**	**KQ228ⓓ**	**SRA38**	**Q208ⓓ**	**Q240ⓓ**	**KQ228ⓓ**	
(2016 FATs): 2017	Plant	101	100	100	105	15.7	16.0	16.0	15.9	5
2018	1R	102	91	98	99	15.0	14.7	15.1	15.4	5
2019	2R	89	81	80	81	14.6	14.3	14.7	15.0	5
(2018 Repeated FATs): 2019	Plant	99	99	86	90	14.8	14.7	15.2	15.1	4
2020	1R	106	99	93	92	16.0	15.7	16.3	16.1	3
2021	2R	**115**	**114**	**104**	**103**	**15.5**	**15.1**	**15.7**	**15.6**	**4**
Overall Performance		**101**	**97**	**93**	**95**	**15.2**	**15.0**	**15.5**	**15.5**	**26**
Available 2022										
Comments:		Maintains productivity in ratoons. Resistant to Pachymetra Root Rot, mosaic and Fiji Leaf Gall and intermediate resistant to smut and Leaf Scald. Good fibre quality trends and average fibre content. Lodgeing has been recorded in trials.								

Variety: SRA34ⓓ QN02-1707		***Parentage:*** *QC83-627 x Q222* **/** ***Summary:*** *Moderate tonnes cane, moderate CCS.*								
TRIAL HARVEST YEAR	**CROP CLASS**	**YIELD (TCH)**				**CCS**				**# OF HARVESTS**
		SRA34ⓓ	**Q208ⓓ**	**Q240ⓓ**	**KQ228ⓓ**	**SRA34ⓓ**	**Q208ⓓ**	**Q240ⓓ**	**KQ228ⓓ**	
(2015 series FATs): 2016	Plant	145	126	140	137	15.7	15.9	15.9	16.5	4
2017	1R	123	118	123	123	15.1	15.2	15.1	15.5	4
2018	2R	98	88	99	94	15.3	15.3	15.9	15.8	4
(2017 Repeated FATs): 2018	3R	80	72	66	75	16.7	16.0	16.5	16.8	2
2019	4R	91	88	83	91	15.2	14.8	15.6	15.8	2
2020	Plant	76	83	72	80	15.8	15.4	15.9	16.0	2
(2018 Repeated FATs): 2019	1R	55	48	43	51	15.3	15.3	15.4	15.7	1
2020	2R	93	87	81	89	17.5	16.4	17.4	17.4	1
Overall Performance		**105**	**98**	**101**	**102**	**15.6**	**15.5**	**15.8**	**16.1**	**20**
Available 2022										
Comments:		Released in the Burdekin in 2022. Released as a 1-year variety in NSW in 2021. Resistant to Pachymetra, Fiji Leaf Gall, Leaf Scald and mosaic. Intermediate resistance to Smut and Floc. Average fibre content.								

Variety: SRAW33ⓓ QN02-1707		***Parentage:*** *Q208 x CP74-2005* **/** ***Summary:*** *High tonnes cane, high CCS.*								
TRIAL HARVEST YEAR	**CROP CLASS**	**YIELD (TCH)**				**CCS**				**# OF HARVESTS**
		SRAW33ⓓ	**Q208ⓓ**	**Q240ⓓ**	**KQ228ⓓ**	**SRAW33ⓓ**	**Q208ⓓ**	**Q240ⓓ**	**KQ228ⓓ**	
(2016 FATs): 2017	Plant	92	86	86	87	16.8	16.2	16.2	16.5	3
2018	1R	109	94	101	101	16.6	15.9	16.2	16.7	3
2019	2R	88	80	76	83	16.7	16.2	16.2	16.5	3
(2018 Repeated FATs): 2019	Plant	80	84	74	77	15.6	15.2	15.4	15.4	3
2020	1R	100	99	93	92	16.6	15.7	16.3	16.1	3
2021	2R	**126**	**123**	**114**	**112**	**16.1**	**15.3**	**15.9**	**15.8**	**3**
Overall Performance		**99**	**94**	**91**	**92**	**16.4**	**15.7**	**16.0**	**16.2**	**18**
Available 2021										
Comments:		Good rEGV (11.23) and average fibre content (12.7%) over 18 crops. Variety fast-tracked from Accelerated status to Release. Resistant to Fiji Leaf Gall, Leaf Scald, Mosaic and Smut. Intermediate resistant to Pachymetra Root Rot. Tendancy to side-shoot. Initial observations have indicated more profuse flowering than Q208ⓓ.								

