Sugar Research Australia

VARIETY GUIDE 2019/2020

New South Wales Region

HOW TO USE THIS GUIDE

This guide is designed to help growers in the NSW canegrowing region with their agronomic considerations when selecting new varieties to plant and trial on their farms. The information comes from the best available data of regional variety performance and disease ratings. ***The information in the tables will help you understand:***

WANT TO KNOW WHAT IS HAPPENING IN THE OTHER REGIONS?

You can find all the regional variety guides on the SRA website ***sugarresearch.com.au***

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NEW & RECENT VARIETIES AVAILABLE IN THE NSW REGION

New Variety Recommendation and Release Process

Regional Variety Committees (RVC) 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: SRA11[Φ] QS05-6092			***Parentage:*** *QN86-2139 x QC90-289* / ***Summary:*** *1 yr Crop equal tonnes cane; equal CCS 2 yr Crop higher tonnes cane; lower CCS*								
TRIAL CYCLE	**TRIAL HARVEST YEAR**	**CROP CLASS**	**YIELD (TCH)**				**CCS**				**# OF HARVESTS**
			SRA11[Φ]	**Q208**[Φ]	**Q200**[Φ]	**KQ228**[Φ]	**SRA11**[Φ]	**Q208**[Φ]	**Q200**[Φ]	**KQ228**[Φ]	
1 Year Crop	(2011 series FATs): 2012	Plant	55	64	49	58	14.9	14.9	15.1	14.9	2
	2013	1R	95	89	80	91	15.9	16.1	16.4	16.3	2
	2014	2R	113	114	103	116	12.0	12.0	12.3	12.2	2
	2015	3R	123	142	128	135	14.6	13.7	15.1	14.0	1
	(2014 series FATs): 2015	Plant	114	101	88	97	13.9	13.7	14.3	13.4	2
	2016	1R	71	71	71	74	14.1	14.3	14.2	13.9	2
	2017	2R	94	96	86	104	13.8	14.6	14.5	14.5	2
	Overall performance 1 Yr crop		**93**	**93**	**83**	**93**	**14.1**	**14.2**	**14.5**	**14.2**	**13**
2 Year Crop	**TRIAL HARVEST YEAR**	**CROP CLASS**	**SRA11**[Φ]	**Q200**[Φ]	**Q203**[Φ]	**Q208**[Φ]	**SRA11**[Φ]	**Q200**[Φ]	**Q203**[Φ]	**Q208**[Φ]	**# OF HARVESTS**
	(2014 series AATs): 2016	Plant 2yr	223	186	202	192	13.4	14.0	13.5	13.3	4
	2018	1R 2yr	175	155	168	160	12.8	13.7	12.8	12.5	4
	Overall performance 2 Yr crop		**199**	**171**	**185**	**176**	**13.1**	**13.8**	**13.2**	**12.9**	**8**
Available 2018											
Comments:	Results for 2011 and 2014 series final assessment trials (FAT's) 1- year and 2014 series (AAT's) 2-year trials. SRA11[Φ] disease ratings: resistant to smut, pachymetra, mosaic, leaf scald and Fiji leaf gall. Released as a 1-year and 2-year variety.										

Variety: WSRA18Φ KQB07-34350			*Parentage:* Q208 x QBYN04-26272 / *Summary:* 2yr Crop higher tonnes cane; lower CCS 1yr Crop equal tonnes cane; lower CCS								
TRIAL CYCLE	TRIAL HARVEST YEAR	CROP CLASS	YIELD (TCH)				CCS				# OF HARVESTS
			WSRA18Φ	Q208Φ	Q232Φ	Q203Φ	WSRA18Φ	Q208Φ	Q232Φ	Q203Φ	
2 Year Crop	(2014 series AATs): 2016	Plant 2yr	222	193	205	197	13.1	13.2	13.5	13.4	3
	2018	1R 2yr	174	168	190	176	12.5	12.7	12.9	12.8	3
	Overall performance 2 Yr crop		**198**	**180**	**197**	**186**	**12.8**	**12.9**	**13.2**	**13.1**	**6**
1 Year Crop	TRIAL HARVEST YEAR	CROP CLASS	WSRA18Φ	Q208Φ	Q183Φ	KQ228Φ	WSRA18Φ	Q208Φ	Q183Φ	KQ228Φ	# OF HARVESTS
	(2015 series FATs): 2016	Plant	88	97	98	101	11.8	12.9	13.2	13.2	2
	2017	1R	122	116	119	117	14.0	15.3	15.1	15.5	2
	2018	2R	109	101	108	105	12.0	13.0	13.3	13.4	2
	Overall performance 1 Yr crop		**106**	**105**	**108**	**107**	**12.6**	**13.7**	**13.8**	**14.0**	**6**
Available 2019											
Comments:	Results for 2015 series final assessment trials (FATs) 1- year and 2014 series AATs 2-year trials. WSRA18Φ disease rat ings: resistant to mosaic, leaf scald and Fiji leaf gall; intermediate rating for smut and pachymetra. Released as a 2-year variety.										

SRA11Φ

WSRA18Φ

For more information on *variety field trials* contact:

NSW Variety Officer Anthony Cattle
E acattle@sugarresearch.com.au
M 0418 694 656

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. White indicates unknown.

