



Sugar Research  
Australia

# VARIETY GUIDE 2020/2021

*Herbert Region*



# HOW TO USE THIS GUIDE

*This Variety Guide provides Herbert-specific information to help growers select new varieties to trial on their farms from the varieties currently recommended for planting in the Herbert. The guide has the following sections:*

	New and recently released varieties	3
	Smut ratings	6
	Pachymetra ratings	7
	Disease resistance	8
	Variety harvest management	9
	Variety by herbicide screening trials	10
	Varieties harvested in 2019 and their performance	12
	Sugarcane Biosecurity Zone map	13
	Propagating new varieties	14
	Planting and managing tissue-cultured plantlets in the field	15

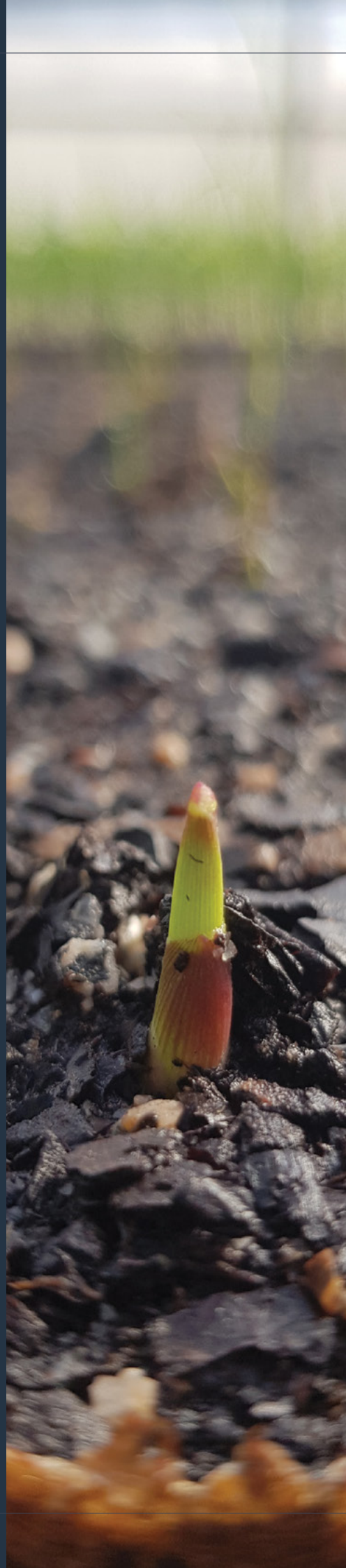
---

## 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](http://sugarresearch.com.au)

---

ISSN 2208-7702 (Online) ISSN 2208-7699 (Print) © Copyright 2020 by Sugar Research Australia Limited. All rights reserved. No part of the *Variety Guide 2020/21 Herbert Region* (this publication), may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior permission of Sugar Research Australia Limited. Sugar Research Australia Limited acknowledges and thanks its funding providers, including levy payers (sugarcane growers and millers), the Commonwealth Government, and the Queensland Government (Department of Agriculture and Fisheries). **Disclaimer:** In this disclaimer a reference to 'SRA', 'we', 'us' or 'our' means Sugar Research Australia Limited and our directors, officers, agents and employees. Although we do our very best to present information that is correct and accurate, we make no warranties, guarantees or representations about the suitability, reliability, currency or accuracy of the information we present in this publication, for any purposes. Subject to any terms implied by law and which cannot be excluded, we accept no responsibility for any loss, damage, cost or expense incurred by you as a result of the use of, or reliance on, any materials and information appearing in this publication. You, the user, accept sole responsibility and risk associated with the use and results of the information appearing in this publication, and you agree that we will not be liable for any loss or damage whatsoever (including through negligence) arising out of, or in connection with the use of this publication. We recommend that you contact our staff before acting on any information provided in this publication. **Warning:** Our tests, inspections and recommendations should not be relied on without further, independent inquiries. They may not be accurate, complete or applicable for your particular needs for many reasons, including (for example) SRA being unaware of other matters relevant to individual crops, the analysis of unrepresentative samples or the influence of environmental, managerial or other factors on production.





# NEW AND RECENTLY RELEASED VARIETIES

## 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 voting grower representatives from Canegrowers and ACFA and three voting miller representatives from Wilmar sit on the Herbert RVC. The Herbert RVC requires a majority vote for progression of a variety through the SRA breeding program and a unanimous vote for the release of a new variety.

If you would like more information on the variety release process Regional Variety Committee (RVC) please visit the SRA website: [sugarresearch.com.au/growers-and-millers/varieties/regional-variety-committees/](http://sugarresearch.com.au/growers-and-millers/varieties/regional-variety-committees/)

## New Varieties:

SRA26<sup>®</sup> and SRA28 were approved for release at the 2020 Herbert RVC Meeting and will be available for planting from 2021. The results of trials conducted in the Herbert region are presented below. Yield (TCH) and CCS of SRA26<sup>®</sup> and SRA28 are compared with the trial results of Herbert standard varieties.

Variety: SRA28 <sup>®</sup> Q508-8776		Parentage: Q233 <sup>®</sup> X Q135 / Summary: Similar to slightly lower TCH; Slightly higher CCS										
TRIAL HARVEST YEAR	CROP CLASS	YIELD (TCH)					CCS					# OF HARVESTS
		SRA28	Q200 <sup>®</sup>	Q208 <sup>®</sup>	Q232 <sup>®</sup>	Q240 <sup>®</sup>	SRA28	Q200 <sup>®</sup>	Q208 <sup>®</sup>	Q232 <sup>®</sup>	Q240 <sup>®</sup>	
(2015 series FATs): 2016	Plant	100	96	99	108	94	17.2	16.9	17.2	15.7	16.6	4
2017	1R	97	97	94	99	95	16.5	16.5	16.0	14.4	16.5	4
2018	2R	94	101	100	97	101	18.3	18.2	18.3	16.9	17.9	4
(2017 series FATs): 2018	Plant	89	99	91	96	89	18.1	17.3	17.7	17.7	17.7	4
2019	1R	90	87	87	86	88	17.4	17.4	17.2	16.9	16.9	4
<b>Overall performance</b>		<b>94</b>	<b>96</b>	<b>94</b>	<b>97</b>	<b>93</b>	<b>17.5</b>	<b>17.3</b>	<b>17.3</b>	<b>16.3</b>	<b>17.1</b>	<b>20</b>
<b>Available 2021</b>												
Comments:		SRA28 has intermediate resistance to smut and is resistant to leaf scald and Pachymetra. When compared to the standard varieties SRA28 has similar to slightly lower TCH and slightly higher CCS across all crop classes.										