QS10-445

SRA38

SRA34ⓓ

SRAW33ⓓ

For more information on *variety field trials* contact:
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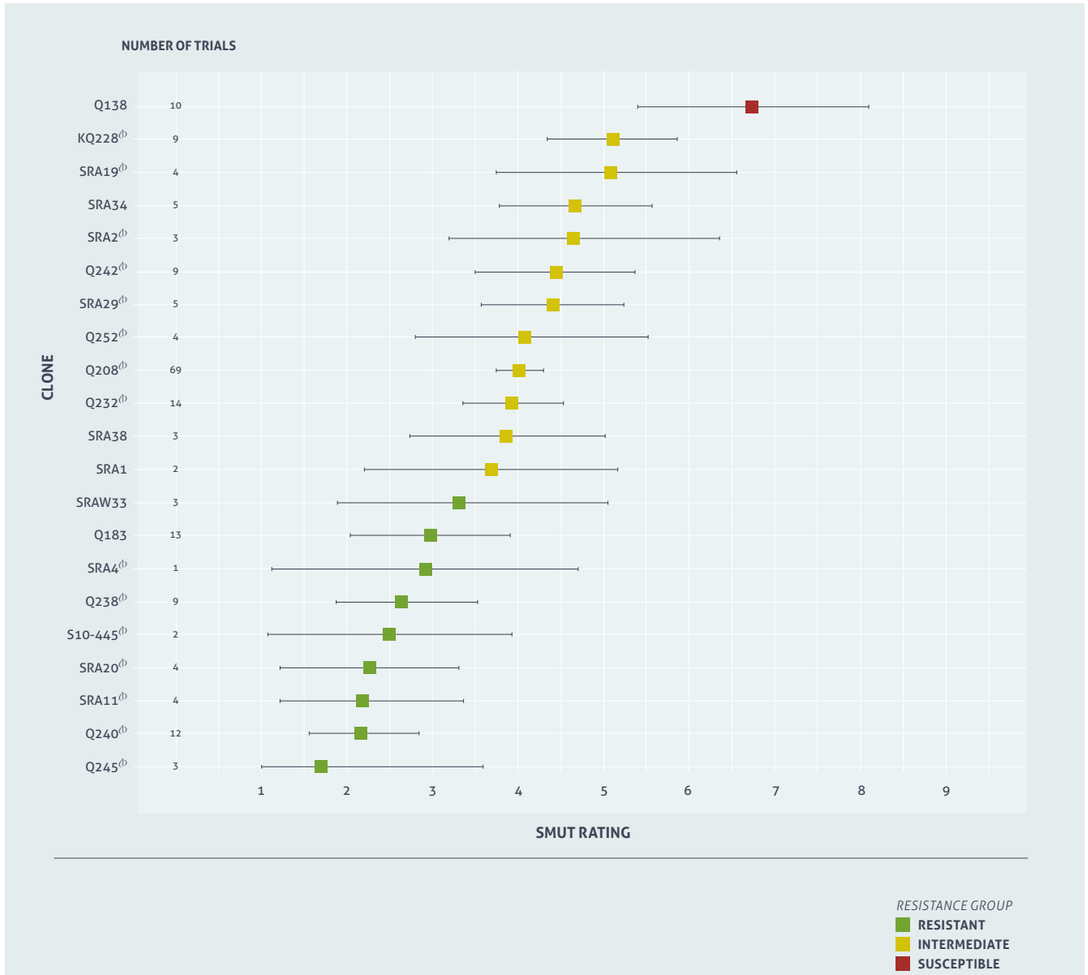
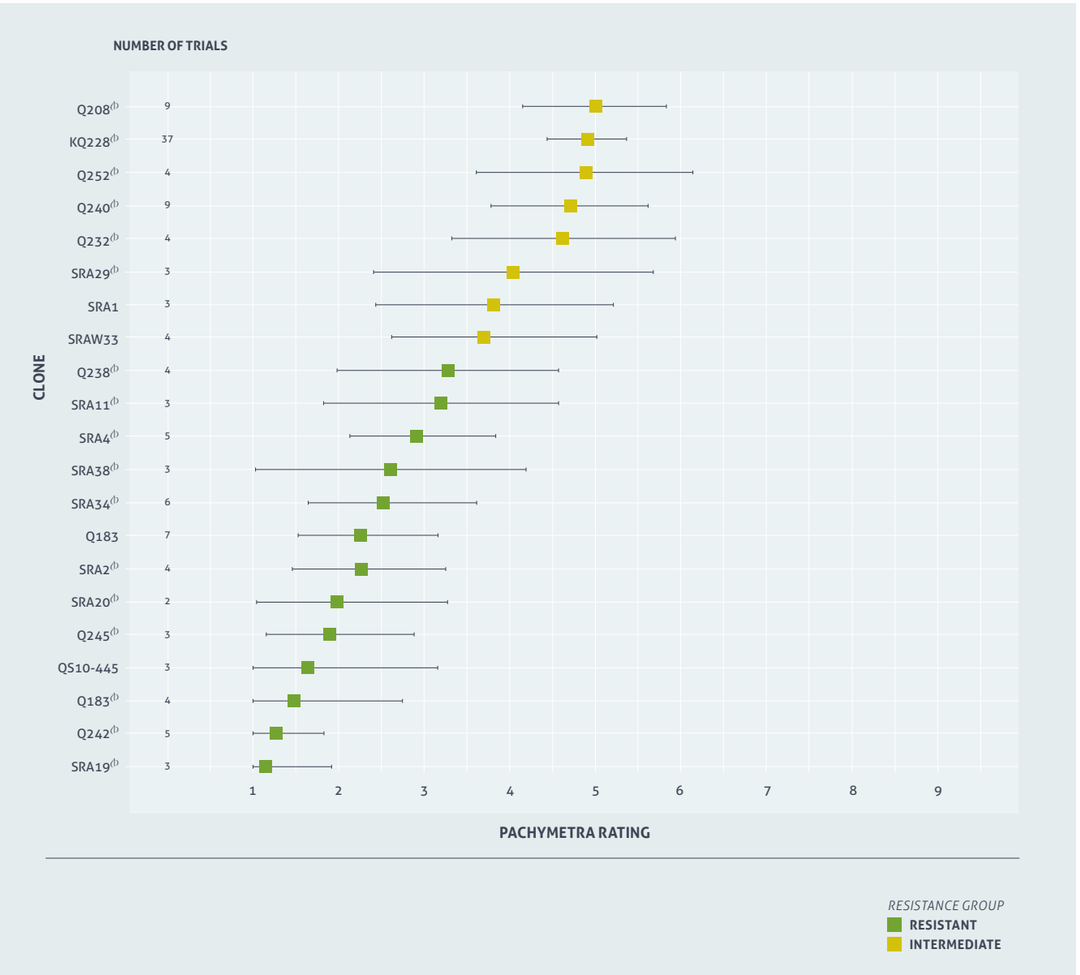
SMUT RATINGS

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 SRA20(D) has been in three smut trials (P and 1R) and has a confidence interval from 1 to 3.4. Rating confidence will improve as more data is collected. SRA29 has been included in four smut trials and has a intermediate rating of 5 with a lower and upper confidence limit of 3.5 to 6.1.



