

VARIETY GUIDE 2023/2024

Herbert Region





HOW TO USE THIS GUIDE

This guide is designed to help growers in the Herbert 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 to understand:

	New and recent varieties available in the Herbert region	4
	Smut ratings	10
	Pachymetra ratings	11
	Disease resistance	12
	Variety harvest management	13
	Variety by herbicide screening trials	14
	CCS profiles	16
	Varieties harvested in 2022 in the Herbert region and their performance	18
	Recommended varieties for planting and harvesting	19
	Propagating new varieties	20
	Planting and managing tissue-cultured plantlets in the field	21
	Sugarcane Biosecurity Zone Map	22

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) Herbert commercial sugarcane area.
(Left) Planting introgression seedlings.*

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NEW AND RECENT VARIETIES AVAILABLE IN THE HERBERT REGION

Variety Recommendation and Release Process

Variety release decisions, in each sugarcane region, are the responsibility of Regional Variety Committees (RVC) with membership drawn from growers, millers and productivity service groups specific to the region. SRA supports these groups with secretariat support and the provision of technical information to assist the RVC to make decisions on particular varieties. RVCs are composed of voting and non-voting members to ensure transparency in the decision-making process.

The Herbert RVC (Sugarcane Biosecurity Zone 1) membership is drawn from grower and miller groups from the Herbert region. Three grower's voting representatives

from CANEGROWERS (2 votes), ACFA, AgForce and HCQR Collectives (1 vote). Three votes for the miller's representatives from Wilmar (3 votes). The Herbert RVC requires a majority vote for progression of a clone through the SRA breeding program and a unanimous vote for the release of a new variety.

New Variety

SRA40

SRA40 was approved for release at the 2023 Herbert RVC meeting and will be available as seed cane in 2025. Growers who wish to order tissue culture cane for delivery in 2024, please contact Herbert Cane Productivity Services Ltd (HCPSL) on 07 4776 1808 or Rhianna Harragan (HCPSL Field Officer) on 0400 558 766.

If you would like more information on new variety releases and regional variety committees, visit the SRA website: sugarresearch.com.au or scan the QR code.



Recently Released Varieties:

SRA36[®] and SRA6[®]

SRA36[®] and SRA6[®] were approved for release at the 2022 Herbert RVC meeting and will be available as seed cane in 2023 and 2024.

SRA31[®]

SRA31[®] was approved for release in 2021 and seed cane will be available to growers through HCPSL in 2023.

SRA26[®] and SRA28[®]

SRA26[®] and SRA28[®] were approved for release in 2020 at the Herbert RVC meeting and will be available to growers through HCPSL approved seed cane plots in 2023.

For growers who wish to order any of these varieties as tissue culture please contact HCPSL on 07 4776 1808.

The limited trial results obtained in the Herbert region for SRA40, SRA36[®], SRA6[®], SRA31[®], SRA28[®], SRA26[®], along with other recent releases WSRA24[®] are presented in the tables below and over the following pages.

Variety: SRA40 QN07-7049 Parentage: CP70-1547 X QN96-1492 / Summary: High TCH; low CCS

TRIAL HARVEST YEAR	CROP CLASS	YIELD (TCH)					CCS				# OF HARVESTS
		SRA40	Q200	Q208 [®]	Q232 [®]	Q240 [®]	SRA40	Q200	Q208 [®]	Q232 [®]	
(2016 series FATs): 2017	Plant	106	88	82	92	88	15.1	16.8	16.3	14.5	16.7
	1R	94	77	81	83	81	16.2	17.8	18.0	16.4	17.7
	2R	77	64	68	62	72	16.1	17.0	17.4	15.7	16.9
(2018 series FATs): 2019	Plant	97	92	96	91	88	15.1	17.0	17.3	15.8	16.8
	1R	80	84	85	90	78	15.7	17.1	17.2	16.3	17.0
	2R	84	85	84	86	83	16.8	17.8	17.8	16.9	17.7
Overall performance		90	83	83	85	82	15.8	17.3	17.4	16.0	17

Available from 2025 through HCPSL approved seed cane plots

Comments:	SRA40 has shown a sugar yield advantage over Q232 [®] (5%) and similar to Q200 and Q240 [®] in SRA field trials. SRA40 has shown a lower CCS than Q200, Q208 [®] and Q240 [®] , but similar to that of Q232 [®] . SRA40 has a cane yield advantage over Q200 (8%), Q208 [®] (8%), Q232 [®] (6%) and Q240 [®] (9%). This advantage was consistent across most crop classes and trial locations representing Herbert's main soils and growing environments. SRA40 has a good disease resistance profile to the Herbert major diseases: smut, Pachymetra and leaf scald, making it a profitable variety of choice for growers. Limited observation in the Herbert trials indicates that SRA40 has low arrowing and suckering. SRA40 is a reliable germinator with a moderate stalk population and medium barrel, presenting a distinctive reddish to light green stalks. SRA40 has medium tight trash and a clean erect canopy. SRA40 has an erect compact stool with an erect growth habit providing good harvesting presentation. Brown rust has been observed in this variety in 2022 (Mackay) with a reaction similar to Q253 [®] . The affected plants recovered from it later in the growing season.

Variety: SRA36 [®] QN07-2978		Parentage: QN80-3425 X Q142 / Summary: High TCH; low CCS										
TRIAL HARVEST YEAR	CROP CLASS	YIELD (TCH)					CCS					# OF HARVESTS
		SRA36 [®]	Q200	Q208 [®]	*Q232 [®]	Q240 [®]	SRA36 [®]	Q200	Q208 [®]	*Q232 [®]	Q240 [®]	
(2014 series FATs): 2015	Plant	79	79	89			76	15.7	16.3	16.2		4
	1R	107	102	101			103	16.4	17.0	16.9		4
	2R	96	92	87			93	15.3	16.1	15.8		4
(2016 series FATs): 2017	Plant	105	89	82	92	88	15.9	16.7	16.3	14.5	16.7	3
	1R	91	79	81	83	81	17.0	17.9	18.0	16.4	17.7	3
	2R	78	67	68	62	72	16.6	16.9	17.4	15.7	16.9	3
(2017 series FATs): 2018	Plant	103	98	91	97	89	16.7	17.2	17.7	16.3	17.7	4
	1R	95	87	88	88	89	16.2	17.4	17.2	15.6	16.9	4
	2R	75	74	74	82	71	16.7	17.3	17.6	16.5	17.4	4
(2018 series FATs): 2019	Plant	103	92	96	91	88	15.9	17.0	17.3	15.8	16.8	4
	1R	91	84	85	90	78	15.9	17.1	17.2	16.3	17.0	4
	2R	84	85	84	86	83	16.6	17.8	17.8	16.9	17.7	4
Overall performance		92	86	85			84	16.2	17.1	17.1		17