Variety: SRA26 <sup>®</sup> QN08-2282		Parentage: QN97-2122 X Q146 / Summary: Similar TCH; slightly higher CCS									
TRIAL HARVEST YEAR	CROP CLASS	YIELD (TCH)				CCS				# OF HARVESTS	
		SRA26 <sup>®</sup>	Q200 <sup>®</sup>	Q208 <sup>®</sup>	Q240 <sup>®</sup>	SRA26 <sup>®</sup>	Q200 <sup>®</sup>	Q208 <sup>®</sup>	Q240 <sup>®</sup>		
(2014 series FATs): 2015	Plant	77	79	89	76	16.7	16.3	16.2	16.3	4	
2016	1R	101	102	101	103	17.4	17.0	16.9	16.7	4	
2017	2R	90	92	87	93	15.6	16.1	15.8	15.9	4	
(2016 series FATs): 2017	Plant	87	89	82	88	16.7	16.7	16.3	16.7	3	
2018	1R	81	79	81	81	18.1	17.9	18.0	17.7	3	
2019	2R	71	67	68	72	17.3	16.9	17.4	16.9	3	
<b>Overall performance</b>		<b>85</b>	<b>85</b>	<b>85</b>	<b>86</b>	<b>17.0</b>	<b>16.8</b>	<b>16.8</b>	<b>16.7</b>	<b>21</b>	
<b>Available 2021</b>											
Comments:		SRA26 <sup>®</sup> is resistant to smut, leaf scald and Pachymetra. When compared to the standard varieties SRA26 <sup>®</sup> has similar yields and the CCS is slightly higher across most crop classes.									

## Recently Released Variety:

WSRA24<sup>Φ</sup> was approved for release at the 2019 Herbert RVC Meeting and will be available as seed cane this year. The results of trials conducted in the Herbert region are presented below. Yield (TCH) and CCS of WSRA24<sup>Φ</sup> is compared with the trial results of Herbert standard varieties.

Variety: WSRA24 <sup>Φ</sup> QA05-2486		Parentage: QN80-3425 X BN61-1123 / Summary: Similar to slightly higher TCH; lower CCS								
TRIAL HARVEST YEAR	CROP CLASS	YIELD (TCH)				CCS				# OF HARVESTS
		WSRA24 <sup>Φ</sup>	Q200 <sup>Φ</sup>	Q208 <sup>Φ</sup>	Q240 <sup>Φ</sup>	WSRA24 <sup>Φ</sup>	Q200 <sup>Φ</sup>	Q208 <sup>Φ</sup>	Q240 <sup>Φ</sup>	
(2014 series FATs): 2015	Plant	96	79	89	76	14.7	16.3	16.2	16.3	4
2016	1R	116	102	101	103	15.9	17.0	16.9	16.7	4
2017	2R	98	92	87	93	14.8	16.1	15.8	15.9	4
(2016 series FATs): 2017	Plant	92	89	82	88	15.2	16.7	16.3	16.7	3
2018	1R	79	79	81	81	16.0	17.9	18.0	17.7	3
2019	2R	60	67	68	72	15.8	16.9	17.4	16.9	3
<b>Overall performance</b>		<b>90</b>	<b>85</b>	<b>85</b>	<b>85</b>	<b>15.4</b>	<b>16.8</b>	<b>16.8</b>	<b>16.7</b>	<b>21</b>
<b>Available 2020</b>										
Comments:		WSRA24 <sup>Φ</sup> has good resistance to smut, Pachymetra and leaf scald. When compared to the standard varieties WSRA24 <sup>Φ</sup> has the same or slightly higher yield and lower CCS. WSRA24 <sup>Φ</sup> typically shows rapid germination and exceptional early vigour.								

Variety: SRA14 <sup>Φ</sup> QC02-402		Parentage: QN91-295 X Q200 <sup>Φ</sup> / Summary: Lower TCH; similar CCS								
TRIAL HARVEST YEAR	CROP CLASS	YIELD (TCH)				CCS				# OF HARVESTS
		SRA14 <sup>Φ</sup>	Q200 <sup>Φ</sup>	Q208 <sup>Φ</sup>	Q240 <sup>Φ</sup>	SRA14 <sup>Φ</sup>	Q200 <sup>Φ</sup>	Q208 <sup>Φ</sup>	Q240 <sup>Φ</sup>	
(2011 series FATs): 2012	Plant	74	67	70		16.2	16.2	16.3		3
2013	1R	65	64	66		16.8	16.7	16.8		3
2014	2R	62	64	65		15.8	16.2	16.6		3
(2013 series FATs): 2014	Plant	78	85	88	80	14.9	15.4	15.1	15.1	2
2015	1R	72	74	83	71	16.1	15.5	16.2	16.7	2
2016	2R	78	82	91	83	13.5	13.9	14.1	14.1	2
(2014 series FATs): 2015	Plant	75	79	89	76	16.3	16.3	16.2	16.3	4
2016	1R	101	102	101	103	16.9	17	16.9	16.7	4
2017	2R	90	92	87	93	15.9	16.1	15.8	15.9	4
(2015 series FATs): 2016	Plant	94	96	99	94	17.1	16.9	17.2	16.6	4
2017	1R	90	97	94	95	16.5	16.5	16.0	16.5	4
2018	2R	93	101	100	101	18.8	18.2	18.3	17.9	4
<b>Overall performance</b>		<b>81</b>	<b>84</b>	<b>86</b>	<b>88</b>	<b>16.2</b>	<b>16.2</b>	<b>16.3</b>	*	<b>39</b>
<b>Available 2019</b>										
Comments:		SRA14 <sup>Φ</sup> has intermediate resistance to smut and is resistant to leaf scald and Pachymetra. When compared to the standard varieties SRA14 <sup>Φ</sup> has lower TCH and similar CCS. Waterlogging and weed pressure seems well tolerated by this variety. *SRA14 <sup>Φ</sup> is only compared to the individual crop classes of Q240 <sup>Φ</sup> in the 2013, 2014 and 2015 series FAT.								

