Sugar Research Australia

VARIETY GUIDE 2024/2025

New South Wales Region

HOW TO USE THIS GUIDE

This guide is designed to help growers in the New South Wales 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 on the following pages 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.
Visit sugarresearch.com.au or scan the QR code.

(Cover page) *Mount Warning - across the river from Condong Mill.*
(Left) *Plant Cane 2024.*

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NEW AND RECENT VARIETIES AVAILABLE IN THE NSW REGION

Variety Recommendation and Release Process

Regional Variety Committees (RVCs) have replaced Variety Approval Committees (VAC) in line with changes to 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.

The NSW RVC Membership is drawn from the NSW Agricultural Advisory Committee, Sunshine Sugar, Agricultural Services staff and Sugar Research Australia and will review and approve new varieties for release in NSW. The NSW RVC requires committee consensus for progression of a variety through the breeding program and committee consensus 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 NSW region. Yield (TCH) and CCS for each new variety are compared with the trial results of various standard varieties.

Variety: SRA29Φ QS08-9474			***Parentage:*** *Q170 x QC90-289* ***/ Summary:*** *1 and 2yr Crops are equal in tonnes cane/Ha and CSS*											
TRIAL CYCLE	**TRIAL HARVEST YEAR**	**CROP CLASS**	**YIELD (TCH)**					**CCS**					**# OF HARVESTS**
			SRA29Φ	**Q208Φ**	**Q240Φ**	**BN81-1394**	**BN83-3120**	**SRA29Φ**	**Q208Φ**	**Q240Φ**	**BN81-1394**	**BN83-3120**	
2 Year Crop	(2016 series AATs): 2018	P 2yr	175	179	165	178	209	13.4	13.0	13.3	13.7	11.4	4
	2020	1R 2yr	126	113	120	117	141	13.5	13.2	13.7	13.8	11.8	3
	Overall performance 2yr crop		**154**	**151**	**146**	**152**	**180**	**13.4**	**13.1**	**13.5**	**13.7**	**11.6**	**7**
1 Year Crop	**TRIAL HARVEST YEAR**	**CROP CLASS**	**SRA29Φ**	**Q208Φ**	**Q240Φ**	**BN81-1394**	**KQ228Φ**	**SRA29Φ**	**Q208Φ**	**Q240Φ**	**BN81-1394**	**KQ228Φ**	**# OF HARVESTS**
	(2014 series FATs): 2015	P	107	101	92	108	97	14.0	13.7	13.5	14.1	13.4	2
	2016	1R	70	71	71	75	74	13.8	14.3	13.9	14.2	13.9	2
	2017	2R	88	96	91	95	104	14.2	14.6	14.1	14.2	14.5	2
	(2016 series FATs): 2017	P	122	118	118	120	119	14.1	14.3	14.2	14.6	14.6	1
	2018	1R	113	111	109	114	104	13.0	13.0	13.2	13.4	13.6	1
	2019	2R	106	102	92	106	106	14.5	14.8	14.9	15.1	15.0	1
	Overall performance 1yr crop		**97**	**96**	**92**	**99**	**98**	**13.9**	**14.1**	**14.0**	**14.3**	**14.1**	**9**
Comments:			SRA29Φ is resistant to Fiji leaf gall, Leaf Scald and Pachymetra. It is intermediate-resistant to Smut and intermediate to Red Rot.											

Variety: SRAW30Φ KQB07-24815			***Parentage:*** *QA89-3305 x QBYC05-10199* ***/ Summary:*** *2yr Crop higher tonnes cane and CCS*								
TRIAL CYCLE	**TRIAL HARVEST YEAR**	**CROP CLASS**	**YIELD (TCH)**				**CCS**				**# OF HARVESTS**
			SRAW30Φ	**BN83-3120**	**Q208Φ**	**Q203**	**SRAW30Φ**	**BN83-3120**	**Q208Φ**	**Q203**	
2 Year Crop	(2015 series AATs): 2017	P 2yr	151	150	134	133	13.4	10.7	12.2	13.2	5
	2019	1R 2yr	163	137	140	129	12.9	10.6	12.3	12.6	3
	Overall performance 2yr crop		**156**	**145**	**136**	**131**	**13.2**	**10.7**	**12.3**	**13.0**	**8**
Comments:			Results for SRAW30Φ in the 2015 2yr old AAT series are excellent. It is resistant to Fiji leaf gall, Leaf Scald and Pachymetra. It is intermediate-resistant to Smut and intermediate to Red Rot. No 1yr NSW data.								

