

# SRDC Grower Group Innovation Project

## Final Report

**SRDC project number:** GGP006

**Project title:** Precision farming with controlled traffic and GPS guidance system

**Group name:** Septimus Farming Group

**Contact person:** Colin & Georgina Vassallo Ph/Fax(07) 49585641

**Due date for report:** 1/5/07

**Funding Statement:** This project was conducted by Septimus Farming Group in association with the Sugar Research and Development Corporation (SRDC).  
SRDC invests funds for sugar R&D derived from the sugar industry and the Australian Government.



**Australian Government**

**Sugar Research and  
Development Corporation**

The Septimus Farming Group is not a partner, joint venturer, employee or agent of SRDC and has no authority to legally bind SRDC, in any publication of substantive details or results of this Project.

## **SRDC Grower Group Innovation Project Milestone Report**

<b>SRDC project number:</b>	GG P006
<b>Project title:</b>	Precision farming with controlled traffic and GPS guidance system
<b>Group name:</b>	Septimus farming Group
<b>Contact person:</b>	Colin & Georgina Vassallo
<b>Milestone number:</b>	5
<b>Due date for milestone:</b>	1/5/07
<b>SRDC Funding:</b>	33,000
<b>Work plan criteria:</b>	Final Report that will include details on: a) Communication & promotion of outcomes of trials and technology adoption including farm walks, field days and articles in Industry magazines (eg., BSES Bulletin, Aust. CANEGROWER); b) Results of economic comparisons of 1.5 Vs 1.8 metres (also promoted widely); and c) Purchase GPS for harvester in preparation for 2007 harvest.

### **Milestone Achievement:**

(Outline evidence to confirm the achievement of the Milestone, including key achievements, an overview of data collected and/or other relevant results. Give reasons if any aspect of the Milestone was not achieved)

- **Harvester GPS**

Purchase GPS for harvester in preparation for 2007 harvest.

An AgGuide GPS 2cm hands free system was purchased and installed on 11<sup>th</sup> September 2006. As the 2006 crushing season was still in progress we were able to trial the system in the cane harvester, and were able to rectify some technical problems that we overcome. We now have the cane harvester GPS ready for the 2007 crushing season.

On Wednesday 14<sup>th</sup> February 2007 Septimus Farming Group Held a shed meeting/field day at Colin Vassallo's shed, the results of the variety trials and comparison trials between 1.5m v 1.8m systems was circulated to growers. The methods and technology was adopted communicated and demonstrated.

Variety trials and comparison trials created interest among the growers sparking a long discussion about the variety selection and the comparisons between 1.5m v 1.8m. A discussion was promoted on the different methods used including GPS 2cm technology, with some growers expressing an interest in adopting the new farming system.

On Thursday 8<sup>th</sup> March 2007 a controlled traffic workshop conducted by future cane was held in Mackay. The purpose of the workshop was to inform our R&D personal in the sugar industry of the positives and negatives of controlled traffic using permanent mounds. Colin was invited to be a guest speaker to highlight the difficulties and problems that need addressing. The input was appreciated and accepted by R&D representatives region wide.

The Septimus Farming Group will be attending a SRDC workshop in Mackay on 30<sup>th</sup> April 2007 outlining the aims, project achievements and presentation.

17<sup>th</sup> & 18<sup>th</sup> May 2007 Septimus Farming Group are planning with other SRDC grower groups, to hold an information and presentation tent at the Mackay BSES field days. Growers will have the opportunity to gain information and outcomes directly from the grower groups, about the projects innovative approach to R&D. It is expected to have an attendance of 1,500 growers from all areas of the sugar industry.

## **Body of Report**

### **Executive Summary:**

(An overview of the aim, conduct, key results and learnings from the project. Maximum 500 words)

After working with the Central Region new farming system grower group we decided to take the system to the next level and implement GPS guidance and precision. Our aim was to overcome the problems associated with converting from 1.5 metres conventional to 1.83 meters controlled traffic using GPS guidance, bed forming, minimum tillage, break crops and converting existing equipment to the new system. Some equipment needed to be invented as we proceeded with the new system.