For more information on  
variety field trials contact:  
Herbert Variety Officer  
Juan Briceno T 07 4776 8205

Variety: SRA10 <sup>Ⓛ</sup> QN06-807		Parentage: QN92-157 X QN91-3898 / Summary: Lower TCH; higher CCS								
TRIAL HARVEST YEAR	CROP CLASS	YIELD (TCH)				CCS				# OF HARVESTS
		SRA10 <sup>Ⓛ</sup>	Q200 <sup>Ⓛ</sup>	Q208 <sup>Ⓛ</sup>	Q240 <sup>Ⓛ</sup>	SRA10 <sup>Ⓛ</sup>	Q200 <sup>Ⓛ</sup>	Q208 <sup>Ⓛ</sup>	Q240 <sup>Ⓛ</sup>	
(2012 series FATs): 2013	Plant	88	90	97	84	16.4	15.4	15.8	16	4
2014	1R	73	72	83	71	16.2	15.6	16.1	15.8	4
2015	2R	83	88	97	85	16.4	16.0	16.4	16.3	4
(2014 series FATs): 2015	Plant	73	79	89	76	16.3	16.3	16.2	16.3	4
2016	1R	89	102	101	103	17.3	17.0	16.9	16.7	4
2017	2R	74	92	87	93	16.4	16.1	15.8	15.9	4
(2016 series FATs): 2017	Plant	84	89	82	88	17.5	16.7	16.3	16.7	3
2018	1R	72	79	81	81	18.8	17.9	18.0	17.7	3
2019	2R	59	67	68	72	17.5	16.9	17.4	16.9	3
<b>Overall performance</b>		<b>77</b>	<b>84</b>	<b>87</b>	<b>84</b>	<b>17.0</b>	<b>16.4</b>	<b>16.5</b>	<b>16.5</b>	<b>33</b>
Available 2019										
Comments:		SRA10 <sup>Ⓛ</sup> is resistant to leaf scald and intermediate resistance to smut and Pachymetra. When compared to the standard varieties SRA10 <sup>Ⓛ</sup> has lower yields and consistently higher CCS.								