Disease Ratings										
VARIETY	MILL AREA RECOMMENDED	FIJI LEAF GALL	SMUT	LEAF SCALD	CHLOROTIC STREAK	ORANGE RUST	BROWN RUST	RSD	RED ROT	PACHYMETRA
WSRA18Ф	B, H	R	I-R	R					R	I
SRA11Ф	B, C, H	R	R	R		R			I	R
SRA2Ф	C	R	I	R		I		S	R	R
SRA1Ф	C, H	I	I	R		R	R	S	I	I
Q254Ф	B, C, H	R	I	R		R		I	I	I
Q252Ф	B, C, H	I	I	R		R		I-R	R	I
Q244Ф	B, C, H	R	I	R	S	R			I	I-S
Q243Ф	B, H	I-R	R	R	I	R		I-R	R	S
Q242Ф	B, C, H	R	I-R	R	I	R		S	I-R	R
Q240Ф	B, C, H	I-S	R	R	I-R	R		I-R	R	I
Q235Ф	B, C, H	R	I-R	R	I-S	I-R		S	R	R
Q234Ф	B, C, H	R	I-S	R	I-S	R	S	S	I-R	I-S
Q232Ф	B, C, H	I	I-R	R	R	R		I	I-R	I
KQ228Ф	B, C, H	I	I	R	S	R	R	S	R	I
Rogan (Q212Ф)	B, C, H	I-R	I-S	R	R	R	I-S	I	R	R
Q211Ф	C	S	S	R		R	R	S	R	R
Q210Ф	B, H	I	R	R	I	R	R	I	R	I-S
Q208Ф	B, C, H	I-S	I-R	R	R	R	R	I-R	R	I
Q203Ф	B, C, H	R	S	R	S	R	R	I	R	S
Q200Ф	B, C, H	I	I	R	I	R	R	I-R	R	I
Q193Ф	B. H	R	S	R	I	R		I	R	I
Q190Ф	B, C	R	R	R		R	I-R	I-R	R	R
Q188Ф	B, C	R	S	R		R	R	I-R	I	R
Q183Ф	B, C, H	R	R	I	S	R	R	I	I	R
Q167Ф	H	I	S	R	I-R	R		I-R	R	I-R
Q155Ф	B, C, H	R	I-R	R	I	R	R	S	S	S
Q124	B, C, H	I-S	I-R	R	I	S	R	S	I-S	I-S
ARRIS	H	I	I-S	R	S	R		I-R	R	I-S
EMPIRE	B, C, H	R	I-S	R	S	R	R	I-R		R
BN88-3345	H	R	S	R		R	R		R	
BN83-3120	B, H	R	S	R	I	R			I	S
BN81-1394	B, C, H	R	R	I-S	I	R		S	I	S
QC75-326	H	R	I-R	R	S				S	R
RB72-454	B, H	I-S	S	I-R		S				S
SP79-2313	H	R	I	I-R	S		R		R	S

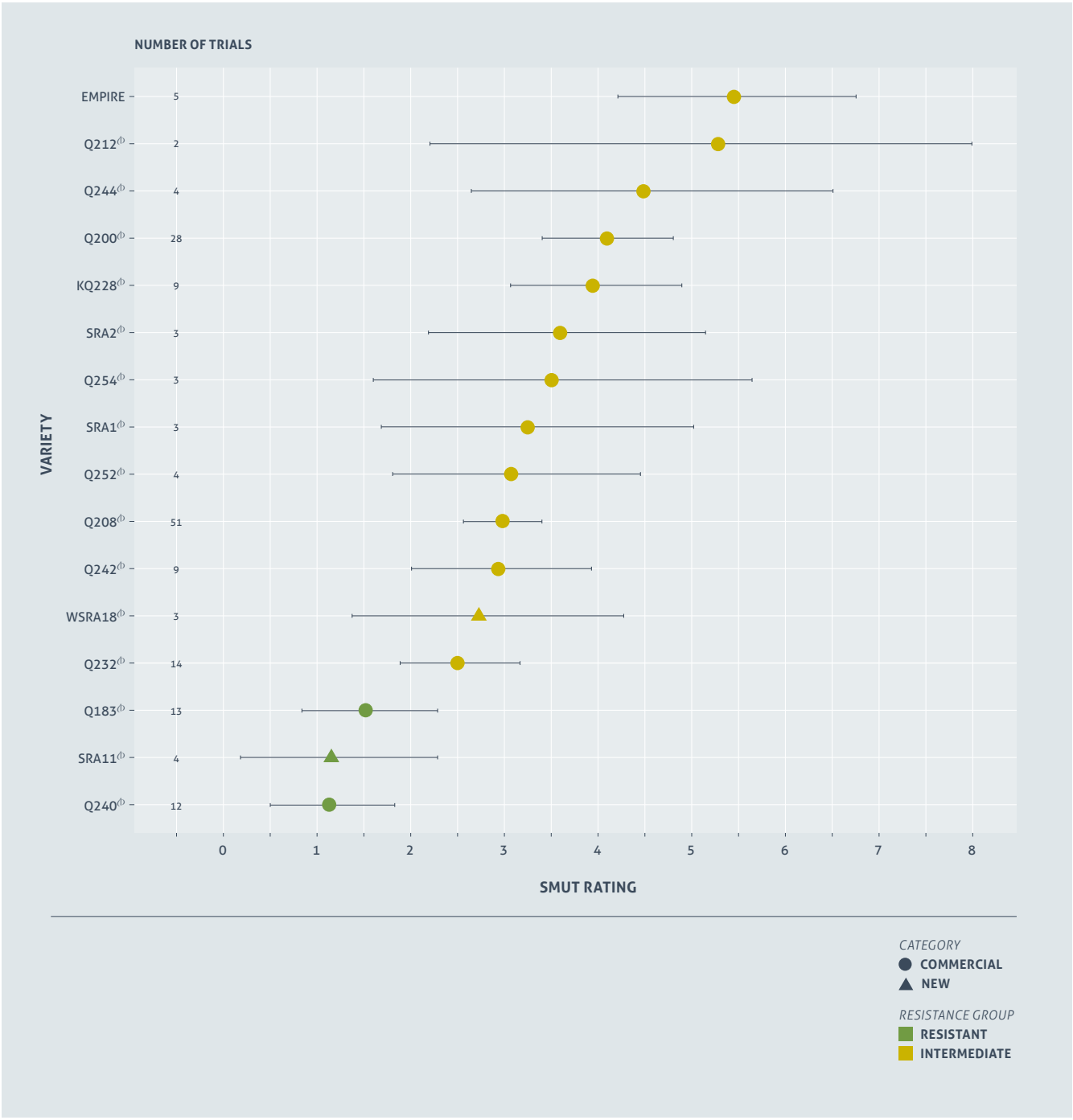
Rotation of varieties is important in the management of diseases. Arrange for your local productivity services officer to inspect your farm for disease. The Diseases of Australian Sugarcane Field Guide provides information on diseases including how to identify and manage them. The guide is available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

