# Sugar Research Australia<sup>™</sup>



Variety Guide 2016/17 Burdekin and Central regions

### How to use this guide

This guide is designed to help growers in the Burdekin and Central canegrowing regions 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:

Which new varieties are available and how they performed in SRA trials Pages 4-5	The disease resistance ratings of each variety Page 6	Which varieties will better suit certain soil types Page 7
When you should harvest a particular variety	Which varieties are most suited to the environment on your farm	Sugarcane Biosecurity Zone Map
Page 8	Page 9	Page 10
Planting & managing tissue-cultured plantlets in the field Page 11	Managing the varieties on your farm is vital. By you can make a positive difference to your farm whole crop cycle. To help you make decisions ab farm, use QCANESelect <sup>™</sup> – our online variety dec on the SRA website www.sugarresearch.com.au	productivity and profitability for the out the best-suited varieties for your



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## Propagating new varieties

### Contact SRA Variety Development Officer Rod Fletcher on 0459 847 445

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

### 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. The cane should be erect with short internodes, so it will have at least two buds per sett when harvested for billets. This can be achieved through reduced fertiliser rates, withholding irrigation or planting late in the season. The cane should be less than one year old when harvesting for good quality billets and also be no more than three years away from hot water treatment.

# Need to calculate how much tissue culture to order?

We've made it easier with our new 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).

# 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 minimum 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 in harvesting when planting new varieties to limit the spread of disease and weeds.

# 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 ratoon stunting disease, 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. 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 2016	1 July 2017
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 2017.	Delivery on agreed date between grower, productivity services group and nursery. Available in March 2018.

	Number of seedlings ordered Year 1	100	250	500	1 000
Year 1	ar 1 Approximate cost Year 1		\$375	\$750	\$1 500
	Metres of row planted in Year 1 at 0.8m plant spacing	80	200	400	800
Year 2	Metres of row able to be planted in Year 2		6 000	12 000	24 000
Tear 2	Hectares able to be planted in Year 2 at 1.8m row spacing	0.4	1.1	2.2	4.3

Presented below are the latest results of trials conducted in the Central region. The mean yield and CCS of each variety is compared to the average yield and CCS of the standard varieties in the trials (shown in the brackets).

### Variety: Q252<sup>(b)</sup>

### Parentage: Q208 x Q96 | Good TCH, good CCS

Trial harvest date	Crop class	Yield (tonnes cane/ha)	ccs	Number of trials		
2011	Plant	87 (79)	16.0 (16.0)	2		
2012	1 <sup>st</sup> Ratoon	87 (83)	17.9 (17.3)	3		
2013	2 <sup>nd</sup> Ratoon	80 (74)	18.7 (18.3)	3		
2013	Plant	86 (85)	18.1 (17.8)	3		
2014	1 <sup>st</sup> Ratoon	89 (89)	18.4 (18.0)	3		
2015	2 <sup>nd</sup> Ratoon	63 (69)	18.2 (18.1)	3		
Average of all harvests		82 (80)	17.9 (17.6)	17		
Standard varieties used in these trials: Q183 $^{\circ}$ ; Q200 $^{\circ}$ ; Q208 $^{\circ}$ ; Q226 $^{\circ}$ ; KQ228 $^{\circ}$ ; Q232 $^{\circ}$ ; Q238 $^{\circ}$						
Released: 2015						
Comments: Good TCH, go	ood CCS, fibre in the safe ra	nge, intermediate for Pach	ymetra.			