### SRA28

### SRA26<sup>Ⓛ</sup>



### WSRA24<sup>Ⓛ</sup>

### SRA14<sup>Ⓛ</sup>

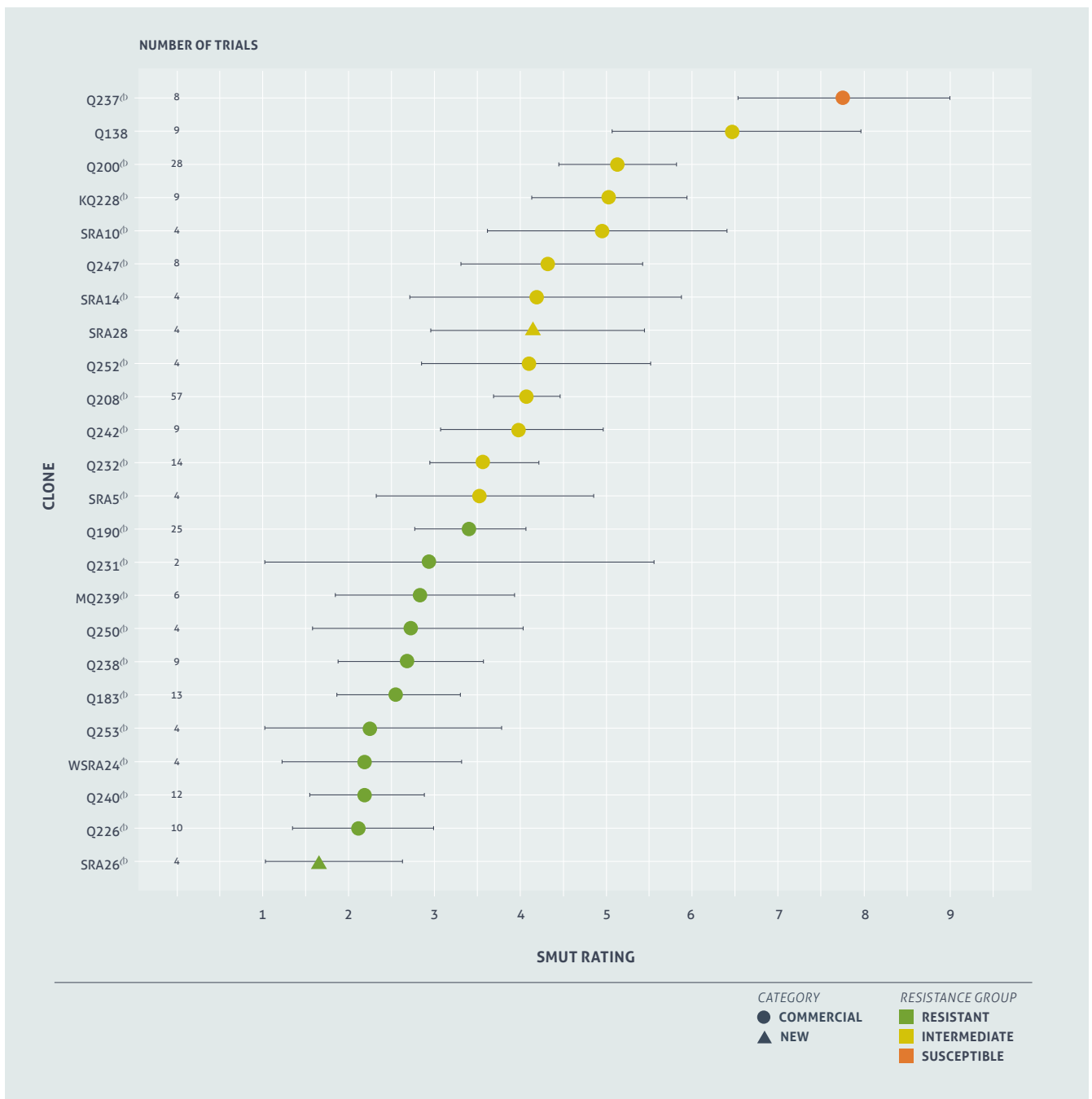
### SRA10<sup>Ⓛ</sup>





# SMUT RATINGS

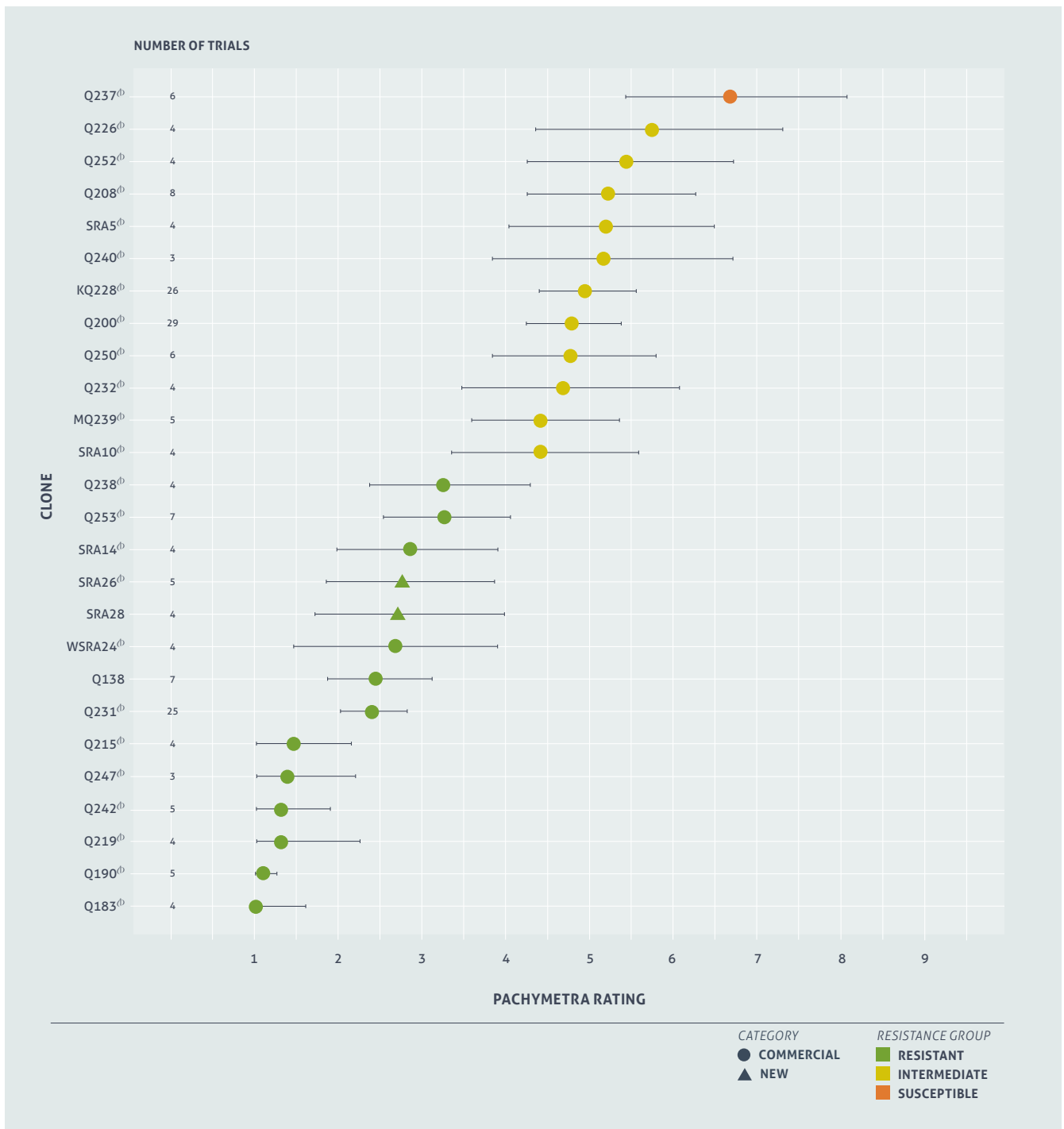
These are calculated from the incidence and severity of infection compared to standard varieties in inoculated field trials. The graphic includes the rating and the 95% confidence interval for each variety. The confidence interval is influenced by factors such as the number of trials and the uniformity of smut infection. Rating confidence will improve as more data is collected. For example, variety Q200<sup>Ⓛ</sup> has been tested in 28 trials for smut resistance and has an 'Intermediate' rating with a 95% confidence interval ranging from 4.4 to 5.8, indicated by the narrow confidence interval. The new variety WSRA24<sup>Ⓛ</sup> has only been tested in 4 trials and has a 'Resistant' rating with a 95% confidence interval ranging from 1.2 to 3.3.





# PACHYMETRA RATINGS

The Pachymetra ratings are calculated in the same way as for the smut ratings. For example, variety Q200<sup>db</sup> has been tested in 29 trials for Pachymetra resistance and has an 'Intermediate' rating with a 95% confidence interval ranging from 4.2 to 5.4. The new variety WSRA24<sup>db</sup> 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 on your farm.