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

B BROADWATER
C CONDONG
H HARWOOD

NEW PRESENTATION FORMAT FOR 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 Q200$^{\Phi}$ has been tested in 28 trials and has a narrow confidence interval from 3.4 to 4.8 while the new variety WSRA18$^{\Phi}$ has only been tested in 3 trials and ranges from 1.4 to 4.3 and SRA11$^{\Phi}$ has only been tested in 4 trials and ranges from 0.2 to 2.3. Rating confidence will improve as more data is collected.



HARVEST MANAGEMENT

Select varieties for a harvest plan that can be followed to maintain maximum CCS throughout the year. The charts below indicate early, mid or late sugar varieties.

Harvest Management					
VARIETY	EARLY SUGAR	MID SUGAR	LATE SUGAR	TRASHING	LODGING TOLERANCE
WSRA18Ф	Unknown	Poor	Poor	Unknown	Unknown
SRA11Ф	Average	Average	Average	Unknown	Unknown
SRA2Ф	Good	Good	Good	Free-Average	Unknown
SRA1Ф	Good	Good	Good	Average	Unknown
Q254Ф	Average	Average	Average	Unknown	Unknown
Q252Ф	Average	Average	Average	Unknown	Unknown
Q244Ф	Good	Average	Average	Unknown	Average
Q243Ф	Average	Good	Good	Unknown	Unknown
Q242Ф	Good	Average	Average	Average- Tight	Poor
Q240Ф	Good	Good	Good	Free-Average	Average
Q235Ф	Good	Good	Good	Unknown	Unknown
Q234Ф	Good	Good	Good	Unknown	Good
Q232Ф	Average	Average	Good	Tight	Unknown
KQ228Ф	Good	Average	Poor	Average- Tight	Average
Q212Ф	Poor	Average	Average	Unknown	Good
Q211Ф	Good	Good	Average	Unknown	Average
Q210Ф	Average	Good	Good	Average	Average
Q208Ф	Average	Good	Good	Free	Average
Q203Ф	Average	Average	Average	Unknown	Average
Q200Ф	Good	Good	Good	Free	Average
Q193Ф	Good	Good	Average	Average- Tight	Average
Q190Ф	Poor	Average	Average	Unknown	Average
Q188Ф	Poor	Average	Average	Average- Tight	Average
Q183Ф	Average	Average	Average	Free-Average	Average
Q167Ф	Poor	Average	Average	Free	Average
Q155Ф	Good	Good	Good	Free-Average	Average
Q124	Average	Good	Good	Unknown	Average
EMPIRE	Average	Good	Good	Average	Good
BN88-3345	Poor	Average	Average	Average	Average
BN83-3120	Poor	Poor	Poor	Tight	Average
BN81-1394	Average	Average	Average	Tight	Average
ARRIS	Poor	Poor	Average	Unknown	Good
SP79-2313	Poor	Average	Average	Unknown	Average
RB72-454	Average	Average	Average	Average	Good
QC75-326	Average	Average	Poor	Unknown	Average