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

Variety: SRA35Ф QC04-402

Parentage: *QA94-6577 x QC90-6003* *2yr crop has high tonnes cane, average CCS. 1yr crop has average tonnes cane and CCS.*

TRIAL CYCLE	TRIAL HARVEST YEAR	CROP CLASS	YIELD (TCH)					CCS					# OF HARVESTS
			SRA35Ф	Q208Ф	Q232Ф	Q240Ф	SRA29Ф	SRA35Ф	Q208Ф	Q232Ф	Q240Ф	SRA29Ф	
2 Year Crop	(2015 2 Yr FAT): 2017	P 2yr	95	78	134			11.4	7.9	12.4			1
	(2016 2 Yr FAT): 2018	P 2yr	186	171	166	153		13.8	14.2	13.6	15.1		1
	(2016 2yr AAT): 2018	P 2yr	197	177	179	163	175	13.0	13.2	13.0	13.7	13.4	4
	2020	1R 2yr	131	113	139	120	126	13.5	13.2	12.9	13.7	13.5	3
	Overall performance 2yr crop		**163**	**145**	**161**	**147**	**154**	**13.0**	**12.6**	**12.9**	**13.7**	**13.4**	**9**

TRIAL CYCLE	TRIAL HARVEST YEAR	CROP CLASS	YIELD (TCH)							CCS							# OF HARVESTS
			SRA35Ф	KQ228Ф	Q183	Q208Ф	Q211Ф	Q232Ф	Q240Ф	SRA35Ф	KQ228Ф	Q183	Q208Ф	Q211Ф	Q232Ф	Q240Ф	
1 Year Crop	(2014 series FATs): 2015	P	108	97		101	98	110	92	13.5	13.4		13.7	13.9	13.1	13.5	2
	2016	1R	70	74		71	66	75	71	13.6	13.9		14.3	14	13.2	13.9	2
	2017	2R	91	104		96	88	99	91	13.7	14.5		14.6	14.1	13.6	14.1	2
	(2016 series FATs): 2017	P	96	98	98	98	95	101	99	12.6	13.9	13.1	13.4	12.7	12.8	13.9	2
	2018	1R	86	86	88	90	86	95	86	13.5	14.4	13.9	13.9	13.4	13.7	14.0	2
	2019	2R	99	106	95	102	99	116	92	14.2	15.0	14.7	14.8	14.2	14.5	14.9	1
	Overall performance 1yr crop		**91**	**93**	**93**	**92**	**88**	**98**	**88**	**13.5**	**14.1**	**13.8**	**14.0**	**13.7**	**13.4**	**14.0**	**11**
Comments:			Resistant to Leaf Scald, Brown Rust and Red Rot. Intermediate-Resistant for Pachymetra and Fiji Leaf Gall. Intermediate for Smut.														

Variety: SRA41Ф QS09-205

Parentage: *Q170 x QC90-289* *1 & 2yr crops have average tonnes cane, higher CCS*

TRIAL CYCLE	TRIAL HARVEST YEAR	CROP CLASS	YIELD (TCH)							CCS							# OF HARVESTS
			SRA41Ф	Q183	Q208Ф	Q232Ф	Q240Ф	Q244Ф	Q254Ф	SRA41Ф	Q183	Q208Ф	Q232Ф	Q240Ф	Q244Ф	Q254Ф	
2 Year Crop	(2016 2 Yr FAT): 2018	P 2yr	148	162	171	166	153			14.2	13.6	14.2	13.6	15.1			1
	(2018 2 Yr AAT): 2020	P 2yr	137	129	151	155	135	137	141	14.3	13.3	13.8	13.4	13.6	13.9	13.4	4
	2022	1R 2yr	98	99	103	112	88	95	93	15.9	15.0	15.6	14.7	15.6	15.4	14.8	4
	(2019 2 Yr FAT): 2021	P 2yr	101	128	102	133	122	92	118	12.9	12.9	13.5	12.9	13.5	13.7	13.3	1
	Overall performance 2yr crop		**119**	**120**	**129**	**137**	**117**	**113**	**117**	**14.7**	**13.9**	**14.4**	**13.8**	**14.4**	**14.4**	**13.9**	**10**