Herbert Disease Ratings											
VARIETY	ZONE	SMUT	PACHYMETRA	LEAF SCALD	CHLOROTIC STREAK	ORANGE RUST	BROWN RUST	RED ROT	YELLOW SPOT	FIJI LEAF GALL	MOSAIC
KQ228 <sup>Ⓛ</sup>	Wet, Dry	I	I	R	S	R	R	R	I	I	R
MQ239 <sup>Ⓛ</sup>	Wet, Dry	R	I-R	R	NA	R	NA	I-R	I	S	NA
Q138	Wet, Dry	S	R	R	I-R	R	R	I-S	I	R	I-S
Q183 <sup>Ⓛ</sup>	Wet, Dry	R	R	I	S	R	R	I	I-S	R	R
Q190 <sup>Ⓛ</sup>	Wet, Dry	R	R	R	NA	R	I-R	R	I-S	R	R
Q200 <sup>Ⓛ</sup>	Wet, Dry	I	I	R	I	R	R	R	I-R	I	R
Q208 <sup>Ⓛ</sup>	Wet, Dry	I-R	I	R	R	R	R	R	R	I-S	R
Q215 <sup>Ⓛ</sup>	Dry	I-S	R	R	NA	R	R	R	R	R	R
Q219 <sup>Ⓛ</sup>	Wet, Dry	R	R	R	NA	R	NA	R	NA	S	S
Q226 <sup>Ⓛ</sup>	Wet, Dry	R	I-S	R	NA	R	I-S	R	R	R	R
Q231 <sup>Ⓛ</sup>	Wet, Dry	R	R	I-R	NA	R	NA	R	I	S	I-R
Q232 <sup>Ⓛ</sup>	Wet, Dry	I-R	I	R	R	R	NA	I-R	R	I	R
Q237 <sup>Ⓛ</sup>	Wet, Dry	S	S	I	NA	NA	R	I	NA	I	R
Q238 <sup>Ⓛ</sup>	Wet, Dry	R	R	R	S	R	R	I-R	S	I-R	R
Q240 <sup>Ⓛ</sup>	Wet, Dry	R	I	R	I-R	R	NA	R	I	I-S	R
Q242 <sup>Ⓛ</sup>	Wet, Dry	I-R	R	R	I	R	NA	I-R	R	R	R
Q247 <sup>Ⓛ</sup>	Wet, Dry	I-R	R	R	NA	R	NA	R	S	R	R
Q250 <sup>Ⓛ</sup>	Wet, Dry	R	I	R	NA	I	NA	I	I-R	S	I-R
Q252 <sup>Ⓛ</sup>	Wet, Dry	I-R	I	R	NA	R	NA	R	I	I	R
Q253 <sup>Ⓛ</sup>	Wet, Dry	R	R	R	NA	R	I-S	I	S	S	R
SRA5 <sup>Ⓛ</sup>	Wet, Dry	I-R	I	I-R	NA	R	R	R	NA	I	R
SRA10 <sup>Ⓛ</sup>	Wet, Dry	I	I-R	R	NA	R	NA	I	R	S	S
SRA14 <sup>Ⓛ</sup>	Wet, Dry	I-R	R	R	NA	R	NA	R	I	S	R
WSRA24 <sup>Ⓛ</sup>	Wet, Dry	R	R	R	NA	NA	NA	NA	NA	I	R
SRA26 <sup>Ⓛ</sup>	Wet, Dry	R	R	R	NA	R	NA	R	R	I	S
SRA28	Wet, Dry	I-R	R	R	NA	R	NA	R	R	I	R

## Rotation of Varieties

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

- RESISTANT (R)
- INTERMEDIATE - RESISTANT (I-R)
- INTERMEDIATE (I)
- INTERMEDIATE - SUSCEPTIBLE (I-S)
- SUSCEPTIBLE (S)
- NOT ASSESSED (NA)





# 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
Q190 <sup>Ⓛ</sup>	F	G	A	A	P	A	A	P
Q200 <sup>Ⓛ</sup>	F	A	G	G	G	G	G	G
Q208 <sup>Ⓛ</sup>	F	A	G	G	G	G	G	G
Q215 <sup>Ⓛ</sup>	NA	A	NA	NA	NA	A	A	A
Q219 <sup>Ⓛ</sup>	NA	NA	NA	NA	NA	NA	NA	NA
Q226 <sup>Ⓛ</sup>	A	A	A	A	P	A	A	P
Q231 <sup>Ⓛ</sup>	NA	A	G	A	A	G	A	A
Q232 <sup>Ⓛ</sup>	F-Av	A	P	A	A	P	A	A
Q237 <sup>Ⓛ</sup>	NA	G	G	A	A	G	G	P
Q238 <sup>Ⓛ</sup>	F-Av	G	A	A	A	A	A	A
Q240 <sup>Ⓛ</sup>	F-Av	A	A	G	G	A	G	G
Q242 <sup>Ⓛ</sup>	T	NA	A	A	P	A	P	P
Q247 <sup>Ⓛ</sup>	F-Av	NA	G	G	G	G	G	G
Q250 <sup>Ⓛ</sup>	F-Av	NA	G	G	G	G	G	G
Q252 <sup>Ⓛ</sup>	NA	A	A	G	G	NA	NA	NA
Q253 <sup>Ⓛ</sup>	NA	G	P	A	A	P	A	A
SRA5 <sup>Ⓛ</sup>	NA	NA	P	P	P	P	P	P
SRA10 <sup>Ⓛ</sup>	F-Av	NA	G	G	A	G	G	A
SRA14 <sup>Ⓛ</sup>	F-Av	G	G	A	A	G	A	A
WSRA24 <sup>Ⓛ</sup>	F-Av	G	A	P	A	P	P	A
SRA26 <sup>Ⓛ</sup>	F-Av	G	G	G	G	G	G	G
SRA28	F-Av	A	A	G	G	G	G	G

#### TRASHING

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

- 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 been conducting trials following a two-step process to obtain reliable data for the susceptibility of varieties to herbicide

- a fully randomised replicated pot trial in year 1 to short list the most susceptible combinations of varieties and herbicides.
- a fully randomised replicated field trial in year 2 to confirm that the shortlisted combinations have an impact on yield.

In year 3, 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 4 to 6 leaf stage.

In the pot trials, weekly phytotoxicity ratings are conducted using the EWRC (European Weed Research Council) 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<sup>®</sup> is assessed and used as a reference susceptible variety to compare to other tested varieties.

Tables 2 and 3 summarise all phytotoxicity, biomass and yield results obtained in the pot and field trials from 2014 to 2020. These tables will be updated yearly to include newly tested combinations of varieties by herbicides.

TABLE 1 EWRC selectivity rating scale

NOTE	SYMPTOMS SEVERITY
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<sup>®</sup>

	2,4-D	2,4-D+ IOXYNIL	AMETRYN	AMETRYN+ TRIFLOXY SULFURON	AMICARBAZONE	ASULAM	DIURON	FLUMIOXAZIN	METOLACHLOR	METRIBUZIN	MSMA
SYMPTOM DESCRIPTION	Small white spotty discolorations	Small yellow 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
SYMPTOMS PICTURE		NA									
SYMPTOMS SEVERITY ON KQ228 <sup>®</sup>	Mild	Mild	Medium to severe	Mild	Mild	Medium	Mild	Severe	Medium	Mild	Medium to severe
KQ228 <sup>®</sup> PHYTO RATING RANGE	1.2 to 1.9	1.2	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
NUMBER OF TRIALS	5	1	4	1	3	5	1	2	5	5	5

■ MILD  
■ MEDIUM  
■ SEVERE

Table 3 presents the herbicide symptoms severity on the cane foliage on all tested varieties in a green to red scale (mild to severe symptoms due to the herbicide treatment compared to the untreated control). Table 3 also presents the cane dry biomass measured 10 weeks after spraying compared to the biomass of the untreated variety in a light to dark grey scale (slight to severe biomass reduction due to the herbicide treatment compared to the untreated control). Yield data from the field trials were also added to Table 3 and the combinations of varieties by herbicide that were tested in the field are marked with the symbols ☆ or △. Cells with ☆ indicate varieties whose

yield was reduced by less than 10% compared to the untreated control. Cells with △ indicates varieties whose yield was reduced by more than 10% compared to the untreated control (no yield loss was statistically significantly different to the untreated control at P 0.05).