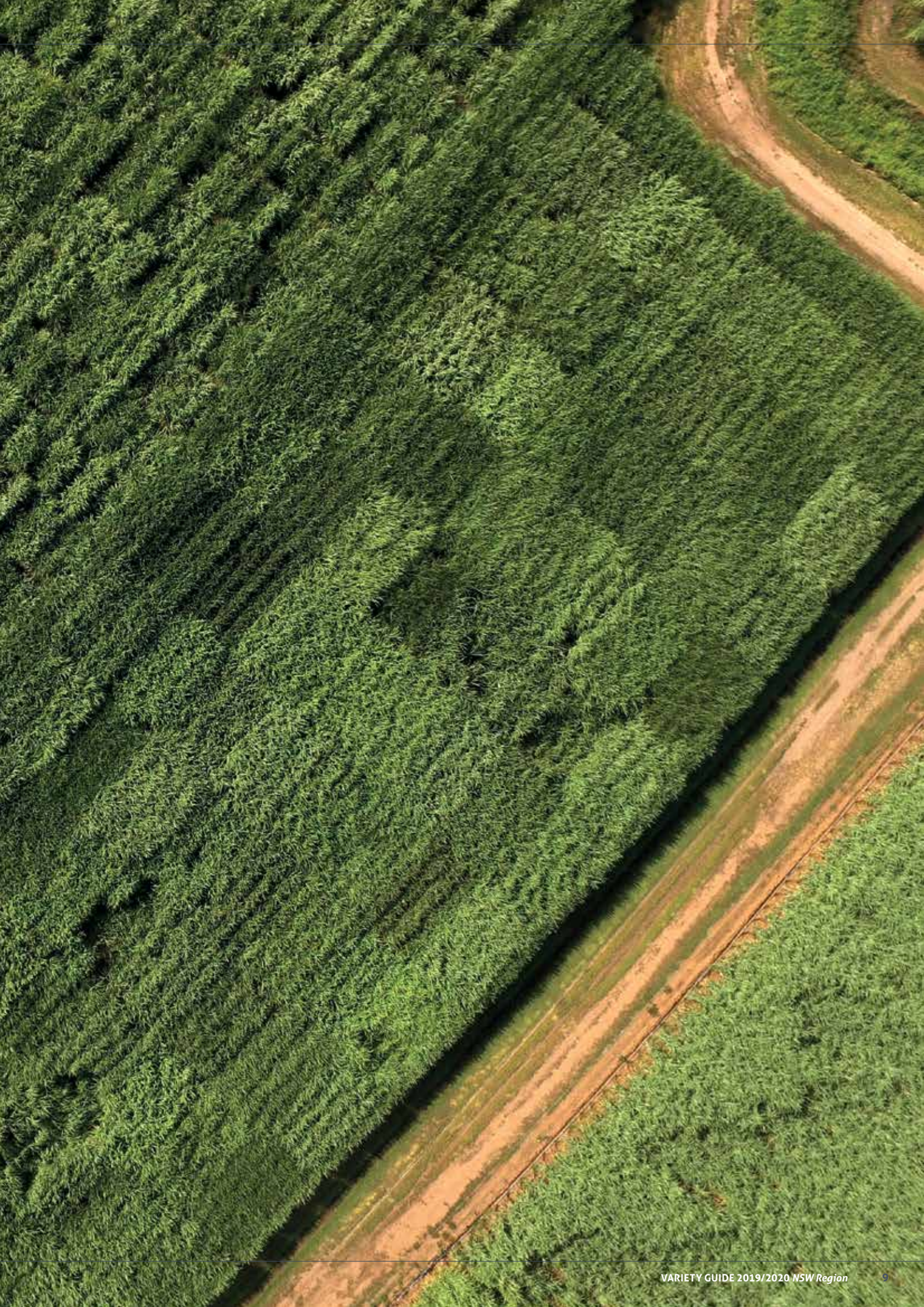
Maximise your profit at harvest:
Selecting varieties for specific sugar maturity profiles, planting and harvesting them for optimal CCS maturity at time of harvest can make a significant difference in the profit your crop can make for you.

Making harvest decisions based on in-field maturity maximises profit making decisions.

- GOOD
- AVERAGE
- LOW
- POOR
- UNKNOWN

TRASHING

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



VARIETY BY HERBICIDE SCREENING TRIALS

Sugarcane varieties can have sensitive responses to herbicides with some being more impacted than others. Data outlining susceptibility can be important 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:

- 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 process stars 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. Weekly phytotoxicity ratings are conducted in the pot trials using the EWRC (European Weed Research Council) rating scale and the aerial plant dry biomass is measured 10 weeks after spraying. Field trials are conducted on plant cane and yield is measured at harvest using a weigh truck. In all trials, KQ228[◊] is used as a reference variety.

A range of factors including environmental conditions and plant health status strongly influence herbicide efficacy on target weeds and sugarcane. The screening trials are intended to identify varieties with sensitivity to particular herbicides, and do not predict the outcome in all situations. For more information contact Senior Researcher, Emilie Fillols 07 4056 4510.

TABLE 1 Summary of phytotoxicity ratings and symptoms obtained on the reference variety KQ228[◊]

	2,4-D	METRIBUZIN	AMETRYN+ TRIFLOXY SULFURON	ASULAM	MSMA	2,4-D + IOXYNIL	METOLACHLOR	AMETRYN	FLUMIOXAZIN	AMICARBAZONE
SYMPTOM DESCRIPTION	small white spotty discolorations	slight yellowing of the whole plant	slight yellow blotching	bright yellow blotching	large necrotic lesions	small yellow spotty discolorations	small necrotic lesions	yellowing of the whole plant	large necrotic lesions	small white spotty discolorations
SYMPTOM PICTURE						NA				
SYMPTOM SEVERITY ON KQ228[◊]	mild	mild	mild	medium	medium to severe	mild	medium	medium	severe	mild
KQ228[◊] PHYTO RATING RANGE	1.2 to 1.7	1.2 to 1.8	1.3	1.2 to 2.6	1.7 to 3.5	1.2	1.4 to 2.8	1.8 to 2.7	3.9 to 4.1	1.4 to 1.5
NUMBER OF TRIALS	4	4	1	4	4	1	4	3	2	2

MILD
MEDIUM
MEDIUM TO SEVERE
SEVERE

Herbicide toxicity symptoms for all tested varieties are compared to KQ228$^{\phi}$ in Table 2. Green cells indicate varieties that display more mild symptoms than KQ228$^{\phi}$. White cells indicate varieties with similar symptoms to KQ228$^{\phi}$ and red cells indicate varieties that display more severe symptoms than KQ228$^{\phi}$.