### Variety: SP80-1816

### Parentage: SP71-1088 x H57-5028

Trial harvest date	Crop class	Yield (tonnes cane/ha)	ccs	Number of trials		
2006	Plant	113 (120)	13.4 (14.2)	2		
2007	1 <sup>st</sup> Ratoon	104 (112)	15.6 (15.8)	2		
2008	2 <sup>nd</sup> Ratoon	48 (50)	14.4 (14.2)	1		
Average of all harvests		96 (103)	14.5 (14.8)	5		
Standard varieties used i	in these trials: Q183 $^{\circ}$ ; Q200	<b>0<sup>(b)</sup>; Q208<sup>(b)</sup>; Q226<sup>(b)</sup>; KQ228<sup>(b)</sup>;</b>	Q232 <sup>()</sup> ; Q238 <sup>()</sup>			
Released: 2015 in Mackay region. To be released: 2016 in Proserpine and Plane Creek regions.						
Comments: Limited data	available, not an SRA varie	ty, fibre in the safe range,	resistant to Pachymetra.			

The Variety Approval Committees (VAC) play an integral role in deciding which new varieties will be released each year to the productivity service groups for distribution to growers. The VAC includes invited representatives, both directors and field staff, from the regional productivity services groups, milling companies, regional grower groups. This year the Burdekin VAC released one new variety (SRA8) and the Central region did not approve any new varieties. Presented below are the latest results of trials conducted in the Burdekin region. The mean yield and CCS of each variety is compared to the average yield and CCS of the standard varieties in the trials (shown in the brackets).

### Variety: SRA8

### Parentage: QA93-2768 x QA94-6003 | Average tonnes, high CCS

Trial harvest date	Crop class	Yield (tonnes cane/ha)	ccs	Number of trials
2007	Plant	150 (156)	15.9 (16.0)	4
2008	1 <sup>st</sup> Ratoon	106 (111)	17.4 (17.1)	4
2009	2 <sup>nd</sup> Ratoon	102 (105)	17.5 (17.2)	4
2010	Plant	146 (144)	16.6 (16.5)	4
2011	1 <sup>st</sup> Ratoon	93 (101)	17.8 (17.2)	4
2012	2 <sup>nd</sup> Ratoon	99 (101)	17.4 (16.7)	4
Average of all harvests		116 (120)	17.1 (16.8)	8

**Standard varieties used in these trials:** Q127, Q171<sup>*(*)</sup>, Q183<sup>*(*)</sup>, Q208<sup>*(*)</sup>, TELLUS<sup>*(*)</sup> in 2006 Series. Q171<sup>*(*)</sup>, Q183<sup>*(*)</sup>, Q208<sup>*(*)</sup>, KQ228<sup>*(*)</sup> in 2009 Series.

Available: 2017 from BPS.

**Comments:** SRA8 has an "Intermediate" smut rating and during 2015/2016, smut was observed. Some early observations suggest that SRA8 yellows from ametryn and may be brittle.



# Disease resistance

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.



Clone	Region recommended	Brown rust	Chlorotic streak	Fiji leaf gall	Leaf scald	Mosaic	Orange rust	Pachymetra root rot	Red rot	Ratoon stunting disease	Smut
SRA8	В										
Q253 <sup>()</sup>	В										
Q252 <sup>()</sup>	В, С										
Q249 <sup>()</sup>	С										
Q247 <sup>(b)</sup>	В, С										
Q242 <sup>()</sup>	С										
Q240 <sup>()</sup>	В, С										
Q238 <sup>()</sup>	В, С										
Q232 <sup>()</sup>	В, С										
KQ228 <sup>()</sup>	В, С										
Q226 <sup>()</sup>	С										
Q212 <sup>()</sup>	С										
Q209 <sup>()</sup>	С										
Q208 <sup>()</sup>	В, С										
Q200 <sup>()</sup>	В, С										
Q190 <sup>()</sup>	С										
Q183 <sup>()</sup>	В, С										
Q177 <sup>()</sup>	С										
Q171 <sup>()</sup>	С										
Q138	С										
Q135	С										
Q133	В										
Q96	С										
SP80-1816	С										

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 www.sugarresearch.com.au

The varieties are listed in order of recommendation for each soil type. The first variety listed is the highest recommendation.