Phytotoxicity symptoms and yield loss observed on-farm may vary from those reported here, as severity of symptoms, biomass and yield can vary depending on local environmental conditions (temperature, humidity, soil moisture), the condition of the crop (actively growing or stressed) and the weather conditions at the time of application, as was seen in

KQ228<sup>Ⓟ</sup>'s response to metolachlor ranging from mild to severe depending on the year and season it was trialled. Additionally, while visual symptoms might be seen in a range of varieties trialled, in most cases no yield loss is expected if the correct label rates are followed. However, a minor yield loss might be expected in a variety such as Q238<sup>Ⓟ</sup> when applying either MSMA, metribuzin or ametryn+trifloxysulfuron. The newer SRA14<sup>Ⓟ</sup> variety is being evaluated in the 2019-20 phytotoxicity field trial to assess whether the biomass reductions observed in pot trials could translate into yield loss under field conditions.

TABLE 3 Phytotoxicity rating, biomass and yield difference compared to the untreated control of the same variety

VARIETY	2,4-D		2,4-D+ IOXYONIL		AMETRYN		AMETRYN+ TRIFLOXY-SULFURON		AMI-CARBAZONE		ASULAM		DIURON		FLUMI-OXAZIN		METOLA-CHLOR		METRIBUZIN		MSMA	
	PHYTOTOXICITY	BIOMASS /YIELD	PHYTOTOXICITY	BIOMASS /YIELD	PHYTOTOXICITY	BIOMASS /YIELD	PHYTOTOXICITY	BIOMASS /YIELD	PHYTOTOXICITY	BIOMASS /YIELD	PHYTOTOXICITY	BIOMASS /YIELD	PHYTOTOXICITY	BIOMASS /YIELD	PHYTOTOXICITY	BIOMASS /YIELD	PHYTOTOXICITY	BIOMASS /YIELD	PHYTOTOXICITY	BIOMASS /YIELD	PHYTOTOXICITY	BIOMASS /YIELD
KQ228 <sup>Ⓟ</sup>	Green	Light Grey	Green	Light Grey	Orange	Dark Grey	Yellow	Light Grey	Green	Light Grey	Green	Light Grey	Yellow	Light Grey	Orange	Dark Grey	Yellow	Light Grey	Green	Light Grey	Orange	Dark Grey
Q208 <sup>Ⓟ</sup>	Green	Light Grey	Green	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Orange	Light Grey	Yellow	Light Grey	Orange	Dark Grey
Q232 <sup>Ⓟ</sup>	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Yellow	☆	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Orange	☆	Green	☆	Orange	☆
Q238 <sup>Ⓟ</sup>	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Yellow	△	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Orange	☆	Green	△	Orange	△
Q240 <sup>Ⓟ</sup>	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Yellow	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Orange	Light Grey	Green	Light Grey	Orange	Dark Grey
Q242 <sup>Ⓟ</sup>	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Yellow	☆	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Orange	☆	Green	☆	Orange	△
Q250 <sup>Ⓟ</sup>	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Yellow	☆	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Orange	☆	Green	☆	Orange	☆
Q252 <sup>Ⓟ</sup>	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Yellow	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Orange	Light Grey	Green	Light Grey	Orange	Dark Grey
Q253 <sup>Ⓟ</sup>	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Yellow	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Orange	Light Grey	Yellow	Light Grey	Orange	Dark Grey
SRA3 <sup>Ⓟ</sup>	Green	Light Grey	Light Grey	Light Grey	Yellow	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Orange	Light Grey	Green	☆	Orange	☆
SRA5 <sup>Ⓟ</sup>	Light Grey	Light Grey	Light Grey	Light Grey	Yellow	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Orange	Light Grey	Green	Light Grey	Orange	Dark Grey
SRA10 <sup>Ⓟ</sup>	Light Grey	Light Grey	Light Grey	Light Grey	Yellow	Dark Grey	Light Grey	Light Grey	Green	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Orange	Dark Grey	Green	Light Grey	Orange	Dark Grey
SRA14 <sup>Ⓟ</sup>	Light Grey	Light Grey	Light Grey	Light Grey	Yellow	Dark Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Orange	Light Grey	Yellow	Light Grey	Orange	Dark Grey
WSRA24 <sup>Ⓟ</sup>	Light Grey	Light Grey	Light Grey	Light Grey	Yellow	Dark Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Orange	Light Grey	Green	Light Grey	Orange	Dark Grey
SRA26 <sup>Ⓟ</sup>	Light Grey	Light Grey	Light Grey	Light Grey	Orange	Dark Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Orange	Light Grey	Green	Light Grey	Orange	Dark Grey

PHYTOTOXICITY SYMPTOMS ON FOLIAGE:

- NO SYMPTOMS TO MILD PHYTOTOXICITY SYMPTOMS ON FOLIAGE
- MILD PHYTOTOXICITY SYMPTOMS ON FOLIAGE
- MODERATE PHYTOTOXICITY SYMPTOMS ON FOLIAGE
- SEVERE PHYTOTOXICITY SYMPTOMS ON FOLIAGE
- COMBINATION OF HERBICIDE BY VARIETY NOT TESTED

BIOMASS REDUCTION COMPARED TO UNTREATED:

- NO BIOMASS REDUCTION COMPARED TO UNTREATED
- SLIGHT BIOMASS REDUCTION COMPARED TO UNTREATED
- MODERATE BIOMASS REDUCTION COMPARED TO UNTREATED
- SEVERE BIOMASS REDUCTION COMPARED TO UNTREATED
- ☆ COMBINATION OF HERBICIDE BY VARIETY TESTED IN FIELD TRIALS < 10% COMPARED TO UNTREATED
- △ COMBINATION OF HERBICIDE BY VARIETY TESTED IN FIELD TRIALS > 10% COMPARED TO UNTREATED

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



# VARIETIES HARVESTED IN 2019 AND THEIR PERFORMANCE

The predominant varieties harvested in the 2019 season, and their commercial performance in terms of tonnes of cane per hectare (TCH) and tonnes of sugar per hectare (TSH) are shown below. This information is also available in QCANESelect® under the regional reporting tab.