- SYMPTOMS LESS SEVERE THAN KQ228$^{\phi}$
- SYMPTOMS SLIGHTLY LESS SEVERE THAN KQ228$^{\phi}$
- SYMPTOMS SLIGHTLY MORE SEVERE THAN KQ228$^{\phi}$
- SYMPTOMS MORE SEVERE THAN KQ228$^{\phi}$
- -- COMBINATION OF HERBICIDE BY VARIETY NOT TESTED

TABLE 2 Visual symptoms of herbicide toxicity compared to KQ228$^{\phi}$.
This table indicates if varieties display more or less phytotoxicity symptoms than KQ228$^{\phi}$

KQ228$^{\phi}$ COMPARED TO:	2,4-D	METRIBUZIN	AMETRYN+ TRIFLOXY SULFURON	ASULAM	MSMA	2,4-D + IOXYNIL	METOLACHLOR	AMETRYN	FLUMIOXAZIN	AMICARBAZONE
SRA1$^{\phi}$			--			--			--	--
SRA2$^{\phi}$			--			--			--	--
SRA11$^{\phi}$			--			--				
Q208$^{\phi}$								--	--	--
Q232$^{\phi}$								--	--	--
Q240$^{\phi}$								--	--	--
Q242$^{\phi}$								--	--	--
Q252$^{\phi}$								--	--	--

Biomass reduction in pot trials and yield loss in field trials in response to herbicide application is shown in Table 3. Dry cane biomass was measured 10 weeks after spraying and was compared to the biomass of the untreated variety. Green cells indicate varieties whose biomass was not reduced by the herbicide. Red cells indicate varieties with reduced biomass due to the herbicide treatment compared to the untreated control. Cells with a star display the combinations of herbicide by variety tested in the field to date. The red star indicates varieties with yield reduced by more than 10% compared to the untreated control (no yield loss was significantly different to the untreated control at p = 0.05).

- NO BIOMASS REDUCTION COMPARED TO UNTREATED
- NO SIGNIFICANT BIOMASS REDUCTION COMPARED TO UNTREATED
- SLIGHT BIOMASS REDUCTION COMPARED TO UNTREATED
- SIGNIFICANT BIOMASS REDUCTION COMPARED TO
- == UNTREATED
- ★ COMBINATION OF HERBICIDE BY VARIETY NOT TESTED
  COMBINATION TESTED IN FIELD TRIAL WITH YIELD
- ★ LOSS < 10% COMPARED TO UNTREATED
  COMBINATION TESTED IN FIELD TRIAL WITH YIELD
  LOSS > 10% COMPARED TO UNTREATED

TABLE 3 Biomass and yield difference compared to the untreated control of the same variety

	2,4-D	METRIBUZIN	AMETRYN+ TRIFLOXY SULFURON	ASULAM	MSMA	2,4-D + IOXYNIL	METOLACHLOR	AMETRYN	FLUMIOXAZIN	AMICARBAZONE
SRA1$^{\phi}$		★	--	★	★	--			--	--
SRA2$^{\phi}$		★	--	★	★	--			--	--
SRA11$^{\phi}$			--			--				
Q208$^{\phi}$								--	--	--
Q232$^{\phi}$		★		★	★			--	--	--
Q240$^{\phi}$								--	--	--
Q242$^{\phi}$		★		★	★			--	--	--
Q252$^{\phi}$								--	--	--
KQ228$^{\phi}$ biomass reduction range	0-49%	13-60% ★	40%	0-48% ★	9-56% ★	12%		38-80%	37-55%	0-36%
Number of trials where KQ228$^{\phi}$ was tested	4	4	1	4	4	1	4	3	2	2

Some herbicides should only be applied as a directed spray – always consult the chemical label.

VARIETY ADOPTION IN EACH MILL AREA

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

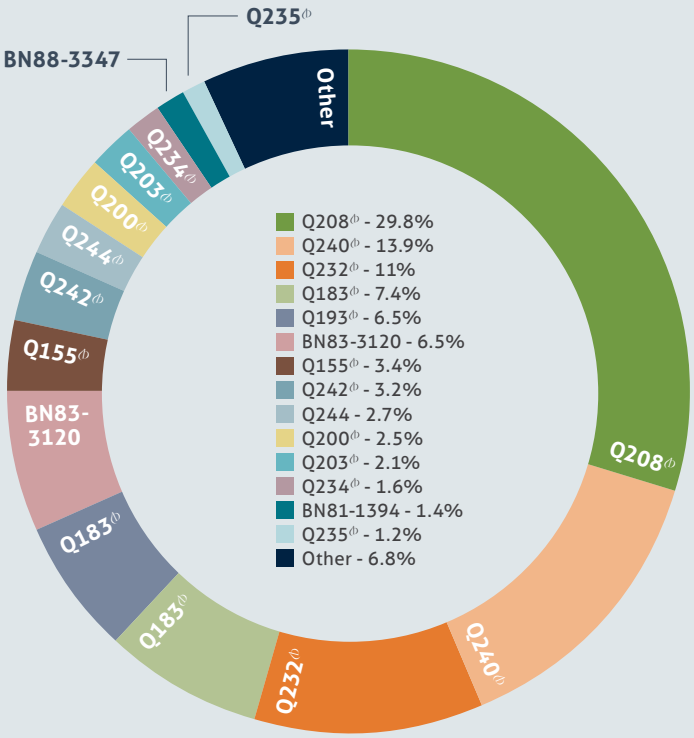
Broadwater (% TONNES 2018)