PACHYMETRA RATINGS

Pachymetra resistance ratings are calculated from the severity of infection in a test clone compared to standard varieties in inoculated bench trials. The graphic includes the rating and the 95% confidence interval for each variety. The confidence interval is influenced by factors such as the number of times a variety has been tested and variability of Pachymetra infection within each trial. For example the variety KQ228(D) has been tested in 33 trials and has a narrow confidence interval from 4.3 to 5.4 while newer variety SRA20(D) has only been tested in two Pachymetra trials and ranges from 1.2 to 3.3. 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 tables below indicate early, mid and late sugar varieties.

Bundaberg and Isis					
VARIETY	EARLY SUGAR	MID SUGAR	LATE SUGAR	TRASHING	LODGING
SRAW33Ф	Good	Good	Good	Unknown	Unknown
SRA29Ф	Poor	Good	Good	Free	Average
SRA20Ф	Poor	Average	Good	Free-Average	Average
SRA19Ф	Poor	Average	Good	Average	Average
SRA11Ф	Average	Good	Good	Free	Good
SRA4Ф	Average	Average	Average	Average	Good
SRA2Ф	Good	Good	Good	Free-Average	Average
SRA1Ф	Good	Good	Good	Average	Poor
Q252Ф	Good	Good	Good	Free	Average
Q249Ф	Average	Average	Good	Average	Poor
Q247Ф	Unknown	Unknown	Unknown	Unknown	Unknown
Q245Ф	Poor	Average	Average	Average	Average
Q242Ф	Average	Average	Poor	Average-Tight	Poor
Q240Ф	Good	Good	Good	Free-Average	Average
Q238Ф	Poor	Average	Average	Average	Good
Q235Ф	Good	Good	Average	Average	Poor
Q232Ф	Poor	Average	Poor	Tight	Poor
KQ228Ф	Good	Good	Average	Average-Tight	Average
Q208Ф	Average	Good	Good	Free	Average
Q200Ф	Poor	Average	Good	Free	Average
Q183	Poor	Average	Good	Free-Average	Average
Q151Ф	Good	Average	Poor	Average	Average
Q138	Poor	Poor	Poor	Average	Average

Maximise your profit at harvest: Selecting varieties for specific sugar maturity profiles, planting and harvesting them for optimal CCS maturity can make a significant difference in the profit your crop can make for you. Making harvest decisions based on in-field maturity maximises profit making decisions.

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

SEASONAL SUGAR AND LODGING
- GOOD
- AVERAGE
- LOW
- POOR
- UNKNOWN

Maryborough					
VARIETY	EARLY SUGAR	MID SUGAR	LATE SUGAR	TRASHING	LODGING
SRAW33Ф	Good	Good	Good	Unknown	Unknown
SRA29Ф	Poor	Good	Good	Free	Average
SRA20Ф	Poor	Average	Good	Free-Average	Average
SRA19Ф	Poor	Average	Good	Average	Average
SRA11Ф	Average	Good	Good	Free	Good
SRA4Ф	Average	Average	Average	Average	Good
Q252Ф	Good	Good	Average	Free	Average
Q249Ф	Average	Average	Good	Average	Poor
Q245Ф	Poor	Average	Average	Average	Average
Q242Ф	Average	Average	Average	Average-Tight	Poor
Q240Ф	Good	Good	Good	Free-Average	Average
Q238Ф	Poor	Average	Average	Average	Good
Q235Ф	Good	Good	Average	Average	Poor
Q232Ф	Poor	Average	Average	Tight	Average
KQ228Ф	Good	Good	Average	Average-Tight	Average
Q208Ф	Average	Good	Good	Free	Average
Q183	Poor	Average	Good	Free-Average	Average
Q138	Average	Average	Average	Average	Good

Rocky Point					
VARIETY	EARLY SUGAR	MID SUGAR	LATE SUGAR	TRASHING	LODGING
SRA11Ф	Average	Average	Average	Free	Unknown
SRA4Ф	Average	Average	Average	Average	Unknown
SRA2Ф	Good	Good	Average	Free-Average	Average
SRA1Ф	Good	Good	Good	Average	Average
Q252Ф	Good	Good	Good	Free	Average
Q249Ф	Average	Average	Average	Average	Poor
Q245Ф	Poor	Average	Average	Average	Unknown
Q242Ф	Good	Good	Good	Average-Tight	Poor
Q240Ф	Good	Good	Good	Free-Average	Average
Q238Ф	Average	Good	Good	Average	Good
Q235Ф	Good	Good	Average	Unknown	Poor
Q232Ф	Poor	Average	Average	Tight	Unknown
KQ228Ф	Good	Good	Average	Average-Tight	Average
Q208Ф	Good	Good	Good	Free	Average
Q183	Average	Good	Good	Free-Average	Average
Q138	Average	Average	Average	Tight	Unknown

VARIETY BY HERBICIDE SCREENING TRIALS

Sugarcane varieties are known to have variable responses to herbicides with some being more impacted than others. As a result, data outlining susceptibility is critical to optimise productivity outcomes.