TRIAL CYCLE	TRIAL HARVEST YEAR	CROP CLASS	YIELD (TCH)							CCS							# OF HARVESTS
			SRA41Ф	KQ228Ф	Q183	Q208Ф	Q211Ф	Q232Ф	Q240Ф	SRA41Ф	KQ228Ф	Q183	Q208Ф	Q211Ф	Q232Ф	Q240Ф	
1 Year Crop	(2016 FAT): 2017	P	99	98	98	98	95	101	99	13.8	13.9	13.1	13.4	12.7	12.8	13.9	2
	2018	1R	91	86	88	90	86	95	86	14.1	14.4	13.9	13.9	13.4	13.7	14.0	2
	2019	2R	104	106	95	102	99	116	92	15.0	15.0	14.7	14.8	14.2	14.5	14.9	1
	(2019 FAT): 2020	P	64	74	74	68	74	75	67	13.1	12.8	11.9	12.0	12.1	11.6	13.3	2
	2021	1R	96	96	94	95	88	99	107	14.9	15.6	14.0	14.2	14.0	13.8	14.7	2
	2022	2R	66	77	69	72	64	77	83	15.6	15.6	14.4	14.8	15.0	14.7	15.6	1
	Overall performance 1yr crop		**87**	**89**	**87**	**88**	**85**	**93**	**89**	**14.2**	**14.4**	**13.5**	**13.7**	**13.4**	**13.3**	**14.2**	**10**
Comments:			Resistant to Fiji Leaf Gall and Smut. Intermediate-Resistant to Pachymetra and Red Rot. Intermediate for Leaf Scald.														

Variety: SRA45 QS06-8080

Parentage: *QN85-2770 x QN83-657* *1 & 2yr crops have high tonnes cane, lower CCS*

TRIAL CYCLE	TRIAL HARVEST YEAR	CROP CLASS	YIELD (TCH)							CCS							# OF HARVESTS
			SRA45	Q203	Q208Ф	Q232Ф	SRAW30Ф	BN81-1394	BN83-3120	SRA45	Q203	Q208Ф	Q232Ф	SRAW30Ф	BN81-1394	BN83-3120	
2 Year Crop	(2015 2 Yr AAT): 2017	P 2yr	166	139	148	147	167	151	148	12.9	13.6	13.3	13.5	13.9	14.4	11.1	4
	2019	1R 2yr	162	129	140	143	163	138	137	12.0	12.6	12.3	12.5	12.9	13.4	10.6	3
	Overall performance 2yr crop		**164**	**135**	**145**	**146**	**165**	**145**	**143**	**12.5**	**13.2**	**12.9**	**13.1**	**13.5**	**14.0**	**10.9**	**7**

TRIAL CYCLE	TRIAL HARVEST YEAR	CROP CLASS	YIELD (TCH)							CCS							# OF HARVESTS
			SRA45	KQ228Ф	Q183	Q208Ф	Q211Ф	Q232Ф	Q240Ф	SRA45	KQ228Ф	Q183	Q208Ф	Q211Ф	Q232Ф	Q240Ф	
1 Year Crop	(2015 FAT): 2016	P	112	101	98	97	91	95	100	11.5	13.2	13.2	12.9	12.8	12.6	13.5	2
	2017	1R	126	117	119	116	107	127	128	13.4	15.5	15.1	15.3	14.9	14.3	15.1	2
	2018	2R	109	105	108	101	100	111	112	11.8	13.4	13.2	13.0	12.6	12.6	13.2	2
	Overall performance 1yr crop		**116**	**107**	**108**	**105**	**99**	**111**	**113**	**12.2**	**14.0**	**13.8**	**13.7**	**13.4**	**13.2**	**13.9**	**6**
Comments:			Resistant to Fiji Leaf Gall, Smut, Leaf Scald, Pachymetra and Red Rot.														

SRA29[ф]

SRAW30[ф]

SRA35[ф]

SRA41[ф]

SRA45

For more information on *variety field trials* contact:

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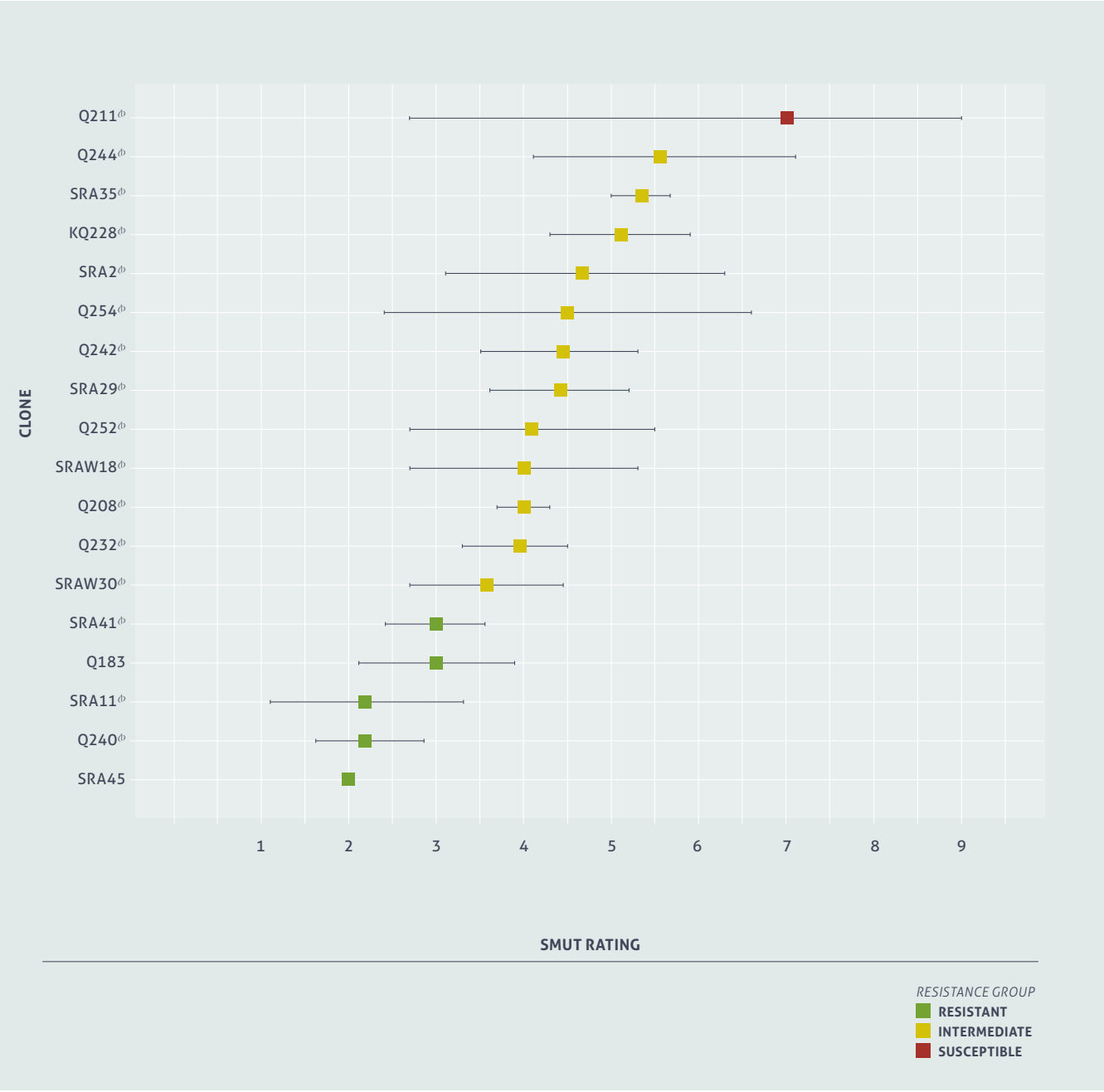
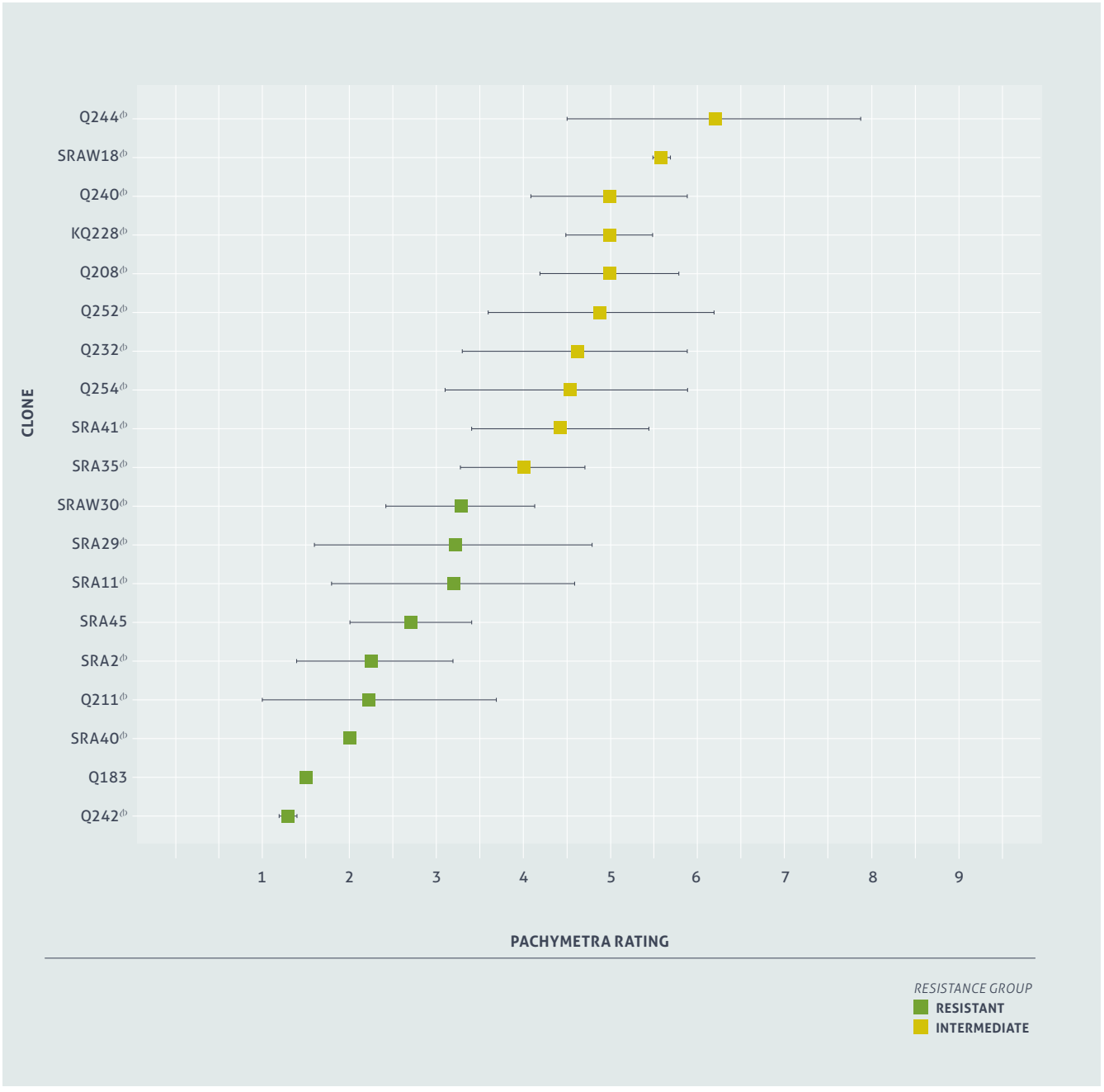
SMUT RATINGS