A total of 767,245 tonnes of cane were harvested from 6,371 hectares recording mill averages for CCS 12.1 and TCH 120.4.

Q208Φ remains the dominant variety in the Broadwater region increasing to 29.8 % of the total harvest in 2018. BN83-3120 declined from 13.1% to 6.5% in 2018. Q193Φ remains steady at 6.5%.

Both Q232Φ and Q240Φ increased dramatically from 6.3% and 7.6% in 2017 to 11.0% and 13.9% in 2018, respectively. Q200Φ and Q203Φ declined to <3.0%.

Q254Φ performed well above mill average for both TCH and TSH, but is only planted on limited area. Q208Φ, Q240Φ and Q232Φ also returned above mill average TCH and TSH.



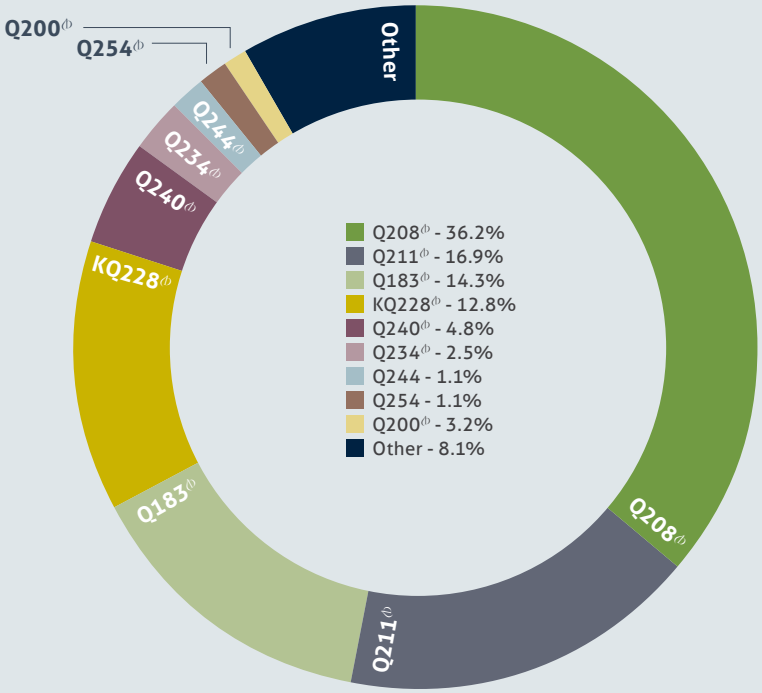
(TCH & TSH 2018)

Condong (% TONNES 2018)

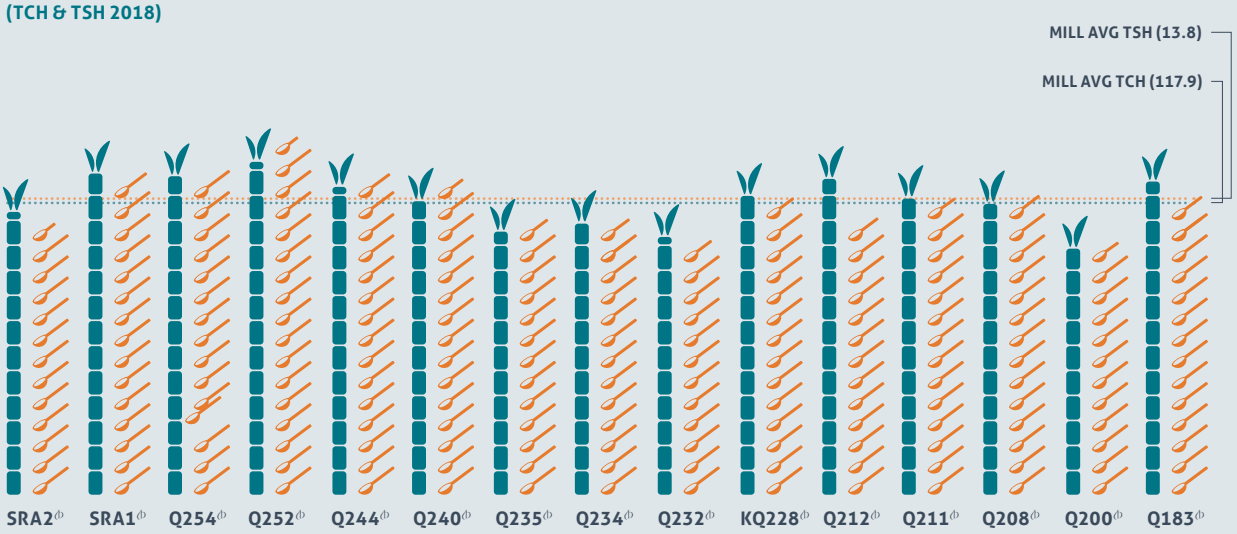
In 2018, the Condong region harvested 530,167 tonnes of cane from 4512 hectares, returning an average CCS of 11.7 and 117.5 TCH.