Since 2014, SRA has conducted trials following a two-step process to obtain reliable data for the susceptibility of varieties to herbicide. This process is:

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

In year three, the two-step process starts again, with new combinations of newly released varieties and herbicides.

In these trials, products are applied at their maximum label rate (and their minimum water label rate) when plant cane is at four- to six-leaf stage.

In the pot trials, weekly phytotoxicity ratings are conducted using the European Weed Research Council (EWRC) rating scale **Table 1** and the aerial plant dry biomass is measured 10 weeks after spraying.

In the field trials, plant cane yield is measured at harvest using a weigh truck.

In all trials, KQ228$^{(f)}$ is assessed and used as a susceptible reference variety to compare to other tested varieties.

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

Tables 3, 4 and 5 summarise all phytotoxicity, biomass and yield results obtained in the pot and field trials from 2014 to 2021.

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

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TABLE 1 EWRC selectivity rating scale

SCORE	SELECTIVITY
1	No effect
2	Very slight effects. Some stunting and yellowing just visible
3	Slight effects. Stunting and yellowing obvious, effects reversible
4	Substantial chlorosis and or stunting, most effects probably reversible
5	Strong chlorosis/stunting, thinning of stand (50% loss)
6	Increasing severity of damage (70% loss)
7	Increasing severity of damage (85% loss)
8	Increasing severity of damage (90% loss) a few plants survive
9	Total loss of plants and yield

TABLE 2 Summary of phytotoxicity ratings and symptoms obtained on the reference susceptible variety KQ228$^{(f)}$

	2,4-D	AMETRYN	AMETRYN+ TRIFLOXY SULFURON	AMICARBAZONE	ASULAM	DIURON	FLUMIOXAZIN	METOLACHLOR	METRIBUZIN	MSMA
DESCRIPTION OF SYMPTOMS	Small white spotty discolorations	Yellowing of the whole plant	Slight yellow blotching	Small white spotty discolorations	Bright yellow blotching	Slight yellowing of the whole plant	Large necrotic lesions	Small necrotic lesions	Slight yellowing of the whole plant	Large necrotic lesions
PHOTOGRAPH OF SYMPTOMS										
SYMPTOM SEVERITY ON KQ228$^{(f)}$	Mild	Medium to severe	Mild	Mild	Medium	Mild	Severe	Medium	Mild	Medium to severe
KQ228$^{(f)}$ PHYTO RATING RANGE	1.2 to 1.9	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 Herbicide symptoms severity on the cane foliage for all testing varieties. (Legend: refer to table 1 on the left)

VARIETY	2,4-D	AMETRYN	AMETRYN+ TRIFLOXY-SULFURON	AMICARBA-ZONE	ASULAM	DIURON	FLUMIOXAZIN	METOLACHLOR	METRIBUZIN	MSMA
KQ228$^{(f)}$	**1.7**	**2.0**	**1.8**	**1.4**	**1.7**	**1.4**	**3.7**	**2.2**	**1.7**	**2.9**
Q208$^{(f)}$	1.6		1.7		1.7			2.2	1.7	2.9
Q232$^{(f)}$	1.7		1.8		1.7			2.3	1.7	2.9
Q238$^{(f)}$	1.7		1.8		1.7			2.4	1.7	3.0
Q240$^{(f)}$	1.7		1.7		1.7			2.2	1.7	2.9
Q242$^{(f)}$	1.7		1.7		1.7			2.3	1.7	2.9
Q249$^{(f)}$	1.7		1.8		1.7			2.3	1.7	2.9
Q252$^{(f)}$	1.7		1.8		1.7			2.3	1.6	2.9
SRA1$^{(f)}$	1.6	1.9			1.8			2.2	1.5	2.9
SRA2$^{(f)}$	1.6	2.0			1.8			2.3	1.7	3.0
SRA4$^{(f)}$	1.6	2.0		1.3	1.9	1.4		2.3	1.7	2.9
SRA11$^{(f)}$	1.7	1.9		1.4	2.0		3.7	2.3	1.6	2.9
SRA19$^{(f)}$	1.6	1.7		1.4	1.8	1.3		2.2	1.6	2.9
SRA29$^{(f)}$	1.7	2.1		1.4	1.8	1.4		2.2	1.7	3.0

The predicted EWRC scores and associated colour code are presented for each tested combination of herbicides by variety. The predicted EWRC scores derive from the average EWRC scores for each trial series, using KQ228$^{(f)}$ as reference variety, in an attempt to harmonise trial variations as symptom severity can vary between trials: weather conditions at application, and/or during the trial can alter cane growth and herbicide response. Predicted EWRC scores derive from average EWRC scores across the 10-week assessment period, which means higher symptoms intensity and scores could have been observed during the assessment period.