The learning from the project was that the 1.83m controlled traffic system needs to be established in a conventional way, rather than preformed beds. The cane needs to be planted deep into the soil, rather than on mounds to establish the stool deep in the soil, into the moisture zone.

GPS guidance is of great assistance to establish true control traffic farming.

### **Background:**

(Why did you need to do this project?)

After researching into the new farming system, it was decided that this system could deliver efficiencies and productivity increases. As a group we needed to overcome the problems associated with the conversion from 1.5m conventional to 1.83m controlled traffic. It was also decided that GPS guidance would be instrumental in the new system.

The New Farming System was unknown to the majority of growers in the Pioneer Valley. This project would demonstrate to growers the positives and negatives in the new farming systems, machinery modifications as well as GPS guidance implementation. There was an opportunity to apply for SRDC funding to develop and modify machinery to convert to the controlled traffic system and develop a GPS system that is suitable for the sugar industry.

**Aims:**

(Include the Aim and the expected benefits that were listed in Section 2 of your original Application)

Our aim was to overcome the problems associated with converting from 1.5 metres conventional to 1.8 metres controlled traffic using GPS guidance, bed forming, minimum tillage, break crops and converting existing equipment to the new system.

- (1) Implement, perfect and refine controlled traffic farming system utilising all available technology including GPS guidance for all aspects of farm operations, double disc opener planter and legume break crops management.
- (2) Demonstrate to the industry in a wider area through the media, farm walk, and the benefits of this controlled traffic.

2. a) Source, trial and install GPS. Identify cost effective and suitable GPS system. b) Report on agreed designs and plans for undertaking the variety and cost of production trials that will allow valid comparisons of 1.8m and 1.5m systems.
3. a) Modify or purchase required equipment to refine new farming system. Modify high rise spray tractor-\$30,000 Bedformer-\$5,000 Modify cane planter front-\$17,000 Modify fertiliser box-\$4,000 Develop soybean organic placement machine-\$5,000 Bed shaper-\$6,000 Modify planter tipper bins-\$5,000 Modify cultivation gear-\$10,000 b) Establish Variety trial-\$2,000 c) Establish cost of production trial-\$3,000. d) Trial GPS with implements. Refine use of GPS for commercial application.
4. Modify harvester front. Harvest variety trial. Harvest cost of production trial.
5. Final Report that will include details on: a) Communication & promotion of outcomes of trials and technology adoption including farm walks, field days and articles in Industry magazines (eg., BSES Bulletin, Aust. CANEGROWER); b) Results of economic comparisons of 1.5 Vs 1.8 metres (also promoted widely); and c) Purchase GPS for harvester in preparation for 2007 harvest.

• **The economic benefits**

1. Cost of production
2. Field efficiency
3. Compaction
4. Maximize water infiltration
5. Soil health
6. Potential variable rate applications of inputs

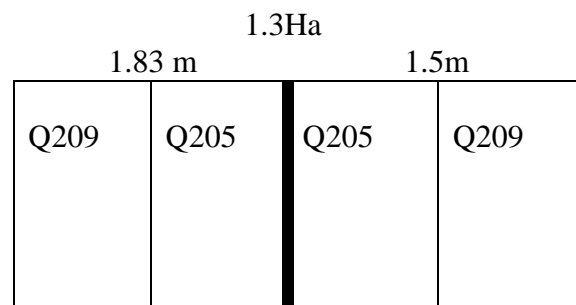
**Methodology:**

(How was the project conducted?)

Variety trial was planned and planted on 4/5/05 with the help of BSES staff for the layout and variety selection. This trial was planted using new farming system double disc opener planter.

Plot					
6	Q208	QC98-6365	Q209	QC98-572	QC98-455
5	Q200	Q170	QC90-823	Q157	Q207
4	Q190	QC98-363	Q185	Q205	Q221
3	Q209	Q221	Q157	QC98-363	Q200
2	Q205	QC90-823	Q190	Q207	QC98-6365
1	Q170	QC98-572	QC98-455	Q208	Q185
Row>	1-4	5-8	9-12	13-16	17-20

Cost of production trial 1.3 hectares was planned by the project manager and planted on the 22/5/05. The trial was overseen by BSES in conjunction with New Farming System Group, for valid comparisons of 1.5m and 1.8m systems. It anticipated collecting all relevant information for all cultivation costs, labour cost, and time per hectare to compare the two systems side by side. The soil type in the trial is podsolic.