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 Q208ф has a rating of 4 with a confidence interval of 3.7 to 4.3 while the new variety SRAW30ф with a rating of 3.6 and ranges from 2.7 to 4.4. Rating confidence will improve as more data is collected.



PACHYMETRA RATINGS

Pachymetra resistance ratings are calculated from the severity of infection in a test clone compared to standard varieties in inoculated bench trials. The graphic includes the rating and the 95% confidence interval for each variety. The confidence interval is influenced by factors such as the number of times a variety has been tested and variability of Pachymetra infection within each trial. For example the variety KQ228(ф) has a rating of 5 and has a narrow confidence interval from 4.5 to 5.5 while the new variety SRAW30(ф) has a rating of 3.3 and ranges from 2.4 to 4.2. Rating confidence will improve as more data is collected.



DISEASE RESISTANCE

Disease has the potential to lower the performance of varieties on your farm. This table will help you select varieties given the diseases that may be present on your farm.

Disease Ratings								
VARIETY	FIJI LEAF GALL	SMUT	LEAF SCALD	CHLOROTIC STREAK	ORANGE RUST	BROWN RUST	RED ROT	PACHYMETRA
Q183	R	R	I	S	R	R	I	R
Q208ᵠ	I-S	I-R	R	R	R	R	R	I
Q211ᵠ	S	S	R	U	R	R	R	R
KQ228ᵠ	I	I	R	S	R	R	R	I
Q232ᵠ	I	I-R	R	R	R	U	I-R	I
Q240ᵠ	I-S	R	R	I-R	R	U	R	I
Q242ᵠ	R	I-R	R	I	R	U	I-R	R
Q244ᵠ	R	I-S	R	S	R	U	I	I-S
Q252ᵠ	I	I-R	R	U	R	U	R	I
Q254ᵠ	R	I-R	R	U	R	U	I	I
SRA2ᵠ	R	I	R	U	I	U	R	R
SRA11ᵠ	R	R	R	U	R	U	I	R
SRAW18ᵠ	R	I-R	R	U	U	U	R	I-S
SRA29ᵠ	R	I-R	R	U	U	U	I	R
SRAW30ᵠ	R	I-R	R	U	U	U	I	R
SRA35ᵠ	I-R	I	R	U	U	R	R	I-R
SRA41ᵠ	R	R	I	U	U	U	I-R	I-R
SRA45	R	R	R	U	U	U	R	R

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

Rotation of Varieties

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

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

No sugarcane varieties are resistant to RSD: they can all become infected, suffer yield losses, and further spread the disease.