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

VARIETY	2,4-D	AMETRYN	AMETRYN+ TRIFLOXY-SULFURON	AMICARBA-ZONE	ASULAM	DIURON	FLUMIOXAZIN	METOLACHLOR	METRIBUZIN	MSMA
KQ228$^{(f)}$	**-26%**	**-50%**	**-56%**	**-10%**	**-25%**	**-18%**	**-39%**	no reduction	**-30%**	**-26%**
Q208$^{(f)}$	-36%		-34%		-22%			-54%	-27%	-55%
Q232$^{(f)}$	-20%		-43%		-36%			-34%	-18%	-38%
Q238$^{(f)}$	-48%		-35%		-73%			-37%	-38%	-44%
Q240$^{(f)}$	-43%		-29%		-51%			-8%	-27%	-42%
Q242$^{(f)}$	-21%		-12%		-4%			no reduction	-12%	-16%
Q249$^{(f)}$	-63%		-47%		-72%			-26%	-11%	-71%
Q252$^{(f)}$	-46%		-11%		-3%			-7%	-26%	-31%
SRA1$^{(f)}$	no reduction	no reduction			-8%			no reduction	no reduction	no reduction
SRA2$^{(f)}$	no reduction	-8%			no reduction			no reduction	-4%	-14%
SRA4$^{(f)}$	-26%	-3%		-22%	-56%	no reduction		-17%	no reduction	-52%
SRA11$^{(f)}$	no reduction	-12%		-29%	-68%		-53%	-20%	no reduction	-36%
SRA19$^{(f)}$	-46%	-56%		-34%	-96%	-2%		no reduction	-15%	-72%

The predicted biomass reduction in the pot trials is represented in a green-to-red scale. The predicted biomass reduction derives from the biomass reduction for each trial series, using KQ228$^{(f)}$ as reference variety, in an attempt to harmonise trial variations : weather conditions at application, and/or during the trial can alter cane growth and herbicide response. Predicted biomass reduction compared to the untreated is indicated in the table (a negative value indicates a biomass reduction 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.

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

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

VARIETY	2,4-D	AMETRYN	AMETRYN+ TRIFLOXY-SULFURON	AMI-CARBAZONE	ASULAM	METO-LACHLOR	METRI-BUZIN	MSMA
KQ228$^{(f)}$	no reduction	**-11%**		**-7%**	**-1%**		no reduction	**-1%**
Q232$^{(f)}$			-6%			no reduction	-4%	-1%
Q238$^{(f)}$			-8%			-3%	-5%	-13%
Q242$^{(f)}$			no reduction			-3%	-2%	-11%
SRA1$^{(f)}$					no reduction		no reduction	-9%
SRA2$^{(f)}$					-6%		-3%	-8%
SRA4$^{(f)}$					-8%		-3%	-8%
SRA11$^{(f)}$				-4%	-1%			

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

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

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

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

Legend

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

COMBINATION OF HERBICIDE BY VARIETY NOT TESTED

DISEASE RESISTANCE

The table below indicates disease ratings of the recommended varieties. 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.

Southern Disease Ratings

VARIETY	MILL AREA RECOMMENDED	FIJI LEAF GALL	MOSAIC	LEAF SCALD	SMUT	CHLOROTIC STREAK	ORANGE RUST	BROWN RUST	RED ROT	YELLOW SPOT	PACHY-METRA
QS10-445	B, I, M	R	R		R	U	U	U	U	U	R
SRA38	B, I, M	R	R	I	I-R	U	U	U	U	U	R
SRA34	B, I, M	R	R	R	I	U	U	U	I	U	R
SRAW33Ⓟ	B, I, M	R	R	R	R	U	R	U	R	U	I-R
SRA29Ⓟ	B, I, M	R	R	R	I	U	U	U	I	U	I-R
SRA20Ⓟ	B, I, M	I	R	I	R	U	U	U	R	U	R
SRA19Ⓟ	B, I, M	I	R	R	I	U	R	U	I-R	I	R
SRA11Ⓟ	B, I, M, RP	R	R	R	R	U	R	U	I	U	R
SRA4Ⓟ	B, I, M, RP	R	R	R	I-R	U	R	U	R	I	R
SRA2Ⓟ	B, I, RP	R	I	R	I	U	I	U	R	I-R	R
SRA1Ⓟ	I, RP	I	R	R	I-R	U	R	R	I	I-R	I-R
Q252Ⓟ	B, I, M, RP	I	R	R	I-R	U	R	U	R	I	I
Q249Ⓟ	B, I, M, RP	R	R	R	R	U	R	U	I-R	R	I-R
Q247Ⓟ	B	R	R	R	I-R	U	R	U	R	S	R
Q245Ⓟ	B, I, M, RP	R	R	R	R	U	R	U	S	R	R
Q242Ⓟ	B, I, M, RP	R	R	R	I-R	I	R	U	I-R	R	R
Q240Ⓟ	B, I, M, RP	I-S	R	R	R	I-R	R	U	R	I	I
Q238Ⓟ	B, I, M, RP	I-R	R	R	R	S	R	R	I-R	S	R
Q235Ⓟ	B, I, M, RP	R	R	R	I-R	I-S	I-R	U	R	R	R
Q232Ⓟ	B, I, M, RP	I	R	R	I-R	R	R	U	I-R	R	I
KQ228Ⓟ	B, I, M, RP	I	R	R	I	S	R	R	R	I	I
Q208Ⓟ	B, I, M, RP	I-S	R	R	I-R	R	R	R	R	R	I
Q200Ⓟ	B	I-R	R	R	I	I	R	R	R	I-R	I
Q183Ⓟ	B, I, M, RP	R	R	I	R	S	R	R	I	I-S	R
Q151	B	R	R	R	R	U	R	R	I-R		I-S
Q138	B, I, M, RP	R	S	R	S	I-R	R	R	I-S	I	R

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

B BUNDABERG
I ISIS
M MARYBOROUGH
RP ROCKY POINT

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 equipment is decontaminated regularly. SRA is reviewing methods for screening varieties for RSD resistance. Current ratings remain available on QCANESelect®. Current varieties are not immune to RSD and some yield loss can expected in all canes.