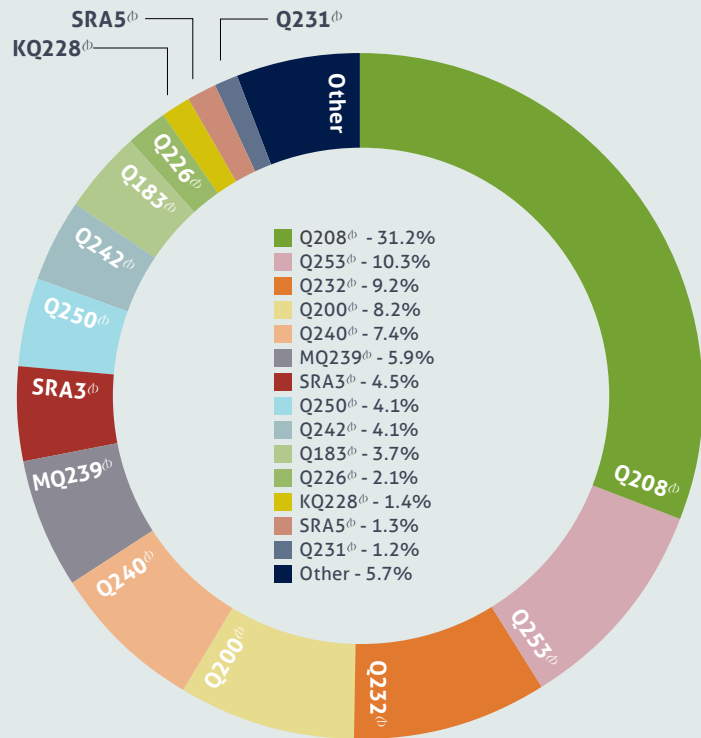
## Varieties harvested

In 2019 the Herbert region harvested 4,055,702 tonnes of cane during a harvesting season that lasted 21.8 weeks. There were 56,366 hectares harvested and 14% of this was plant cane. 99.99% of the crop was harvested green. The average mill area CCS was 13.89 and the average TCH and TSH were 72.0 and 10.0 respectively.

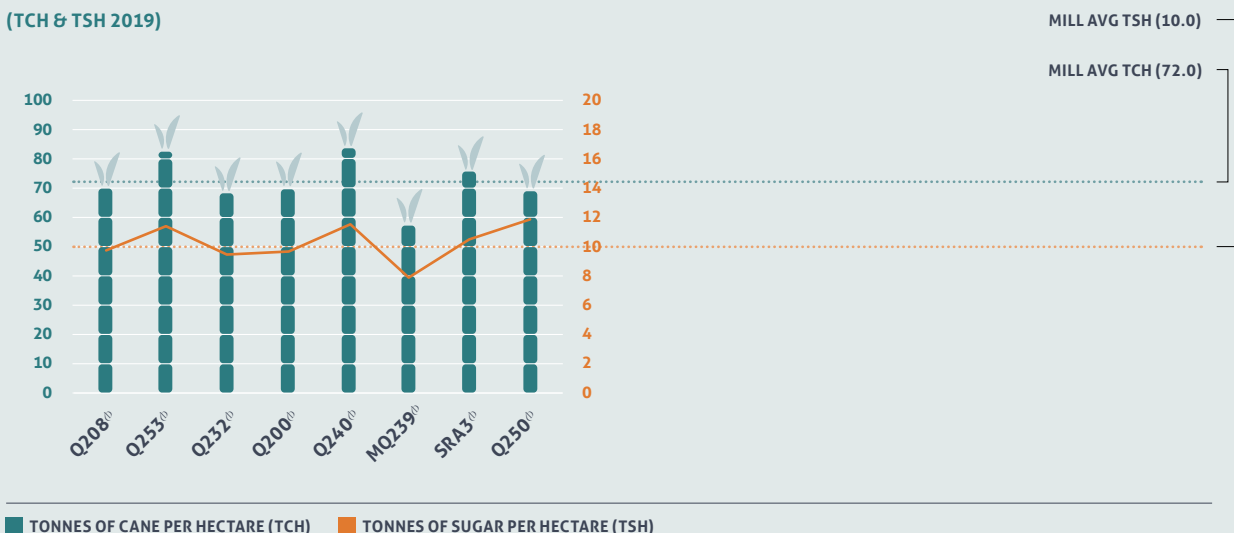
The diagram here indicates the main varieties harvested in the Herbert region in the 2019 season. Q208<sup>h</sup> remains the most popular variety in the Herbert accounting for 31.2% of the total tonnes harvested. This has decreased from 38.6% in the 2018 season. Q253<sup>h</sup> has increased in popularity (10.3%) and Q232<sup>h</sup> and Q200<sup>h</sup> are the next most popular accounting respectively for 9.2% and 8.2% of the total tonnes harvested.

## Commercial performance of the varieties harvested

The TCH and TSH, of the main varieties harvested in the 2019 season, are compared to the Herbert mill averages in the diagram below. Q253<sup>h</sup> and Q240<sup>h</sup> performed above the mill average for both TCH and TSH. Q250<sup>h</sup> was slightly below mill average for TCH but its high CCS compensated resulting in TSH above the mill average.