Available through HCPSL approved seed cane plots

Comments:	SRA36 [®] has shown a sugar yield advantage over Q200 (2%), Q208 [®] (2%), Q240 [®] (4%) and *Q232 [®] (6%) in SRA field trials. SRA36 [®] has shown a 5% lower CCS than Q200, Q208 [®] and Q240 [®] , but has a cane yield advantage over Q200 (7%), Q208 [®] (7%), and Q240 [®] (8%). This advantage was consistent across most crop classes and trial locations representing Herbert's main soils and growing environments. SRA36 [®] has a good disease resistance profile to the Herbert major diseases: smut, Pachymetra and leaf scald, making it a profitable variety of choice for growers. SRA36 [®] is a reliable germinator with a moderate stalk population and thick barrel, presenting a distinctive reddish to light purple stalk and leaf sheath. SRA36 [®] has medium tight trash and a clean semi-erect canopy offering good closure for weed control. SRA36 [®] can develop as an outstanding tall crop but may lodge due to its tall and heavy stalks. Initial maturity sampling data suggests SRA36 [®] is best harvested mid or late in the season (see CCS profiles). Maturity testing or use of crop ripeners will help maximise its CCS returns as it is a low CCS variety compared to other major commercial varieties. Patches of red stripe top rot were observed in this variety in 2022. This disease is of rare occurrence in the Herbert, only in very hot and wet summers with the affected plant recovering from it later in the growing season.
	*Q232 [®] only for comparison to the individual crop classes and sugar yield in the 2016, 2017, and 2018 FAT series.

Variety: SRA6[®] QN05-507 Parentage: QN80-3425 x QH93-1197 / Summary: Lower CCS; similar TCH

TRIAL HARVEST YEAR	CROP CLASS	YIELD (TCH)					CCS					# OF HARVESTS
SRA6[®]	Q200	Q208[®]	*Q232[®]	*Q240[®]	SRA6[®]	Q200	Q208[®]	*Q232[®]	*Q240[®]			

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



**Other regions released SRA's varieties discarded/
not recommended to be planted in the Herbert**

SRA7[◊]: Discarded due to poor performance.

SRA11[◊]: Discarded due to milling data issues and poor ratoon ability.

SRA12[◊]: Discarded due to fibre quality.

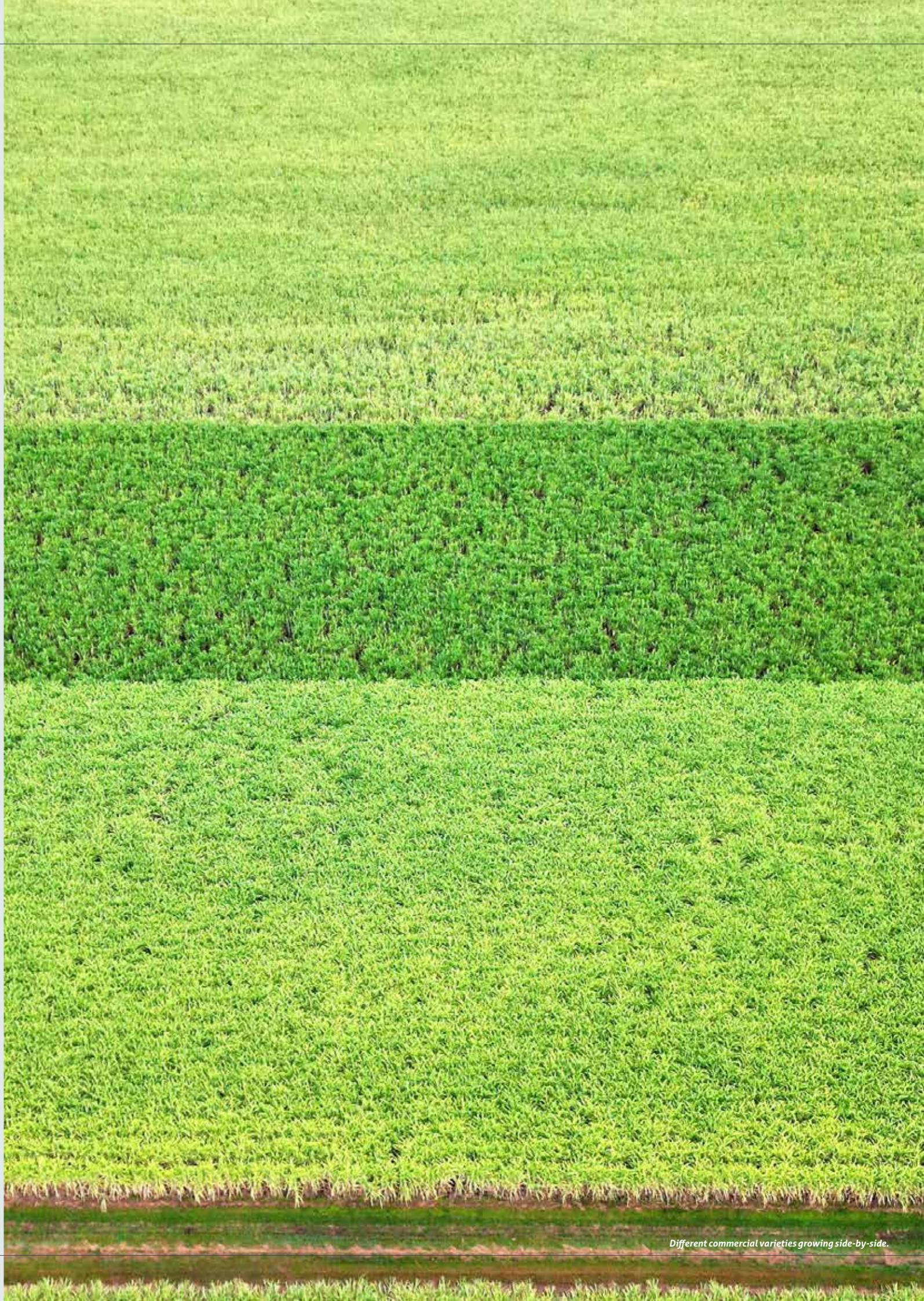
SRA15[◊]: Discarded due to smut concerns (severe in ratoons).