**Results and Outputs:**

(What results were produced by the Project? The results should include data collected, articles or reports written, events held and anything else you see as relevant to the industry. Relevant files including photographs should be provided on a CD. If there is any protected Project Technology, eg information that has been kept confidential, such as equipment specifications, patentable knowledge please outline and discuss this with SRDC)

After using AgGuide GPS system for 2 years we have found its operation to be user friendly, and is able to operate around hills and trees and still have 2cm accuracy. The AgGuide GPS system has allowed us to survey the entire farm, allowing the planning for longer rows, larger fields, fewer headlands as well as parallel paddocks eliminating short rows on the sides of paddocks.

AgGuide have being willing and able to work with us to eliminate programme problems and promote upgrades to suit the sugar industry.

The GPS in the cane harvester was installed towards the end of the 2006 season and again any problems have been sorted out and are operating successfully.

- EHS Manufacturing Pty Ltd were employed to work on the high rise spray tractor to implement our ideas to suit 1.5m and 1.83m row spacing with the boom being converted by ourselves. This innovation has been successful; this high rise spray tractor can spray conventional 1.5m and 1.83m controlled traffic in the conversion years.

By doing this it has provided the local industry a much needed option for maintaining a herbicide program in the conversion years. It has also provided EHS Manufacturing Pty Ltd with the knowledge and ability to provide this service to other growers.

- Bed former fabricated from existing farm machinery to form mounds prior to planting. The mounds look and were even to each other when mounded, however at planting time we found the mounds to be uneven in height from the soil settling, causing problems with billet depth when planting.
- The modified cane planter fitted with double disk openers has been operating successfully.
- The fertiliser box was modified to allow fertilising in row spacing of 1.5m and 1.83m rows successfully being able to convert between the row spacings.
- A soybean organic placement machine was manufactured and trialed. The soybean was pushed on top of the mound and cut off in one operation, resulting with the organic material left on top of the mound. However this caused problems when planting with the double disc opener cane planter.
- Bed shaper was fabricated from existing farm machinery, to repair eroded and sunken mounds prior to planting. Only limited success was gained from this implement, however in some soils the bed shaper was necessary.
- Modify planter tipper bins. The tipper bins were uneconomical to convert and unnecessary, however it was found that an extension conveyor was needed to extend the elevator on the Cameco harvester, and also a bin flap was invented on the conveyor to direct the billets for full control. The cane extension conveyor and fittings was purchased on 10/3/06 for \$6,183.73.
- An existing ripper was modified with wing tips for zonal ripping before beds were formed.
- Modify cultivation gear. A three-legged ripper modified with wings to rip only bedded area. Bed former modifications and alternations to allow uniform beds in different soil types. Four tractors converted to 1.83 metre wheel spacings with no modifications necessary.
- **Modify Harvester Front:**  
It was decided to upgrade the cane harvester to a 2003 Cameco, this machine has the BSES front as standard equipment. The harvester was able to handle all crops of dual row harvested on the property without difficulty during 2006 season.
- **Harvest Variety Trial:**  
Variety trial was harvested 19 Oct 2006 using the Cameco cane harvester and BSES weigh truck to provide accurate results. Attached an electronic copy of Colin Vassallo Variety Trial 1.83m dual row results.
- **Harvest Cost of Production Trial:**  
21/10/06 the comparison trial was harvested using BSES weigh truck for back up results. Economic Analysis costs prepared by Sarah Miotto of Department of Primary Industries & Fisheries. Attached an electronic copy of Colin & Georgina Vassallo Septimus Farming Group row spacing trial 1.5m v 1.83m cost of production results. Summary of Economic Analysis and farm gate value difference per hectare below.

	1.83m		1.5m	
Variety	Q209	Q205	Q205	Q209
Farm gate Value	\$3091	\$3288	\$3958	\$3499
	Average \$3189.50		Average \$3728.50	
	Economic Analysis \$1736.10		Economic Analysis \$1766.10	
	-\$509			

### **Capacity Building:**

(How has the Group's capacity to conduct R&D and implement better farming systems been enhanced?)