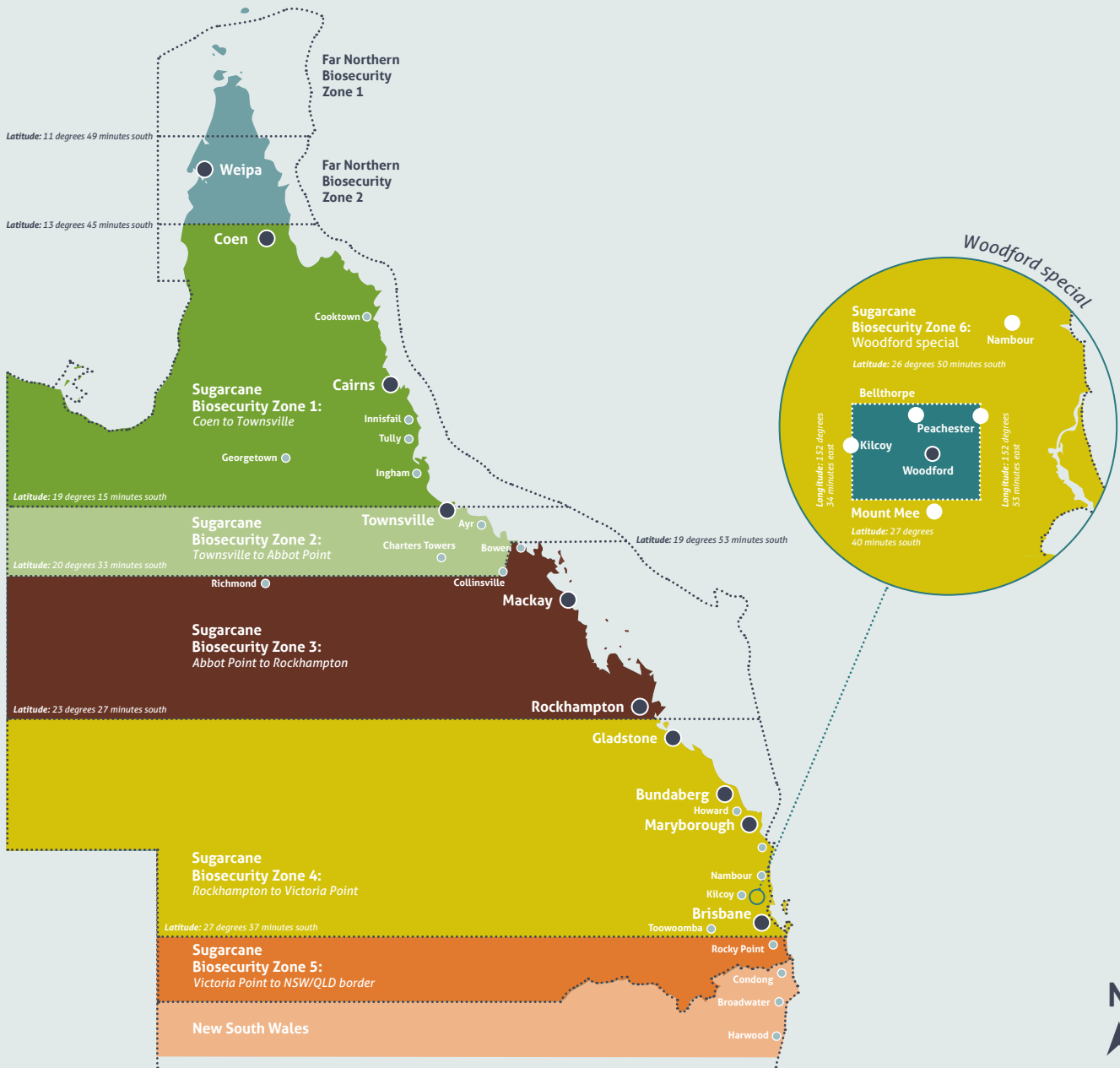


(TCH & TSH 2019)





# 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 Herbert Cane Productivity Services Limited (HCPSL) for regional advice on varieties. HCPSL can supply clean planting material of recommended varieties and place orders for tissue culture plantlets.



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

HCPSL Variety Development Officer, Sam Sellick  
E [ssellick@hcpsl.com.au](mailto:ssellick@hcpsl.com.au)  
T 0417 622 129

## Billet planting



### PLANT MATERIAL FROM AN APPROVED SEED SOURCE

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



### GROW SUGARCANE SPECIFICALLY FOR PLANTING MATERIAL

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

The best "whole farm" disease risk minimisation and productivity strategies can be achieved through consistent access to clean seed. It is highly recommended that cane considered for use as planting material be RSD tested well in advance 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](http://sugarresearch.com.au/calculator)).



### TRY TISSUE CULTURE AS AN APPROVED CLEAN SEED SOURCE

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

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

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

Yr 1	No. plantlets ordered	100	250	500	1000
	Approximate cost	\$150	\$375	\$750	\$1500
	Row Length, planted @ 0.8m (m)	80	200	400	800
Yr 2	Row available for planting (m)	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](mailto:cbolton@sugarresearch.com.au) T 07 3331 3374

# PLANTING AND MANAGING TISSUE-CULTURED PLANTLETS IN THE FIELD

---

## Planting

- Prepare soil to a fine tilth to ensure good soil/root contact.
- A seedling planter can be used if one is available, although hand planting small numbers is not a huge job. Plant them deep at the bottom of a drill to prevent stool tipping.
- Fill in after early growth.
- Plant the plantlets 500 mm to 1 m apart. A good distance is 800 mm, which will allow tillering to produce a high number of sticks.

## Irrigating

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

## Insects

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

## Fertiliser

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

## Weeds

### *Weed control is important for good establishment and growth.*

- Ideally pre-irrigate the soil to germinate weeds, then apply a knock-down herbicide or cultivate just prior to planting to reduce the weed pressure on young plantlets.
- Allow at least one week after planting before applying pre-emergent herbicides, longer if planted into cold, wet soils, as the root system needs time to establish:
  - > Atradex® at 2.5 kg/ha plus Dual Gold® at 1.5 L/ha has been successfully applied over the top, for grass and broadleaf weed control.
  - > Do not use diuron as young plantlets are sensitive to this product.
- Sempra® at 100 g/ha plus Activator at 200 mL/100 L for nutgrass. Both applications were sprayed over the top for nutgrass control.
- Do not use paraquat unless you have no other option and only on established plantings.

## QCANESelect®

- Using sugarcane varieties that are best-suited to your farm may help maximise its productivity and profitability.
- QCANESelect® is an online tool that allows you to review, compare and select varieties for use on each block on your farm.
- To access QCANESelect® and the tissue culture calculator visit the SRA website [sugarresearch.com.au](http://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.



**Sugar Research Australia Limited**

ABN 16 163 670 068

---

**Brisbane Office** 50 Meiers Road, Indooroopilly QLD 4068 Australia

**Postal Address** PO Box 86 Indooroopilly QLD 4068 Australia

**T** 07 3331 3333

**E** [sra@sugarresearch.com.au](mailto:sra@sugarresearch.com.au)

[sugarresearch.com.au](http://sugarresearch.com.au)