Q208Φ remains the dominant variety at 36.2% of total harvest in 2018, down slightly from 38.0% in 2017. Q211Φ had previously averaged around 25% of the total annual tonnage continues to decline slowely and is currently at 16.9%. Q183Φ holds the number three position, increasing to 14.3% of the total harvest in 2018. KQ228Φ increased slightly to 12.8 % and Q240Φ increased to 4.8%.

New varieties SRA1Φ, Q254Φ and Q252Φ recorded good yields. Q244Φ and Q183Φ also recorded above mill average results for TCH and TSH.



(TCH & TSH 2018)

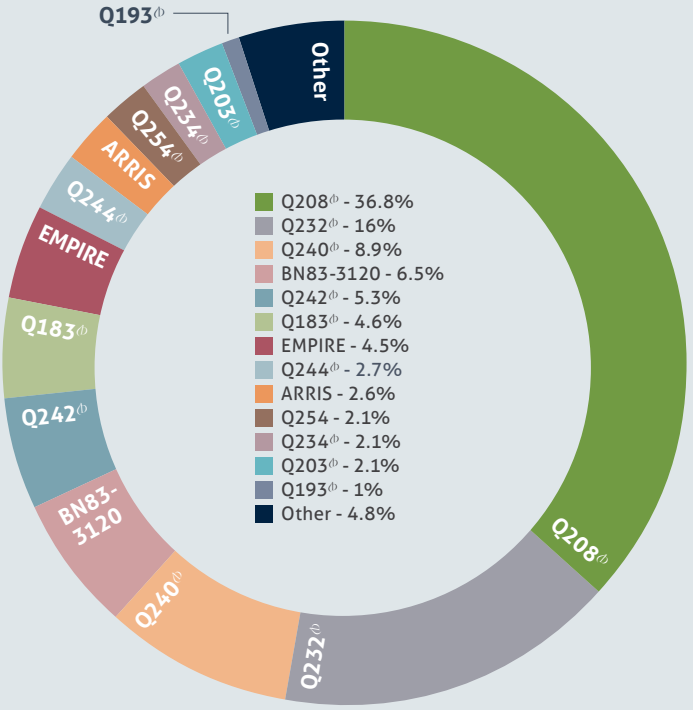


Harwood (% TONNES 2018)

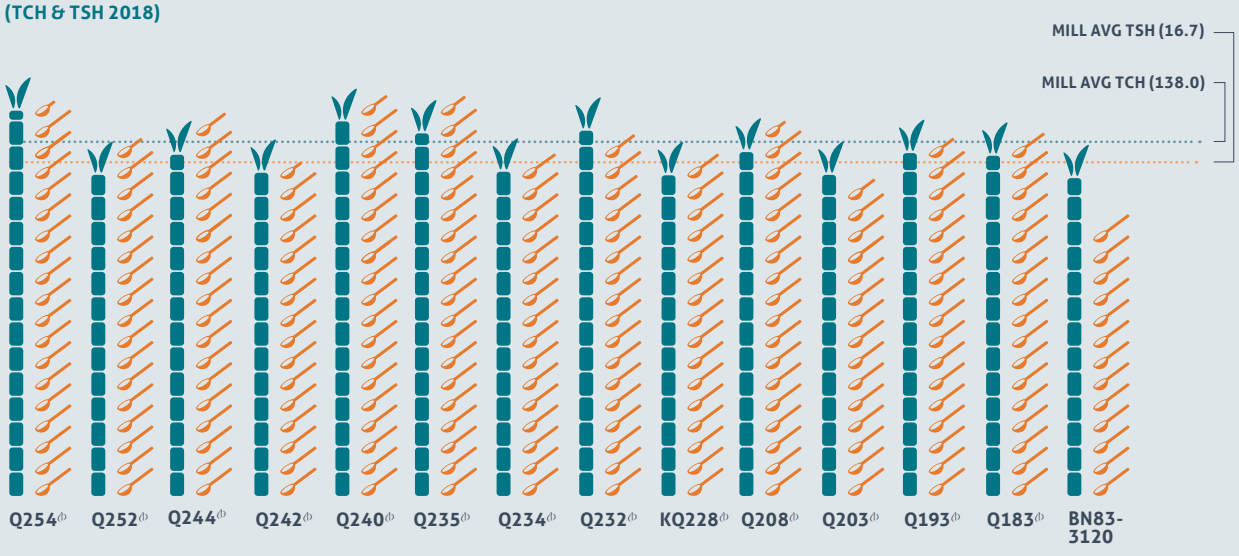
A harvest of 705,977 tonnes of cane from 5142 hectares from the Harwood region resulted in mill average CCS of 12.0 and TCH of 137.3.

Q208Φ has increased from 1.9% in 2013 to 36.8% of total tonnage crushed in 2018. Q232Φ remained stable at 16.0% of the Harwood harvest. Both BN83-3120 and Empire declined to 6.5% and 4.5% in 2018, respectively. Q240Φ increased further to 8.9%, with Q242Φ at 5.3%.