SRA22[◊]: Discarded due to milling data issues and poor performance.

SRA37[◊]: Not recommended for the Herbert due to sugar quality.

For more information on *variety field trials* contact:

SRA *Herbert Variety Officer* Juan Briceno E jbriceno@sugarresearch.com.au T 07 4776 8205 M 0436 805 142

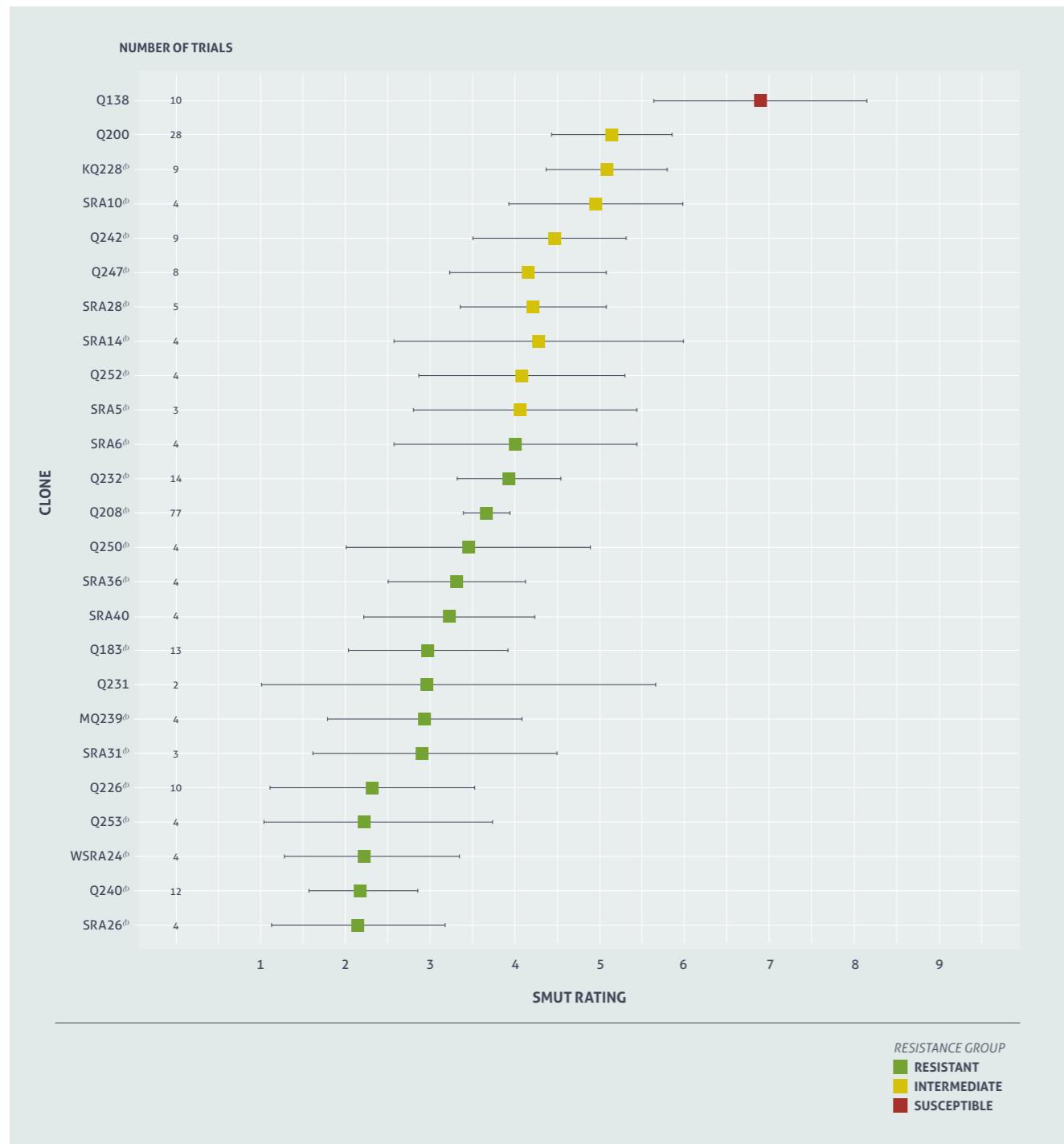


Different commercial varieties growing side-by-side.



SMUT RATINGS

These 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. Rating confidence will improve as more data is collected. For example, variety Q200[◊] has been tested in 28 trials for smut resistance and has an 'Intermediate' rating ranging from 4.4 to 5.8, indicated by the narrow confidence interval. The variety WSRA24[◊] has only been tested in 4 trials and has a 'Resistant' rating ranging from 1.2 to 3.3.



PACHYMETRA RATINGS

The Pachymetra ratings are calculated in the same way as for smut ratings. For example, variety Q200[◊] has been tested in 38 trials for Pachymetra resistance and has an 'Intermediate' rating with a 95% confidence interval ranging from 4.4 to 5.4. The variety WSRA24[◊] has only been tested in 4 trials and has a 'Resistant' rating with a 95% confidence interval ranging from 1.4 to 3.9.





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.