VARIETY ADOPTION IN EACH MILL AREA

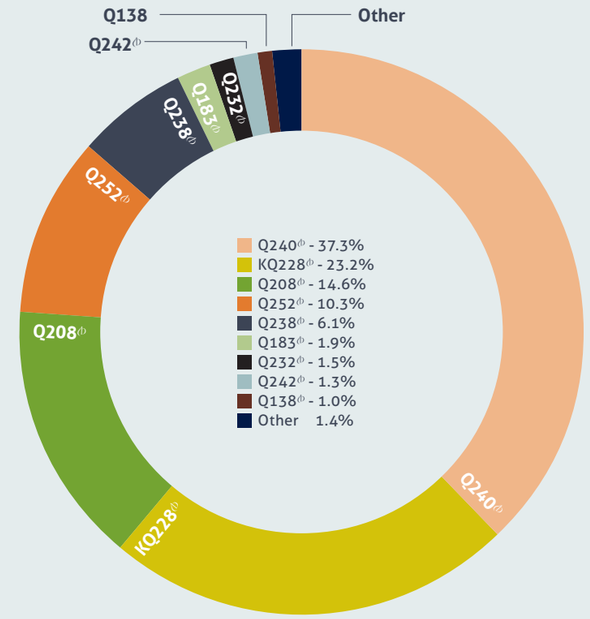
Data below can be found in QCANESelect® under the regional reporting tab.
Use this information to assess yield performance of varieties over a number of years.
Caution should be taken when comparing commercial performance of newer varieties (from plant and young ratoons) to older/established varieties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

Bundaberg (% TONNES 2021)

In 2021, a total of 923,584 tonnes of cane was harvested from 11,765 hectares in the Bundaberg region. The Bundaberg mill area had an average yield of 79.2 tonnes of cane per hectare and an average CCS of 14.2.

Q240Ⓟ continues its dominance as the majority variety in the Bundaberg region, increasing from nearly 36% in 2020 to just over 37% in 2021. There was no real change in percent production between 2020 and 2021 for major varieties KQ228Ⓟ, Q208Ⓟ and Q252Ⓟ. Production of Q242Ⓟ continues it's decline, decreasing from 2% to 1.3%.

Q183Ⓟ, Q208Ⓟ, Q240Ⓟ and Q252Ⓟ performed at or above mill average for CCS in 2021.



(TCH & TSH 2021)

VARIETY ADOPTION IN EACH MILL AREA (CONT)

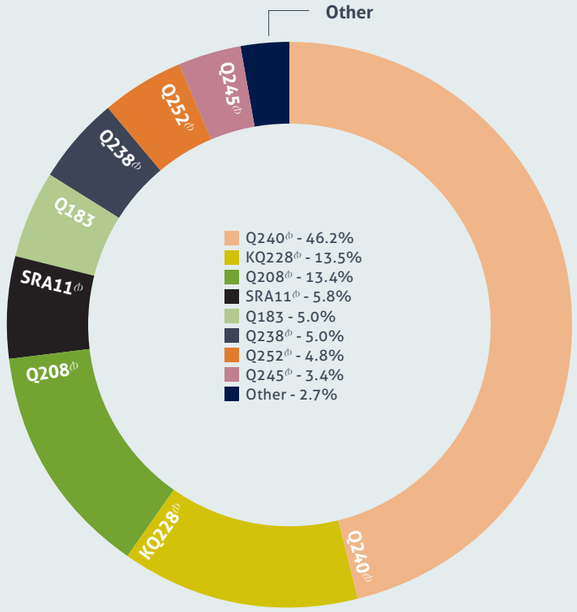
For more information please visit:
sugarresearch.com.au

Isis (% TONNES 2021)

In 2021, a total of 709,896 tonnes of cane was harvested from 8,973 hectares in the Isis region. The Isis mill area had an average yield of 80.3 tonnes of cane per hectare and an average CCS of 13.7.

Q240A accounts for the majority of production in the Isis region, production similar to 2020 at 46%. SRA11Φ increased from 0.9% in 2020 to 5.8% in 2021.

Q183Φ, Q208Φ, Q240Φ and Q252Φ performed at or above mill average for CCS in 2021.



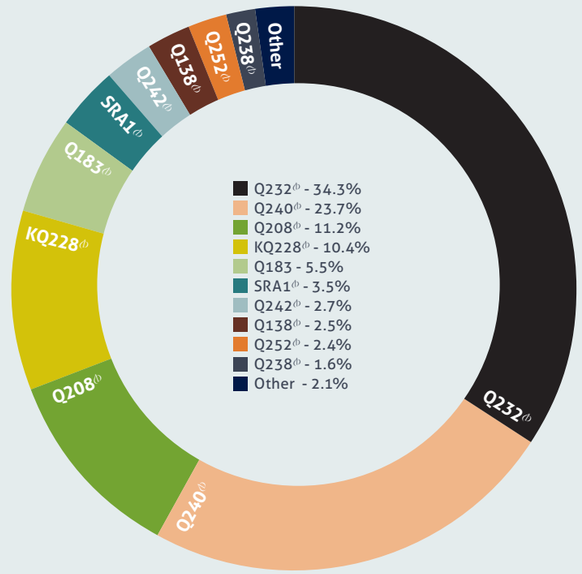
(TCH & TSH 2021)

Rocky Point (% TONNES 2021)