### Central

Soil class	Recommended varieties
Heavy soils	Q208 <sup><i>\phi</i></sup> , Q232 <sup><i>\phi</i></sup> , SP80-1816, Q240 <sup><i>\phi</i></sup> , KQ228 <sup><i>\phi</i></sup> , Q200 <sup><i>\phi</i></sup> , Q190 <sup><i>\phi</i></sup> , Q252 <sup><i>\phi</i></sup>
Good soils	Q240 <sup>¢</sup> , Q208 <sup>¢</sup> , Q238 <sup>¢</sup> , SP80-1816, Q249 <sup>¢</sup> , Q242 <sup>¢</sup> , KQ228 <sup>¢</sup> , Q226 <sup>¢</sup>
Average soils	Q208 <sup><i>\phi</i></sup> , Q238 <sup><i>\phi</i></sup> , Q232 <sup><i>\phi</i></sup> , SP80-1816, Q249 <sup><i>\phi</i></sup> , Q183 <sup><i>\phi</i></sup> , Q242 <sup><i>\phi</i></sup> , Q240 <sup><i>\phi</i></sup>
Average to poor soils	Q208 <sup>(b)</sup> , Q232 <sup>(b)</sup> , Q183 <sup>(b)</sup> , SP80-1816, Q226 <sup>(b)</sup> , Q138
Poor soils	Q208 <sup>()</sup> , Q138, Q226 <sup>()</sup> , SP80-1816
Irrigation	SP80-1816, Q252 <sup>(b)</sup> , Q240 <sup>(b)</sup> , Q183 <sup>(b)</sup> , Q238 <sup>(b)</sup> , Q232 <sup>(b)</sup> , Q226 <sup>(b)</sup> , Q208 <sup>(b)</sup>

### **Burdekin**

Soil class	Recommended varieties
Cracking clay	Q183 <sup><i>b</i></sup> , Q208 <sup><i>b</i></sup> , KQ228 <sup><i>b</i></sup> , Q252 <sup><i>b</i></sup> , Q240 <sup><i>b</i></sup>
Non-cracking soils	KQ228 <sup><i>(</i>)</sup> , Q183 <sup><i>(</i>)</sup> , Q240 <sup><i>(</i>)</sup> , Q208 <sup><i>(</i>)</sup> , Q253 <sup><i>(</i>)</sup>
Non-sodic duplex	Q208 <sup>(h)</sup> , KQ228 <sup>(h)</sup> , Q183 <sup>(h)</sup>
Silty loam	KQ228 <sup><i>(</i>)</sup> , Q240 <sup><i>(</i>)</sup> , Q208 <sup><i>(</i>)</sup> , Q183 <sup><i>(</i>)</sup> , Q252 <sup><i>(</i>)</sup>
Sodic duplex	Q208 <sup>(h)</sup> , Q183 <sup>(h)</sup> , Q253 <sup>(h)</sup> , Q232 <sup>(h)</sup>
Sodic/sand/saline	Q208 <sup><i>\phi</i></sup> , Q253 <sup><i>\phi</i></sup> , Q232 <sup><i>\phi</i></sup> , KQ228 <sup><i>\phi</i></sup> , Q183 <sup><i>\phi</i></sup>

Please refer to your farm soil map, available from your local productivity services group. A soil-specific nutrient management guideline booklet is available for the South Johnstone district on the SRA website sugarresearch.com.au

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.