Herbert disease ratings												
VARIETY	ZONE	SMUT	PACHYMETRA	LEAF SCALD	CHLOROTIC STREAK	ORANGE RUST	BROWN RUST	RED ROT	YELLOW SPOT	FIJI LEAF GALL	MOSAIC	
KQ228 [®]	Wet, Dry	I	I	R	S	R	R	R	I	I	R	
MQ239 [®]	Wet, Dry	R	I-R	R		R		I-R	I	S		
Q138 [®]	Wet, Dry	S	R	R	I-R	R	R	I-S	I	R	I-S	
Q183 [®]	Wet, Dry	R	R	I	S	R	R	I	I-S	R	R	
Q200	Wet, Dry	I	I	R	I	R	R	R	I-R	R	R	
Q208 [®]	Wet, Dry	I-R	I	R	R	R	R	R	R	I-S	R	
Q215 [®]	Dry	I-S	R	R		R	R	R	R	R	R	
Q219 [®]	Wet, Dry	R	R	R		R		R		S	S	
Q226 [®]	Wet, Dry	R	I-S	R		R	I-S	R	R	R	R	
Q231 [®]	Wet, Dry	R	R	I-R		R		R	I	S	I-R	
Q232 [®]	Wet, Dry	I-R	I	R	R	R		I-R	R	I	R	
Q240 [®]	Wet, Dry	R	I	R	I-R	R		R	I-S	I-S	R	
Q242 [®]	Wet, Dry	I-R	R	R	I	R		I-R	R	R	R	
Q247 [®]	Wet, Dry	I-R	R	R		R		R	S	R	R	
Q250 [®]	Wet, Dry	R	I	R		I		I	I-R	I-S	I-R	
Q252 [®]	Wet, Dry	I-R	I	R		R		R	I	I	R	
Q253 [®]	Wet, Dry	R	R	R		R	I-S	I	S	S	R	
SRA5 [®]	Wet, Dry	I-R	I	I-R		R	R		I	R		
SRA6 [®]	Wet, Dry	R	R	R		R		I	I-R	I	R	
SRA10 [®]	Wet, Dry	I	I-R	R		R		I	R	S	S	
SRA14 [®]	Wet, Dry	I-R	R	R		R		R	I	S	R	
WSRA24 [®]	Wet, Dry	R	R	R					I	R		
SRA26 [®]	Wet, Dry	R	R	R		R		R	I-R	S		
SRA28 [®]	Wet, Dry	I-R	R	R		R		R	I	R		
SRA31 [®]	Wet, Dry	R	R	R		R			R	R		
SRA36 [®]	Wet, Dry	R	R	R		R				R		
SRA40	Wet, Dry	R	R	R		R	I-S	R		I	R	

* Region recommended

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. Visit sugarresearch.com.au or scan the QR code.



NOTE: You will note that Ratoon Stunting Disease (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 approved 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 KQ228[®] and Q253[®].

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



VARIETY HARVEST MANAGEMENT

The table below indicates the trashing type and lodging tolerance of the recommended varieties. It also indicates the CCS maturity (early, mid, or late sugar) of the recommended varieties in the Herbert Wet and Dry Zones. Harvesting varieties according to their sugar maturity profiles, optimising CCS maturity at time of harvest can make a significant difference to your productivity.

Herbert harvest management												
VARIETY	TRASHING	LODGING TOLERANCE	WET ZONE			DRY ZONE			EARLY SUGAR	MID SUGAR	LATE SUGAR	
			EARLY SUGAR	MID SUGAR	LATE SUGAR	EARLY SUGAR	MID SUGAR	LATE SUGAR				
KQ228 [®]	F-Av	A	G	G	P	G	G	P				
MQ239 [®]		A	A	A	A	A	A	A	A	A	A	
Q183 [®]	F-Av	A	A	G	A	A	A	A	G	G	A	
Q200	F	A	G	G	G	G	G	G	G	G	G	
Q208 [®]	F	A	G	G	G	G	G	G	G	G	G	
Q215 [®]		A							P	A	A	
Q226 [®]	A	A	A	A	P	A	A	A	A	A	P	
Q231 [®]		A	G	A	A	A	G	G	A	A	A	
Q232 [®]	F-Av	A	P	A	A	A	P	A	A	A	A	
Q240 [®]	F-Av	A	A	G	G	A	A	G	G	G	G	
Q242 [®]	T		A	A	P	A	P	A	P	P	P	
Q247 [®]	F-Av		G	G	G	G	G	G	G	G	G	
Q250 [®]	F-Av		G	G	G	G	G	G	G	G	G	
Q252 [®]			A	A	G	G	G	G				
Q253 [®]			G	P	A	A	P	P	A	A	A	
SRA5 [®]				P	P	P	P	P	P	P	P	
SRA6 [®]	T	G	A	A	A	A	A	A	A	A	A	
SRA10 [®]	F-Av		G	G	A	A	G	G	G	G	G	
SRA14 [®]	F-Av	G	G	A	A	A	G	A	A	A	A	
WSRA24 [®]	F-Av	G	A	A	A	A	P	P	P	P	P	
SRA26 [®]	F-Av	G	G	G	G	G	G	G	G	G	G	
SRA28 [®]	F-Av	A	A	G	G	G	G	G	G	G	G	
SRA31 [®]	A	A	G	G	A	G	G	G	G	G	A	
SRA36 [®]	F-Av	A	A	A	A	A	A	A	A	A	A	
SRA40	A	A	A	A	A	A	A	A	A	A	A	

- | | |
|---|--|
| TRASHING <ul style="list-style-type: none"> ■ FREE (F) ■ FREE-AVERAGE (F-AV) ■ AVERAGE (A) ■ TIGHT (T) | OTHER FEATURES <ul style="list-style-type: none"> ■ GOOD (G) ■ AVERAGE (A) ■ POOR (P) □ NOT ASSESSED (NA) |
|---|--|



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[®] is assessed and used as a susceptible reference variety to compare to other tested varieties.

Table 2 describes the phytotoxicity symptoms obtained on KQ228[®] 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:
Emilie Fillols, Weed Scientist
T 07 4056 4510

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[®]

	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 [®]	Mild	Medium to severe	Mild	Mild	Medium	Mild	Severe	Medium	Mild	Medium to severe
KQ228 [®] 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
KQ228 [®]	1.6	1.9	1.7	1.3	1.9	1.3	3.6	2.1	1.5	3.0
Q208 [®]	1.5		1.6		1.8			2.0	1.4	2.9
Q232 [®]	1.6		1.8		1.9			2.2	1.6	3.0
Q240 [®]	1.6		1.7		1.8			2.1	1.5	2.9
Q242 [®]	1.6		1.8		1.9			2.2	1.6	3.0
Q250 [®]	1.6		1.8		1.9			2.2	1.6	3.0
Q252 [®]	1.6		1.7		1.8			2.1	1.5	3.0
Q253 [®]	1.7		1.8		1.9			2.2	1.6	3.0
SRA5 [®]	1.7	2.0			1.9			2.2	1.6	3.0
SRA6 [®]	1.8	2.1		1.5	2.1	1.5		2.3	1.7	3.2
SRA10 [®]	1.5	1.8		1.2	1.7		3.5	2.0	1.4	2.8
SRA14 [®]	1.4	1.8		1.2	1.7		3.5	2.0	1.4	2.8
SRA26 [®]	1.6	2.0		1.4	1.9	1.4		2.2	1.6	3.0
SRA28 [®]	1.7	2.0		1.4	1.9	1.4		2.2	1.6	3.0
SRA31 [®]	1.6	1.9		1.3	1.8	1.3		2.1	1.5	3.0
SRA36 [®]	1.7	2.0		1.4	2.0	1.4		2.2	1.6	3.1