Some varieties are more sensitive to RSD and carry significantly higher levels of the bacteria. In situations where RSD is a high risk and hygiene measures are not guaranteed, it may be appropriate to avoid varieties such as Q211ᵠ, KQ228ᵠ, Q242ᵠ and SRA2ᵠ.

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.

NSW Harvest Management				
VARIETY	TRASHING	EARLY SUGAR	MID SUGAR	LATE SUGAR
Q183	F-AV	P	A	A
Q208ф	F	A	G	G
Q211ф	F-AV	P	P	A
KQ228ф	A-T	G	G	G
Q232ф	T	P	P	P
Q240ф	F-AV	G	G	A
Q242ф	A-T	P	P	P
Q244ф	F-AV	A	A	G
Q252ф	F	A	G	G
Q254ф	A-T	A	A	G
SRA2ф	F-AV	G	G	G
SRA11ф	F-AV	A	A	A
SRAW18ф	F-AV	A	A	G
SRA29ф	F	G	G	G
SRAW30ф	A-T	G	G	G
SRA35ф	A	A	G	A
SRA41ф	F	G	G	G
SRA45	U	P	P	P

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.

TRASHING
- FREE (F)
- FREE-AVERAGE (F-AV)
- AVERAGE (A)
- AVERAGE-TIGHT (A-T)
- TIGHT (T)
- UNKNOWN

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

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

Tables 3, 4 and 5 summarise all phytotoxicity, biomass and yield results obtained in the pot and field trials from 2014 to 2022.

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

For more information contact:
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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$^{(\phi)}$

	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$^{(\phi)}$	Mild	Medium to severe	Mild	Mild	Medium	Mild	Severe	Medium	Mild	Medium to severe
KQ228$^{(\phi)}$ PHYTO RATING RANGE										
	1.2 to 2.3	1.8 to 3.2	1.3	1.3 to 1.8	1.1 to 2.6	1.8 to 2.0	3.9 to 4.1	1.1 to 2.8	1.2 to 2.0	1.7 to 3.8

TABLE 3 Herbicide symptoms severity on the cane foliage for all testing varieties. (Legend: refer to table 1 on the left)

VARIETY	2,4-D	AMETRYN	AMETRYN+ TRIFLOXY-SULFURON	AMICARBA-ZONE	ASULAM	DIURON	FLUMIOXAZIN	METOLACHLOR	METRIBUZIN	MSMA
KQ228ϕ	**1.6**	**1.9**	**1.7**	**1.3**	**1.9**	**1.3**	**3.6**	**2.1**	**1.5**	**3.0**
Q208ϕ	1.5		1.6		1.8			2.0	1.4	2.9
Q232ϕ	1.6		1.8		1.9			2.2	1.6	3.0
Q240ϕ	1.6		1.7		1.8			2.1	1.5	2.9
Q242ϕ	1.6		1.8		1.9			2.2	1.6	3.0
Q252ϕ	1.6		1.7		1.8			2.1	1.5	3.0
SRA2ϕ	1.7	2.0			2.0			2.2	1.6	3.1
SRA11ϕ	1.6	2.0		1.4	1.9		3.7	2.2	1.6	3.0
SRA29ϕ	1.8	2.1		1.5	2.0	1.5		2.3	1.7	3.1
SRAW30ϕ	1.6	2.0		1.3	1.9	1.4		2.2	1.6	3.0

The predicted EWRC scores and associated colour code are presented for each tested combination of herbicides by variety. The predicted EWRC scores derive from the average EWRC scores for each trial series, using KQ228ϕ 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
KQ228ϕ	**-19%**	**-46%**	**-55%**	**-15%**	**-16%**	**-14%**	**-36%**	no reduction	**-25%**	**-21%**
Q208ϕ	-29%		-33%		-12%			-51%	-21%	-50%
Q232ϕ	-13%		-42%		-26%			-33%	-13%	-33%
Q240ϕ	-36%		-28%		-41%			-7%	-21%	-37%
Q242ϕ	-14%		-12%		no reduction			no reduction	-7%	-12%
Q252ϕ	-38%		-11%		no reduction			-6%	-20%	-26%
SRA2ϕ	no reduction	-5%			no reduction			no reduction	no reduction	-10%
SRA11ϕ	no reduction	-9%		-33%	-57%		-49%	-18%	no reduction	-31%
SRAW30ϕ	-73%	-120%		-80%	-88%	-74%		-52%	-105%	-95%