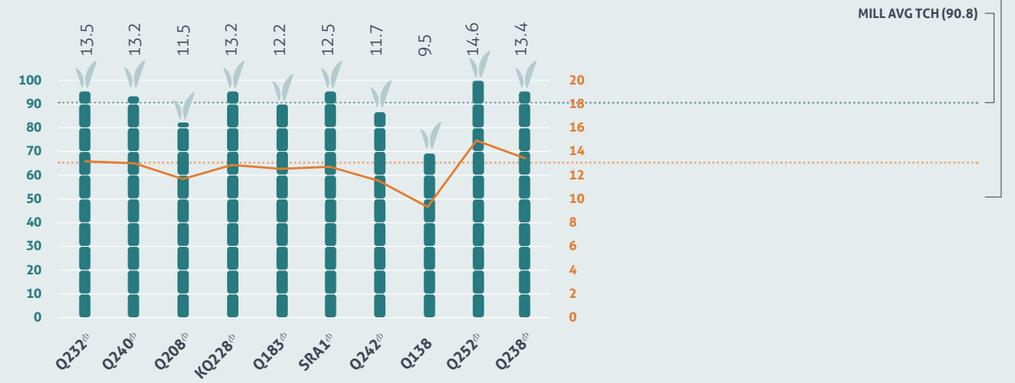
In 2021, a total of 250,729 tonnes of cane was harvested from 2,783 hectares in the Rocky Point region. The Rocky Point mill area had an average yield of 90.8 tonnes of cane per hectare and an average CCS of 14.1.

Q232Φ remains the most dominant variety in 2021, accounting for 34% of the total harvest which is an increase of 3% from the previous year. Q240Φ and KQ228Φ increased slightly to 24% and 10% while Q208Φ decreased to 11% of the crop.

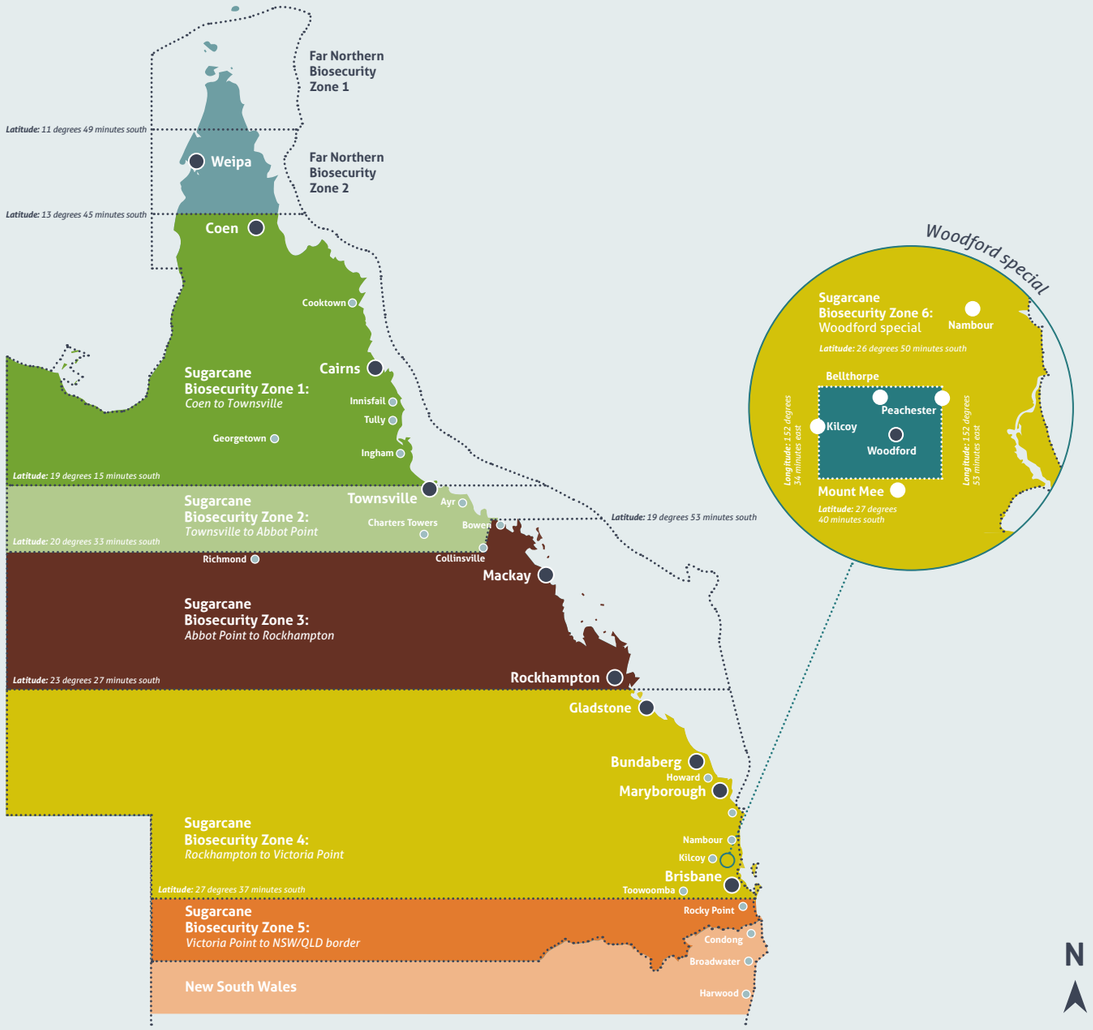
Q232Φ, Q238Φ, Q240Φ and Q252Φ performed at or above mill average for CCS in 2020.



(TCH & TSH 2021)



SUGARCANE BIOSECURITY ZONE MAP



- All appliances (harvesters and other sugarcane machinery) moving between sugarcane biosecurity zones must:
  - > be free of cane trash and soil
  - > be inspected by an authorised inspection person who will issue a Plant Health Assurance Certificate (PHAC)
  - > be accompanied during transportation by the PHAC.
- Machinery moving from NSW to Qld requires a Plant Health Certificate issued by NSW Department of Primary Industries.
- Machinery inspections can be arranged by contacting the local Productivity Service organisation.
- To move sugarcane plants (stalks, leaves, potted plants, etc) between biosecurity zones contact Biosecurity Queensland (13 25 23).