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[®] 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 [®]	-13%	-46%	-55%	-15%	-16%	-14%	-36%	no reduction	-25%	-21%
Q208 [®]	-29%		-33%		-12%			-51%	-21%	-50%
Q232 [®]	-13%		-42%		-26%			-33%	-13%	-33%
Q240 [®]	-36%		-28%		-41%			-7%	-21%	-37%
Q242 [®]	-14%		-12%		no reduction			no reduction	-7%	-12%
Q250 [®]	-49%		-53%		-66%			-56%	-20%	-63%
Q252 [®]	-38%		-11%		no reduction			-6%	-20%	-26%
Q253 [®]	-29%		-49%		-52%			-18%	-51%	-54%
SRA5 [®]	no reduction	no reduction			no reduction			no reduction	no reduction	no reduction
SRA6 [®]	-22%	-46%		-58%	-5%	-66%		no reduction	-30%	-42%
SRA10 [®]	no reduction	-3%		-6%	no reduction		-29%	-4%	no reduction	-3%
SRA14 [®]	no reduction	-67%		-47%	-4%	-4%	-64%	-21%	no reduction	-69%
WSRA24 [®]	-77%	-93%		-29%	-105%	-7%		-14%	-19%	-62%
SRA26 [®]	-35%	-44%		-26%	-27%	-21%		-12%	-34%	-47%
SRA28 [®]	-69%	-90%		-66%	-71%	-29%		-104%	-75%	-103%
SRA31 [®]	-46%	-14%		no reduction	-51%	-29%		-6%	-6%	-25%
SRA36 [®]	-26%	-37%		-2%	-52%	-22%		-17%	-14%	-7%

The predicted biomass reduction in the pot trials is represented in a green-to-red scale. The predicted biomass reduction is derived from the biomass reduction for each trial series, using KQ228[®] 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)

VARIETY	2,4-D	AMETRYN	AMETRYN+TRIFLOXY-SULFURON	AMICARBAZONE	ASULAM	METOLACHLOR	METRIBUZIN	MSMA
KQ228	no reduction	-11%		-7%	-1%		no reduction	-1%
Q232 [®]			-6%				-4%	-1%
Q242 [®]			no reduction				-3%	-2%
Q250 [®]			-1%				-1%	-5%
SRA6 [®]				-6%			-1%	-6%
SRA14 [®]	-1%							
SLIGHT BIOMASS/YIELD REDUCTION IN POT/FIELD TRIAL COMPARED TO UNTREATED								
SEVERE BIOMASS/YIELD REDUCTION IN POT/FIELD TRIAL COMPARED TO UNTREATED								

CCS PROFILES

SRA started commercial cane sugar (CCS) maturity data collection in 2022. Samples were taken at the SRA Ingham station once a month starting in May until October 2022 and analysed in the Juice Lab.

This information will help growers by optimizing their planting and harvesting decision-making, facilitating the adoption of new varieties by monitoring the CCS curves across productivity zones.

The CCS performance of a variety is, however, influenced by many factors such as crop age, crop class, environment (rainfall, temperature and soil) and management practices. The following data represents a "snapshot" of the past season; further work will be carried out to better understanding the maturity profile of a given variety.

FIGURE 1 CCS Maturity Curves (Plant)