### Central

Variety	Early sugar	Mid sugar	Late sugar
Q252 <sup>()</sup>	Average	Good	Good
Q249 <sup>()</sup>	Average	Average	Average
Q247 <sup>()</sup>	Average	Average	Average
Q242 <sup>()</sup>	Good	Good	Good
Q240 <sup>()</sup>	Average	Good	Good
Q238 <sup>()</sup>	Good	Good	Good
Q232 <sup>()</sup>	Average	Average	Average
KQ228 <sup>⊕</sup>	Good	Good	Poor
Q226 <sup>()</sup>	Average	Average	Average
Q212 <sup>()</sup>	Poor	Poor	Average
Q209 <sup>()</sup>	Average	Average	Average
Q208 <sup>(b)</sup>	Good	Good	Good
Q200 <sup>()</sup>	Average	Good	Good
Q190 <sup>()</sup>	Poor	Poor	Poor
Q183 <sup>()</sup>	Average	Good	Good
Q177 <sup>()</sup>	Average	Poor	Poor
Q171 <sup>()</sup>	Average	Poor	Poor
Q138	Poor	Poor	Poor
Q135	Poor	Average	Good
Q96	Average	Average	Average
SP80-1816	Poor	Average	Average

### Burdekin

Variety	Early sugar	Mid sugar	Late sugar
SRA8	Good	Good	Good
Q253 <sup>()</sup> *	Poor	Poor	Poor
Q252 <sup>()</sup>	Average	Good	Good
Q247 <sup>()</sup>	Average	Average	Average
Q240 <sup>()</sup>	Average	Average	Average
Q238 <sup>()</sup>	Poor	Poor	Poor
Q232 <sup>()</sup>	Poor	Poor	Poor
KQ228 <sup>()</sup>	Good	Good	Average
Q208 <sup>()</sup>	Average	Good	Good
Q200 <sup>()</sup>	Poor	Average	Good
Q183 <sup>()</sup>	Average	Good	Good
Q133	Poor	Poor	Average

\* = harvest mid-late season for optimal maturity



*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.

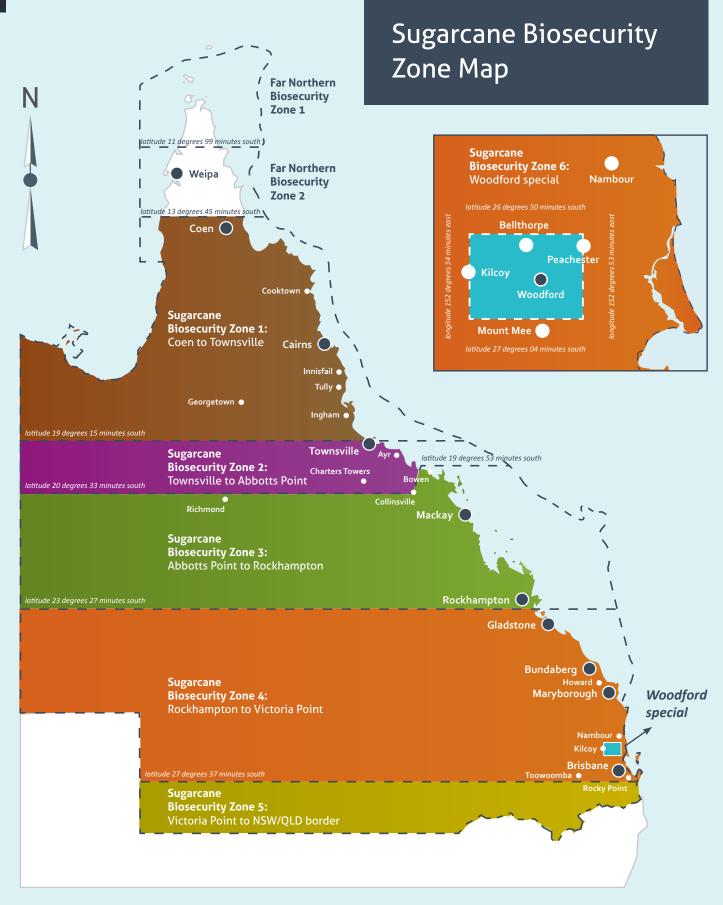
This chart is useful for matching a variety to a particular field situation. For example, if a field has a drainage problem, then select a variety with some tolerance to waterlogging.