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 KQ228ϕ as reference variety, in an attempt to harmonise trial variations : weather conditions at application, and/or during the trial can alter cane growth and herbicide response. Predicted biomass reduction compared to the untreated is indicated in the table. The derived predicted biomass reduction values differ from the observed biomass reduction values in each trial series and should only be used as indicators to compare the severity of the treatments on cane growth across all varieties (in some cases the predicted values exceed 100% biomass reduction. It does not mean the death of the treated plant). Severe biomass reductions recorded 10 weeks after spraying are typical, as the plant metabolism has just been diverted into detoxifying the applied herbicide to the detriment of its growth. Usually yield loss by harvest time is less severe as the plant has had more time to recover from its growth delay.

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

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	DIURON	METO-LACHLOR	METRI-BUZIN	MSMA
KQ228ϕ	**-1%**	**-14%**		**-11%**	no reduction	**-6%**	**-3%**	no reduction	no reduction
Q232ϕ			-9%				no reduction	-4%	no reduction
Q242ϕ			no reduction				-3%	0%	-24%
SRA2ϕ					-10%			-1%	-15%
SRA11ϕ				-4%	no reduction				
SRA29ϕ	no reduction				no reduction				
SRAW30ϕ	-12%	-7%		-27%	-9%	-8%			

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

VARIETY ADOPTION IN EACH MILL AREA

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).

Condong

The 2023 season showed some recovery from the 2022 floods. The total harvested crop amounted to 399,138 tonnes from 4,104.3 hectares, with 65% of the crop being 1-year-old cane and 35% being 2-year-old cane. The average yield for 1-year-old cane was 92.0 tonnes per hectare with an average CCS of 12.2. For 2-year-old cane, the yield was 102.3 tonnes per hectare with an average CCS of 12.4. Varieties Q240Φ, Q208Φ, Q183, KQ228Φ, and Q211Φ made up 76% of the 1-year crop, while Q208Φ, Q211Φ, and Q183 constituted 72% of the 2-year crop. The highest $/ha major 1-year varieties were SRA2Φ, SRA11Φ, Q240Φ, KQ228Φ, and Q208Φ. For 2-year canes, the highest $/ha varieties were SRA11Φ, SRA2Φ, Q244Φ, and Q211Φ. Q211Φ accounted for 22.6% of the 2-year crop, with SRA11Φ, SRA2Φ, and Q244Φ combined representing only 4.5% of the 2-year crop.

Note: Varieties with low tonnes for each crop type are not shown in the graphs.

Broadwater

The 2023 season saw a total harvest of 308,262 tonnes from 3,909 hectares, with an average CCS of 12.99. 85% of the 2023 crop was 2-year-old cane, leaving the remaining 15% as 1-year-old cane. Q240Φ and Q208Φ constituted 59% of the 1-year-old crop. Q208Φ, Q240Φ, Q232Φ, and Q254Φ made up around 73% of the 2-year crop. The best performing 2-year variety with over 2,500 tonnes delivered was SRA11Φ, followed by Q240Φ.

Note: Varieties with low tonnes for each crop type are not shown in the graphs.

VARIETY ADOPTION IN EACH MILL AREA (CONT)

Harwood

Harwood crushed a total of 405,754 tonnes from 4,093 hectares, with an average yield of 99.1 tonnes per hectare. The best of the major varieties for 1-year-old cane were Q208Φ, Q244Φ, SRA11Φ, Q252Φ, Q232Φ, and Q240Φ, which comprised 88% of the 1-year-old crop.