Q240Φ, Q235Φ, Q254Φ and Q232Φ all performed well above mill average for TCH and TSH.

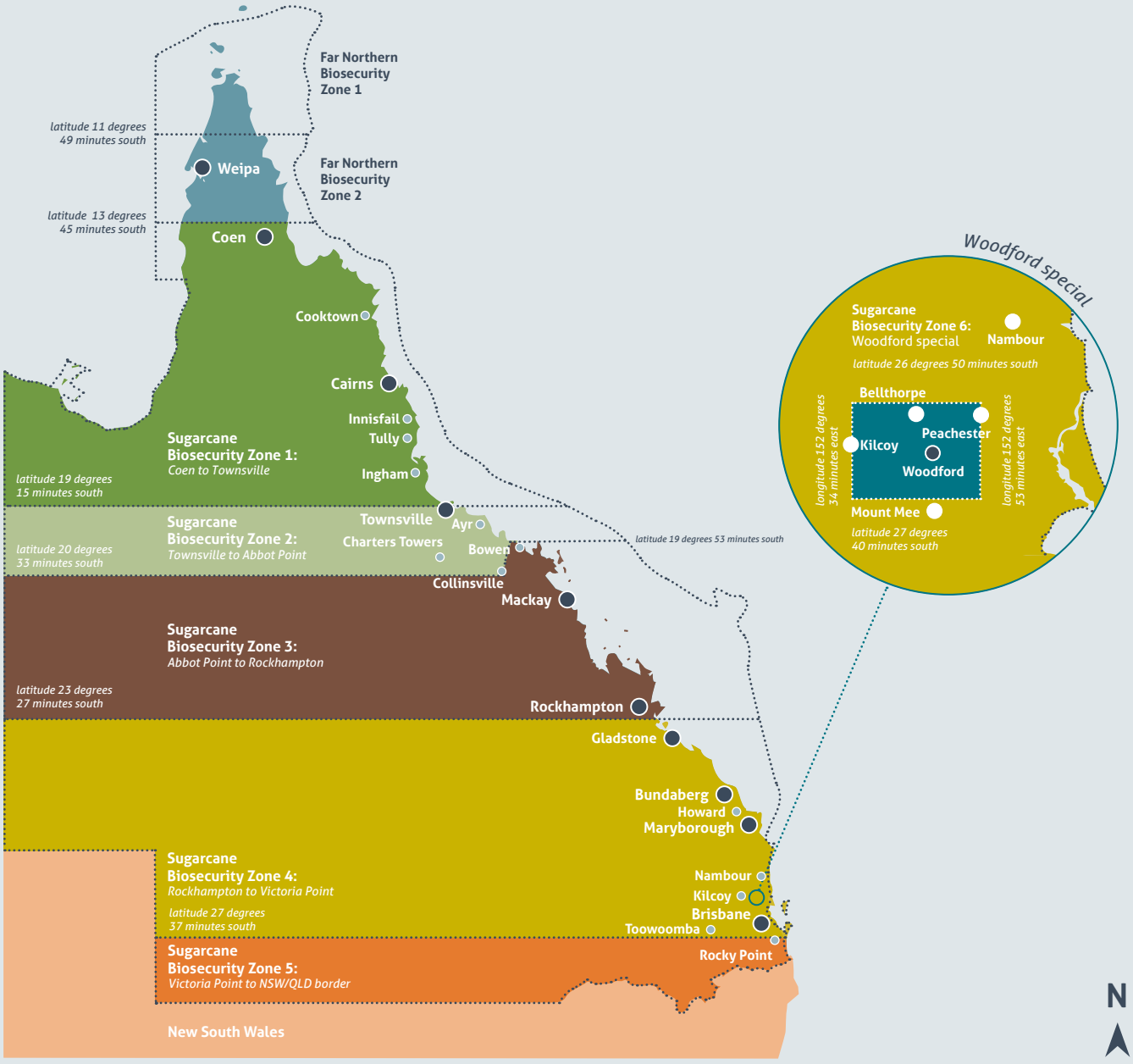


(TCH & TSH 2018)



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

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).
- To move sugarcane plants into NSW you must meet NSW DPI requirements. Contact NSW Biosecurity on 1800 680 244.
- Plant Health Certificates for movement of cane from Queensland into NSW can be arranged by contacting Biosecurity Queensland on 13 25 23.
- Movement of cane from NSW into Queensland requires approval from Biosecurity Queensland and a time in quarantine at SRA. Contact SRA for advice prior to movement.

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 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).

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
	M row planted @ 0.8m	80	200	400	800
Yr 2	M row available for planting	2400	6000	12000	24000
	Ha avail for planting @ 1.8m	0.4	1.1	2.2	4.3

For more information on *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 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 productivity and profitability.
- QCANESelect® is an online tool that allows you to review, compare and select varieties for use on each block on your farm.
- To access QCANESelect® and the tissue culture calculator visit the SRA website **sugarresearch.com.au**
- The information in QCANESelect® is updated regularly based on our most recent trials and from observations and experiences of varieties that are growing in the field.
- Once you have identified the best varieties for planting on your farm, contact your local productivity services group to place orders for tissue-cultured plantlets.

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