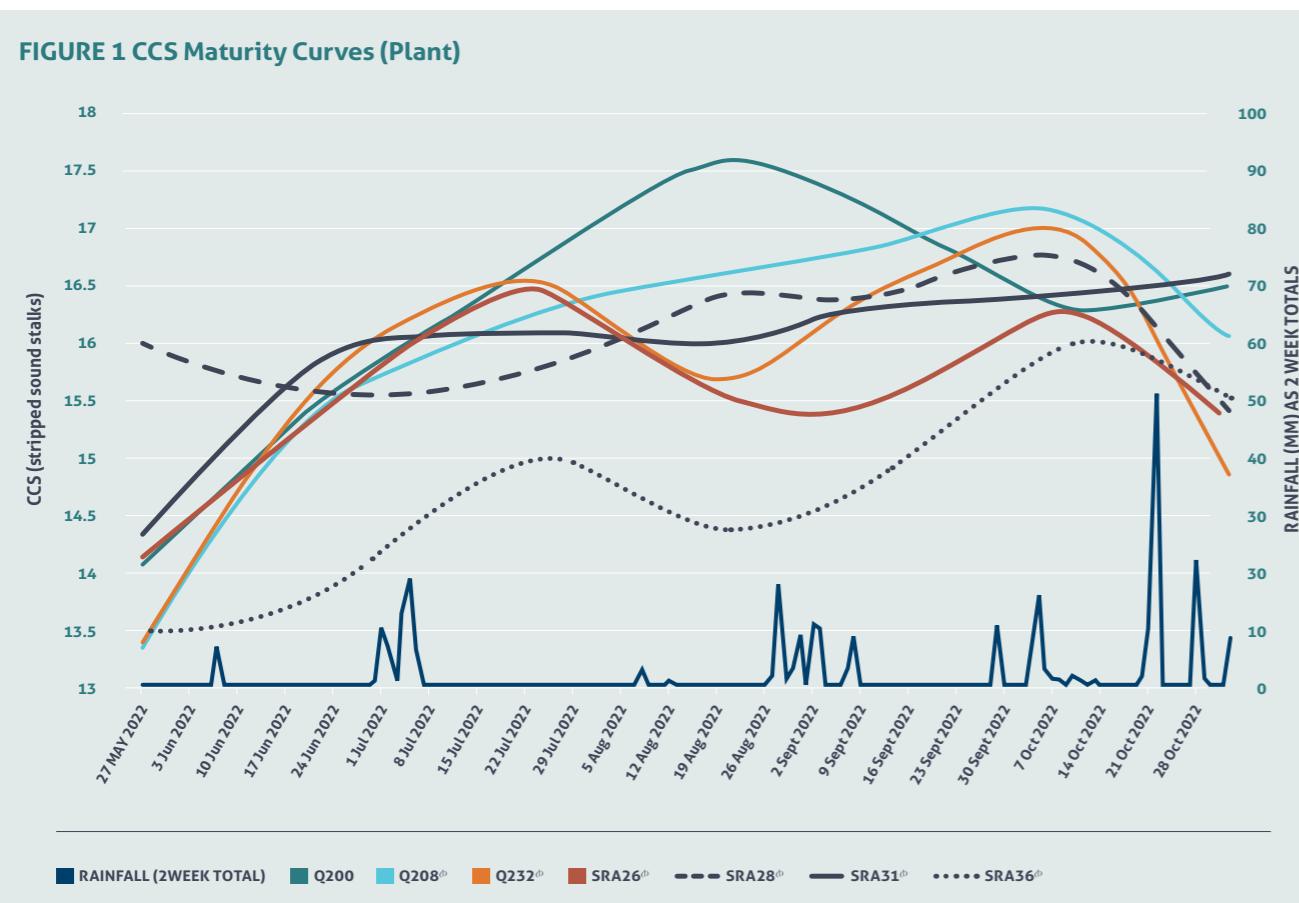


Figure 1 presents the curves for CCS on Plant Crop for the 2022 season.

Q200 presented the highest CCS from mid-July to early September, then declining towards the end of the season.

Q208® presented a sustained CCS increase arriving at its peak in late September, but declining from October.

Q232® presented a slightly high CCS in early-mid July, but drops in August and peaks in late September similar to Q208®.

SRA26® CCS peaked in early July and peaked again in October similar to Q232®.

SRA28® recorded the highest CCS in May compared to other varieties, and then sustaining a slight CCS growth from August to early October, but declining in mid of October similar to Q232® and Q208®.

SRA31® had the highest CCS in mid June, sustaining its CCS to further October without declining after a major rainfall event as occurred with other varieties.

SRA36® recorded the lowest CCS with a sustained CCS increasing towards mid-October similar to Q232®. Due to SRA36® badly lodged nature with tall cane, its CCS might be negatively impacted late in harvesting season.

FIGURE 2 CCS Maturity Curves (3rd ratoon)

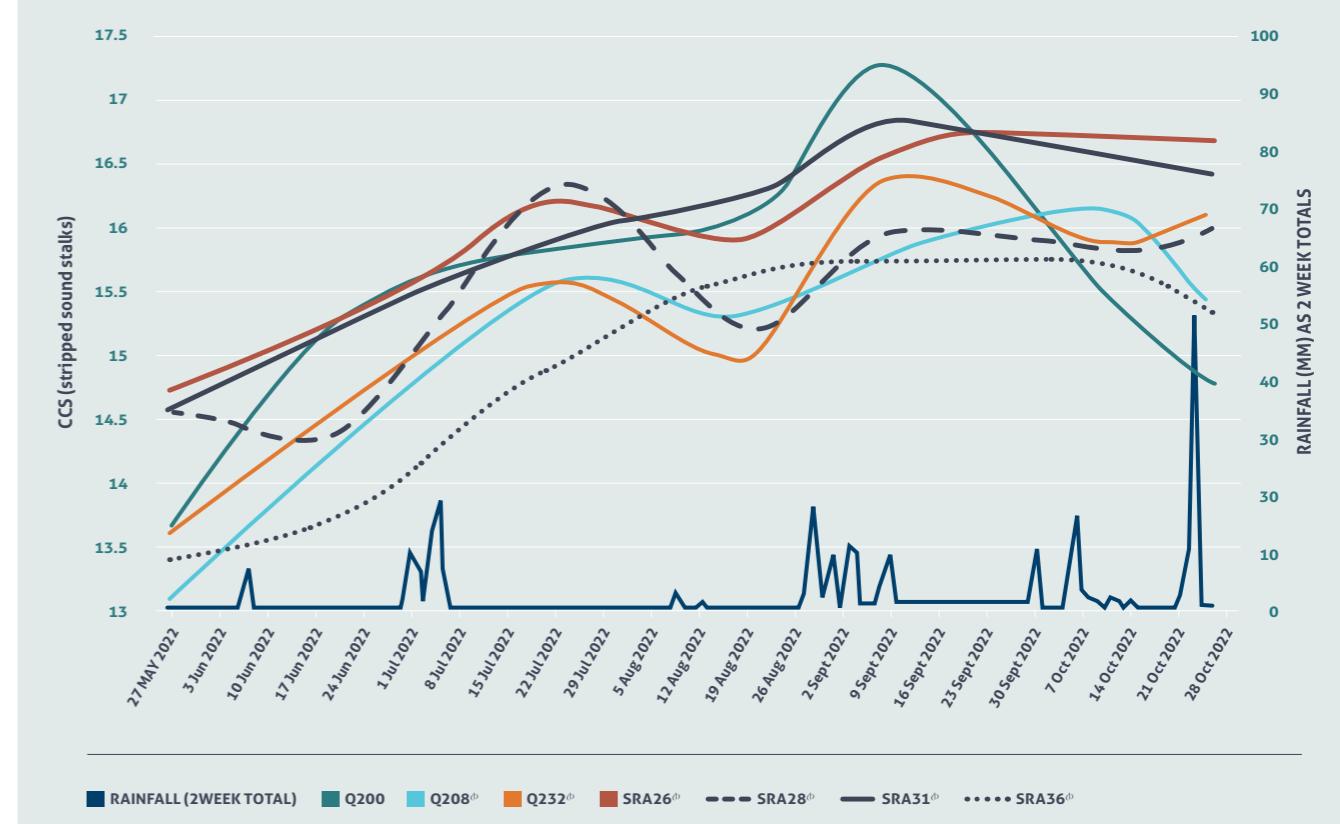


Figure 2 presents curves for CCS on third ratoon during the 2022 season. Q200 presented the highest CCS in September, then declining sharply towards the end of the season. Q208® presented a CCS curve similar to Q232®, arriving at its peak in early October, but Q232® CCS peaked in early September.

SRA26® and SRA31® shared a similar CCS upward trend and recorded higher CCS in late May to mid-June and keep increasing towards October which gave better CCS than other varieties.

SRA28® CCS peaked in mid-July with higher CCS than other varieties, but dropped towards October.

SRA36® CCS peaked in late August, holding its CCS till mid-October. Overall it gave low CCS compared with other varieties.