PROPAGATING NEW VARIETIES

Contact your local productivity services group for regional advice on varieties. They can supply approved planting material of recommended varieties and place orders for tissue culture plantlets.

Billet planting

PLANT MATERIAL FROM AN APPROVED SEED SOURCE

Approved seed provides cane growers with the highest quality planting materials in terms of disease status and being 'true-to-type'. Approved seed (stalks, billets, setts or tissue culture plantlets used for planting) is a key control measure for systemic diseases of sugarcane, including chlorotic streak, Fiji leaf gall, leaf scald, mosaic, ratoon stunting disease (RSD) and smut. Provision of approved seed in each mill area in the Australian sugar industry is coordinated by SRA, in cooperation with the local productivity services group then maintains and distributes the approved seed to growers.

GROW SUGARCANE SPECIFICALLY FOR PLANTING MATERIAL

The block selected for growing plant material should be weed-free and sugarcane volunteer-free. When selecting cane for planting material the cane should be less than one year old, erect and free from damage. Plan for two or more eyes per sett when harvesting for billets or stick planting. For non-irrigated regions plants should be well watered, have adequate nutrition immediately prior to harvest for billet planting. For irrigated regions you may need to reduce fertiliser rates, withhold irrigation or plant late in the season. The cane should also have originated from an approved seed plot and therefore be no more than three years away from long hot water treatment.

The best "whole farm" disease risk minimisation and productivity strategies can be achieved through consistent access to approved seed. It is highly recommended that cane considered for use as planting material be RSD tested well in advanced of harvest so an informed choice can be made prior to planting.

SET UP THE HARVESTER FOR CUTTING HIGH QUALITY SOUND BILLETS

Rubber coating rollers and optimising the roller speeds to chopper speed will produce good quality billets with minimal split or crushed ends and damaged eyes. Reduce the speed of harvesting and maintain sharp basecutter and chopper blades for clean cutting. Disinfect the machinery used to cut and plant new varieties to limit the spread of disease and weeds.

Tissue culture

CALCULATE HOW MUCH TISSUE CULTURE TO ORDER

We've made it easier with our online tissue culture calculator. It demonstrates the speed at which large quantities of planting material can be produced from a set number of plantlets or for a set cost. Below is a look-up table including common results from the calculator (available at sugarresearch.com.au/calculator).

TRY TISSUE CULTURE AS AN APPROVED SEED SOURCE

Tissue culture is an excellent source of approved seed for all varieties and can help reduce the spread of serious diseases such as RSD, smut and Fiji leaf gall. Tissue-cultured plantings are more uniform and produce more sticks than conventional plantings so larger quantities of planting material are achieved the following year. This means earlier commercial-scale production of more productive new varieties can be achieved when using tissue culture.

STAGE	ORDER DEADLINE FOR SPRING PLANTING	ORDER DEADLINE FOR AUTUMN PLANTING
Grower finalises order. Productivity services group places order with SRA.	15 November	1 July
Productivity services group receives established plantlets from nursery and distributes to growers.	Delivery on agreed date between grower, productivity services group and nursery. Available in August.	Delivery on agreed date between grower, productivity services group and nursery. Available in March .

ESTIMATED COST AND TIME TO SCALE UP NEW VARIETY PRODUCTION USING TISSUE CULTURE

Yr 1	No. plantlets ordered	100	250	500	1000
	Approximate cost	$150	$375	$750	$1500
	Metre row planted @ 0.8m	80	200	400	800
Yr 2	Metre row available for planting	2400	6000	12000	24000
	Ha avail for planting @ 1.8m	0.4	1.1	2.2	4.3

For more information on *tissue culture*, contact:
SRA Tissue Culture Manager **Clair Bolton** **E** cbolton@sugarresearch.com.au **T** 07 3331 3374

PLANTING AND MANAGING TISSUE-CULTURED PLANTLETS IN THE FIELD

Planting

- Prepare soil to a fine tilth to ensure good soil/root contact.
- A seedling planter can be used if one is available, although hand planting small numbers is not a huge job. Plant them deep at the bottom of a drill to prevent stool tipping.
- Fill in after early growth.
- Plant the plantlets 50cm to 1m apart. A good distance is 80cm, which will allow tillering to produce a high number of sticks.

Irrigating

- Provision of water is the most critical factor for the successful establishment of tissue culture plantlets.
- Irrigate plantlets immediately after planting and monitor them to ensure they don't dry out over the first three weeks to get the roots well established.
- If you do not have access to flood or sprinkler irrigation a simple irrigation system can be set up using cheap drip tape and an in-line filter hooked up to your garden tap or water tanker.

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 2.5kg/ha plus Dual Gold® at 1.5L/ha has been successfully applied over the top, for grass and broadleaf weed control.
  - > Do not use diuron as young plantlets are sensitive to this product.
- Sempra® at 100g/ha plus Activator at 200mL/100L for nutgrass. Both applications were sprayed over the top for nutgrass control.
- Do not use paraquat unless you have no other option and only on established plantings.

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:

Isis Productivity Ltd:
T 07 4126 1444

Maryborough Cane Productivity Services:
M 0487 017 811

Sugar Services Bundaberg:
T 07 4151 2555

Rocky Point Productivity Services:
T 07 5546 1481

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