### Central

Variety	Fast and reliable germination	Drought tolerance	Tolerance to waterlogging	Frost tolerance	Ratooning after early harvest	Ratooning after late harvest
Q252 <sup>()</sup>	Average	Average	Unknown	Unknown	Unknown	Unknown
Q249 <sup>(b)</sup>	Average	Average	Average	Unknown	Average	Average
Q247 <sup>(b)</sup>	Average	Poor	Unknown	Unknown	Unknown	Unknown
Q242 <sup>(b)</sup>	Good	Good	Good	Unknown	Good	Good
Q240 <sup>(b)</sup>	Good	Average	Average	Good	Good	Good
Q238 <sup>()</sup>	Good	Average	Poor	Average	Good	Average
Q232 <sup>()</sup>	Average	Average	Good	Average	Good	Poor
KQ228 <sup>()</sup>	Good	Average	Poor	Good	Good	Average
Q226 <sup>(b)</sup>	Good	Average	Poor	Average	Average	Average
Q212 <sup>()</sup>	Good	Average	Average	Average	Good	Average
Q209 <sup>()</sup>	Average	Average	Average	Average	Average	Average
Q208 <sup>()</sup>	Average	Average	Good	Good	Average	Good
Q200 <sup>()</sup>	Average	Poor	Average	Poor	Average	Average
Q190 <sup>()</sup>	Good	Poor	Good	Average	Good	Poor
Q183 <sup>(b)</sup>	Good	Poor	Poor	Average	Average	Good
Q177 <sup>()</sup>	Average	Poor	Poor	Unknown	Average	Average
Q171 <sup>()</sup>	Average	Average	Average	Unknown	Good	Average
Q138	Average	Good	Average	Poor	Average	Average
Q135	Average	Poor	Poor	Good	Average	Average
Q96	Average	Poor	Poor	Average	Poor	Poor
SP80-1816	Average	Average	Good	Unknown	Good	Good

### Burdekin

Variety	Fast and reliable germination	Fast and reliable ratooning in harsh conditions	Tolerance to waterlogging	Tolerance to wind damage
SRA8	Average	Unknown	Unknown	Average
Q253 <sup>()</sup>	Good	Unknown	Unknown	Unknown
Q252 <sup>()</sup>	Average	Unknown	Unknown	Unknown
Q247 <sup>()</sup>	Average	Unknown	Poor	Unknown
Q240 <sup>(b)</sup>	Good	Unknown	Unknown	Unknown
Q238 <sup>(b)</sup>	Average	Unknown	Unknown	Unknown
Q232 <sup>()</sup>	Average	Average	Unknown	Average
KQ228 <sup>()</sup>	Good	Good	Average	Average
Q208 <sup>()</sup>	Average	Average	Poor	Good
Q200 <sup>()</sup>	Average	Poor	Average	Poor
Q183 <sup>(h)</sup>	Good	Good	Good	Poor
Q133	Good	Good	Average	Average



- 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 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).

# Planting & 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 stooling out 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.
- Pre-emergent herbicides can be used.
- Do not use diuron as young plantlets are sensitive to this product.
- Do not use paraquat unless you have no other option and only on established plantings.
- Established plantlets can be treated with the same chemicals as the ratoons on your farm. Label rates of S-metolachlor plus atrazine have been applied successfully over the top after planting. For example, in SRA field trials we used Atradex<sup>®</sup> at 2.5 kg/ha plus Dual Gold<sup>®</sup> at 1.5 L/ha for grasses and broadleaf weeds and also Sempra<sup>®</sup> at 100 g/ha plus Activator at 200 mL/100 L for nutgrass. Both applications were sprayed over the top after planting.

### QCANESelect™

- Using sugarcane varieties that are best-suited to your crop may help maximise its productivity and profitability.
- QCANESelect<sup>™</sup> is an online tool that allows you to review, compare and select varieties for use on each block on your farm.
- To access QCANESelect<sup>™</sup> and the tissue culture calculator visit the SRA website www.sugarresearch.com.au
- The information in QCANESelect<sup>™</sup> 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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