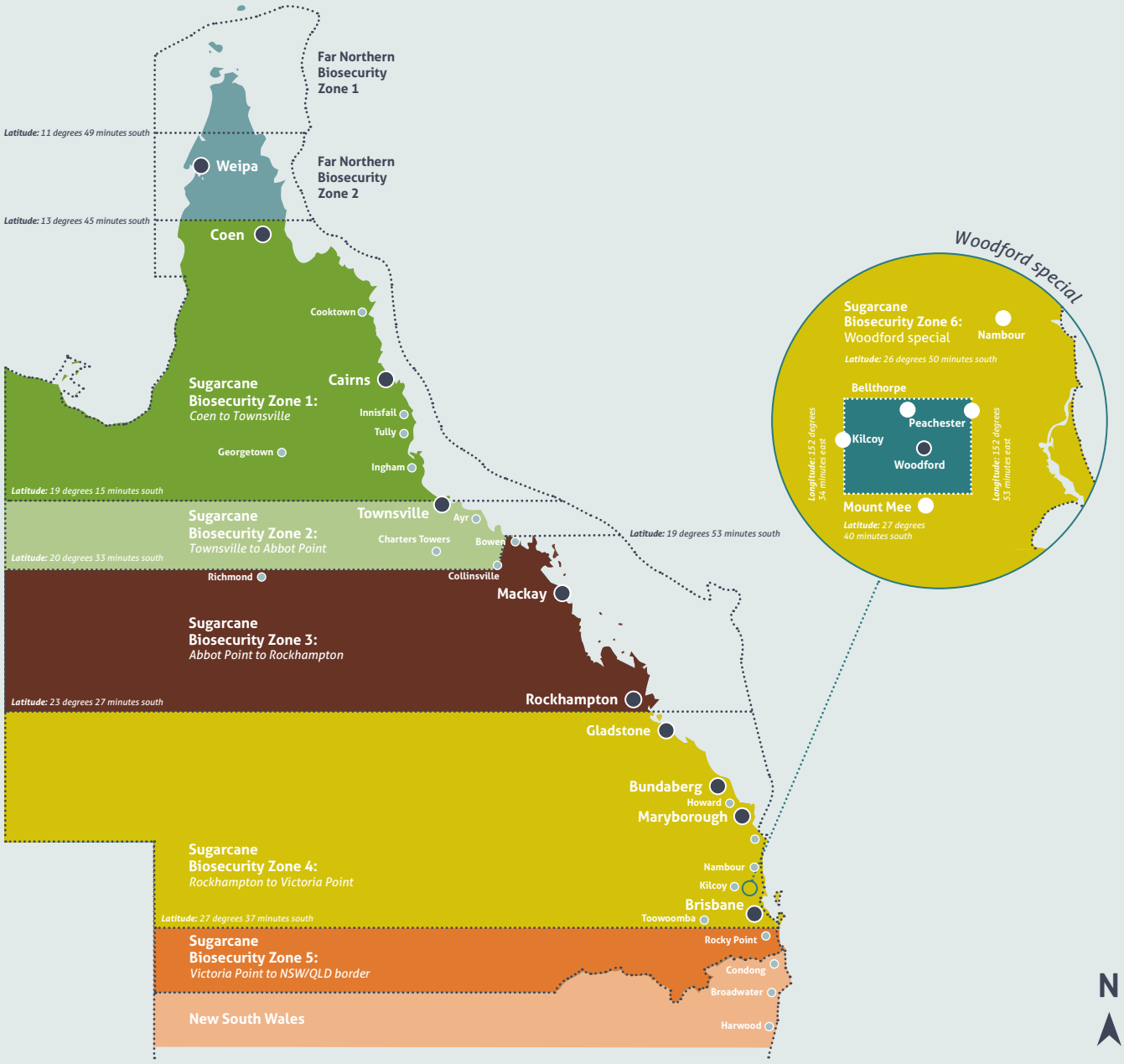
For the 2-year-old crop, the varieties with the highest TSH (tonnes sugar per hectare) and over 10,000 tonnes harvested were SRA11Φ, Q244Φ and Q240Φ.

Note: Varieties with low tonnes for each crop type are not shown in the graphs.

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

Cane Pad Condong - looking towards Numinbah Valley.

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.
- You can not move sugarcane plants (stalks, leaves, potted plants, etc) to Queensland without a Queensland Department of Agriculture and Fisheries Biosecurity Permit. Contact (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.

NSW Agricultural Services:
T *Broadwater* 02 6620 8257
T *Condong* 02 6670 1745
T *Harwood* 02 6640 0479

Billet planting

PLANT MATERIAL FROM AN APPROVED SEED SOURCE

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

GROW SUGARCANE SPECIFICALLY FOR PLANTING MATERIAL

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

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

SET UP THE HARVESTER FOR CUTTING HIGH QUALITY SOUND BILLETS

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

Tissue culture

CALCULATE HOW MUCH TISSUE CULTURE TO ORDER

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

TRY TISSUE CULTURE AS AN APPROVED SEED SOURCE

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

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

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

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

For more information on *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.

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.

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.

Foreign tissue culture plants, Broadwater Green House.

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