VARIETIES HARVESTED IN 2022 IN THE HERBERT REGION AND THEIR PERFORMANCE

The predominant varieties harvested in the 2022 season, and their commercial performance in terms of tonnes of cane per hectare (TCH) and tonnes of sugar per hectare (TSH) are shown below.

Varieties harvested

In the 2022 season, 4.9 million tonnes were forecasted for harvesting. The Herbert region harvested about 4.53 million tonnes of cane during 28-weeks crushing season covering 49,496 hectares, 100% harvested green. The wet conditions left approximately 400,000 tonnes as stand over. The mill average CCS was 11.5 and the average TCH and TSH were 88 and 10, respectively.

The diagram (right) indicates the main varieties harvested in the Herbert region in the 2022 season, noting some rankings change:

Q208[®] remains the most popular variety in the Herbert accounting for 30% of the total tonnes harvested but declining respect previous seasons (in 2018, 38.6% of the total cane harvested was Q208[®]), followed by Q253[®] which has steadily increased its uptake from 10.3% in 2019 to 22.1% in 2022. Q232[®] is the third most popular with 10.3%, followed by Q200 as fourth in preference with 8.3%. Q240[®] ranked in fifth place as it decreased from 8.6% to 7.7% respect the previous season. SRA14[®] is now accounting for 2.5% of the total cane harvested.

In 2022, there was a record quantity of over 850 tonnes of SRA26[®] Approved Seed purchased by Herbert growers. With this rate of adoption SRA26[®] will soon feature in the Herbert harvest data.

Commercial performance of harvested varieties

The TCH and TSH of the main varieties harvested in the 2022 season are compared to the Herbert mill averages in the diagram below. At this scale, the commercial performance of recently released varieties is difficult to compare with that of established varieties.

(TCH AND TSH 2022)



RECOMMENDED PLANTING AND HARVESTING

Each year the Herbert Regional Variety Committee (RVC) reviews the Herbert variety list for planting and harvesting. The aim is to assist Herbert growers meeting its General Biosecurity Obligation, in addition to regional disease management of major diseases for Sugarcane Biosecurity Zone 1 (SBZ1).

One new variety SRA40 was approved by the Herbert RVC in 2023 and added to the list of planting and harvesting. This year we are publishing the complete list of recommended planting and harvesting varieties.

Herbert recommended varieties for planting and harvesting

VARIETY	PLANTING	HARVESTING
SRA40	Yes	Yes
SRA36 [®]	Yes	Yes
SRA31 [®]	Yes	Yes
SRA28 [®]	Yes	Yes
SRA26 [®]	Yes	Yes
WSRA24 [®]	Yes	Yes
SRA14 [®]	Yes	Yes
SRA10 [®]	Yes	Yes
SRA6 [®]	Yes	Yes
SRA5 [®]	Yes	Yes
SRA3	No	Yes
Q253 [®]	Yes	Yes
Q252 [®]	Yes	Yes
Q251	No	Yes
Q250 [®]	Yes	Yes
Q247 [®]	Yes	Yes
Q242 [®]	Yes	Yes
Q241	No	Yes
Q240 [®]	Yes	Yes
MQ239 [®]	Yes	Yes
Q238	No	Yes
Q237	No	Yes
KQ236	No	Yes
Q232 [®]	Yes	Yes

VARIETY	PLANTING	HARVESTING
Q231 [®]	Yes	Yes
KQ228 [®]	Yes	Yes
Q226 [®]	Yes	Yes
Q219 [®]	Yes	Yes
Q216	No	Yes
Q215 [®]	Yes	Yes
Q208 [®]	Yes	Yes
Q204	No	Yes
Q200	Yes	Yes
Q190	No	Yes
Q186	No	Yes
Q183 [®]	Yes	Yes
Q177	No	Yes
Q172	No	Yes
Q158	No	Yes
Q138 [®]	Yes	Yes
Q135	No	Yes
Q133	No	Yes
Q124	No	Yes
Q120	No	Yes
Q119	No	Yes
Q96	No	Yes
CASSIUS	No	Yes
ARGOS	No	Yes

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.



Herbert Cane Productivity Services Ltd (HCPSL):
T 07 4776 5660

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 the SRA website. [Visit sugarresearch.com.au/calculator](http://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
Yr 2	Metre row planted @ 0.8m	80	200	400	800
	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.
- Seprona® 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

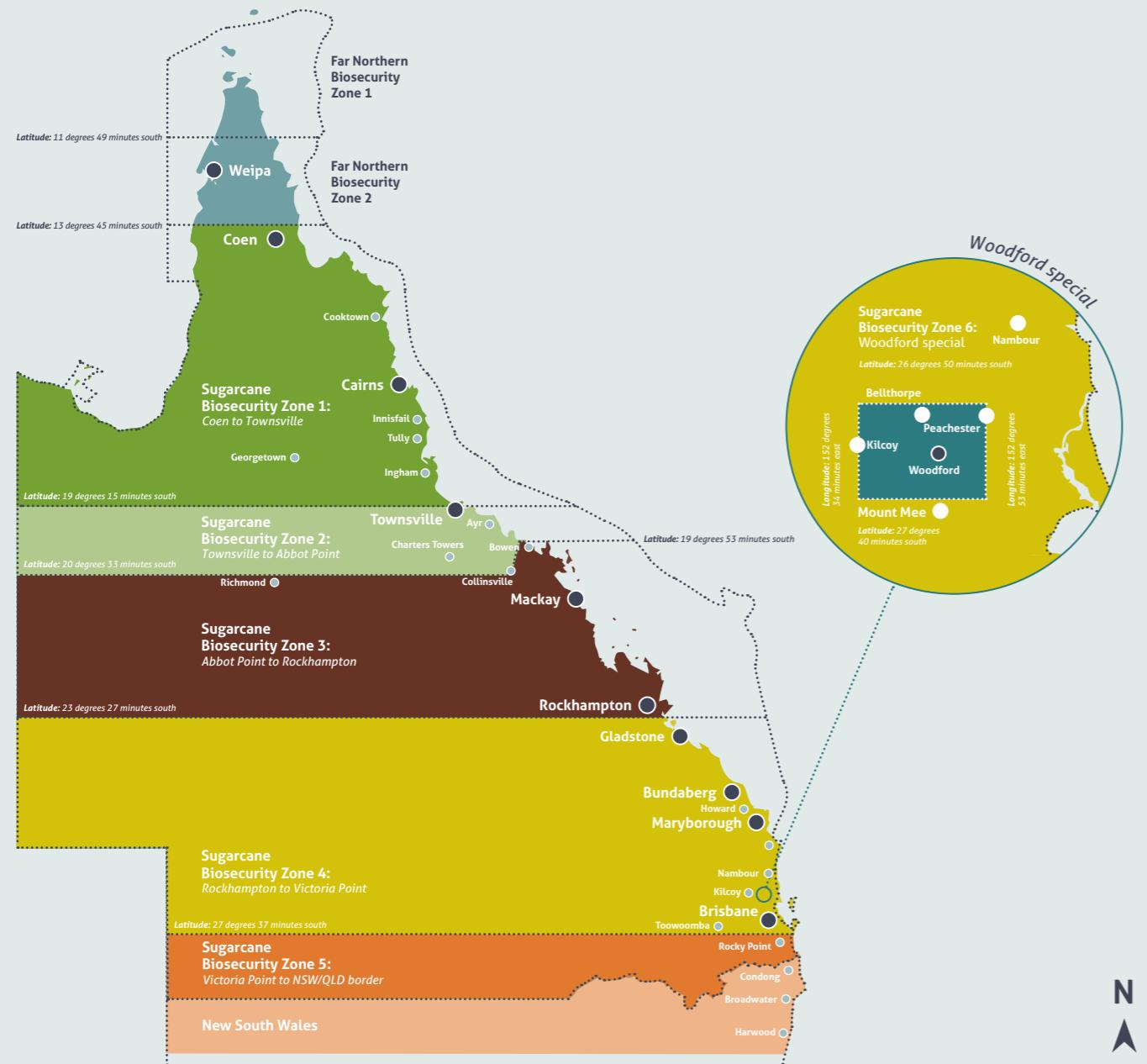
- If you expect problems with insects then an application of an insecticide drench (such as chlorpyrifos or imidacloprid) at planting will protect the young plantlets.
- In canegrub-prone areas use your standard grub control treatment.

Fertiliser

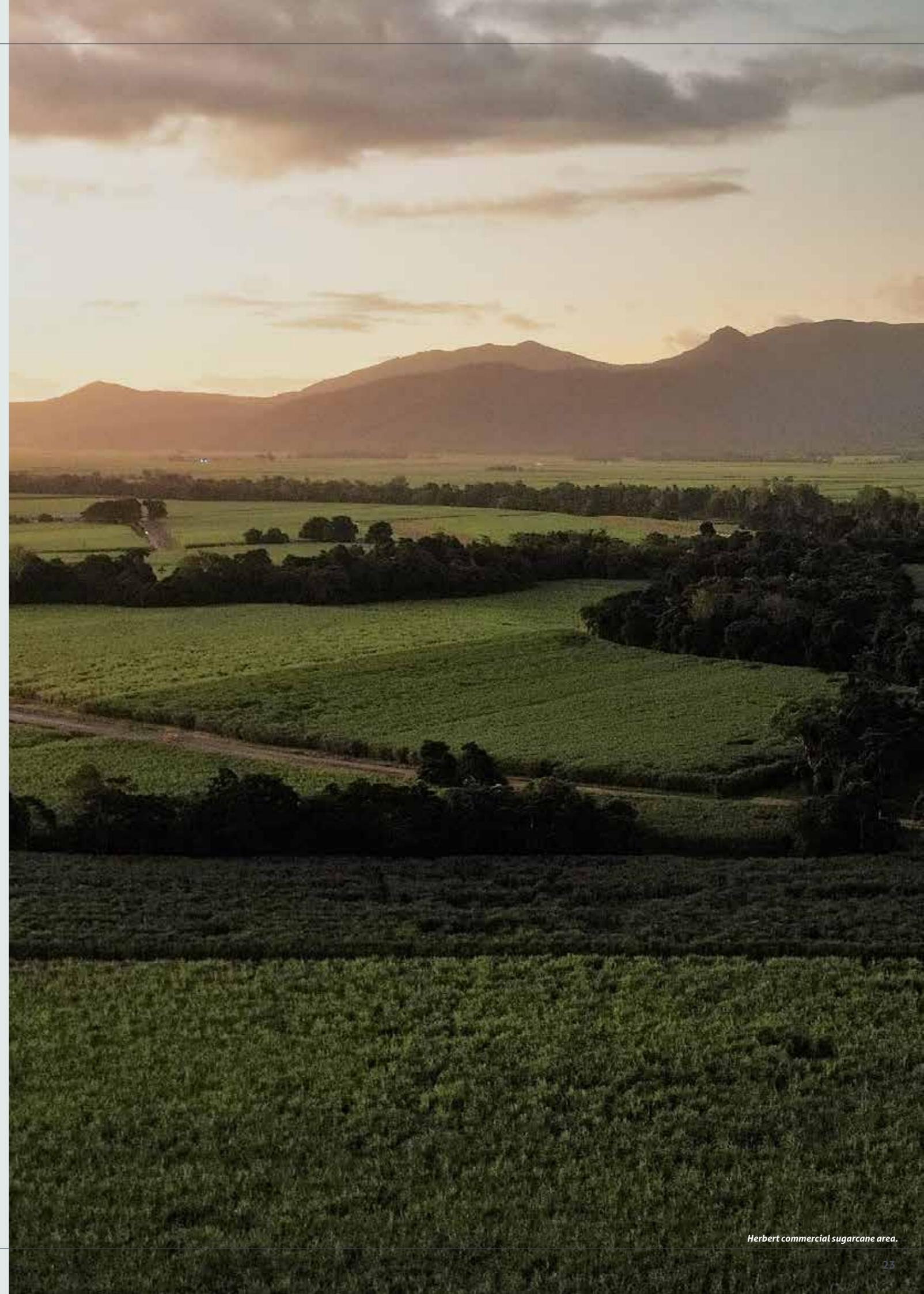
- Fertiliser requirements of the tissue cultured plantlets are the same as for billet plantings.
- If possible, plant with a planter mix to maintain good early growth, and side-dress later to avoid fertiliser burn.



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).



Herbert commercial sugarcane area.

Your local productivity services and agronomy group:

Herbert Cane Productivity
Services Ltd (HCPSL):
T 07 4776 5660

HCPSL Manager, Lawrence Di Bella
E ldibella@hcpsl.com.au
T 0448 084 252



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