The Septimus Farming Group has gained the knowledge and experience to conduct R&D in the proper manner that will enhance the sugar industry, through better farming systems gained from the knowledge and experiences from a controlled traffic and GPS guidance systems that have been implemented on farm.

### **Outcomes:**

(What benefits have been achieved or are expected from the project, and what more has to happen to get the full benefit from the project? How do the expected benefits compare with those predicted at the start of the project, as outlined in the Application?)

The cost of production conducted in the project has resulted in 1.5m with less cost of production than 1.83m system, while there is a better field efficiency and less soil compaction in 1.83m.

Soil erosion water infiltration and herbicides has been a major issue in permanent beds.

GPS guidance systems is able to reduce cane loss in lodged blocks, increase pour rate, reduce stool damage, reduce compaction zone and reduce driver fatigue.

Again by implementing and adopting this technology the Septimus Farming Group has secured its economical viability. The benefits of GPS Guidance would allow the inclusion of the final aspect of the New Farming System, i.e. controlled traffic farming.

### **Cost of production losses in the performance of 1.83m was caused by:**

- Permanent beds held less moisture content
- Uniformed beds are difficult to achieve.
- Less water infiltration, water running off paddock.
- Soil erosion.
- Potential herbicide and nutrient run off.
- Thin cane stalks.
- Increases extraneous matter in the mill bin
- Increased cane losses in the primary extractor.
- Average bin weight lighter. (increasing hauling out trips to the cane siding)

### **Environmental Impact:**

(Outline any adverse or beneficial environmental impacts of conducting the Project and/or implementing its findings)

- Soil erosion has been observed in 1.83m system.
- Water runoff in 1.83m system.
- Potential herbicide and nutrient runoff in 1.83m system
- Rat activity in 1.83m permanent mounds caused a disturbance of the mound.

### **Communication and Adoption of Outputs:**

(Outline any communication activities that have been conducted and any that are planned. How has SRDC been acknowledged or involved? Have any lessons from the project been applied by members of the Group, or others?)

#### **The out comes were promoted at shed meetings, workshops, bus trips and field days**

- 22/2/06 Shed meeting/farm walk
  - 21/3/06 Information bus trip/field day/farm walk
  - 4/4/06 SRDC workshop
  - 19/8/06 Address New Farming Systems Group workshop Mackay
  - 14/2/07 Shed meeting/ Field day Col Vassallo's shed
  - 8/3/07 Future cane workshop Mackay
  - 30/4/07 SRDC workshop Septimus Farming Group presentation
  - 17<sup>th</sup> & 18<sup>th</sup> May 2007 BSES field days Septimus Farming Group information & presentation
  - Issue (7) 2005 BSES Bulletin
  - 18/12/06 Australian Cane Grower
- 
- Growers and Contractors from areas throughout Queensland and NSW have contacted the project manager to gain information, so they can proceed in the right direction towards GPS systems, planter operations, harvesting with GPS and bed forming, reducing their cost towards the change to the new farming system.

### **Recommendations:**

(What recommendations would you make as a result of the project, including suggestions for further research and development?)

After two years observations and collecting data from cost of production trial for the conversion from the 1.5m conventional to 1.83m controlled traffic system. The establishment of permanent mounds is not recommended at this stage, rather planting in 1.83m controlled traffic system is better established conventionally. It is advisable to have a suitable and efficient GPS system in place. There is a need for further R&D in the establishment of permanent beds for a controlled traffic system, further R&D towards chemical and water runoff.

Existing Varieties appear to be unsuitable for the 1.83m system and needs to have R&D on farm trials established.

### **Publications:**

(List and attach copies (electronically if possible) of all articles, newsletters and other publications from the project.)

BSES bulletin issue 7: 2005

New Farming Systems: Central district growers taking up the challenge.

Pages 20/21 Vassallo Family, Septimus.

Australian Cane Grower

18<sup>th</sup> December 2006 Vol 28, No. 25 page 21

Grower hoping for better yields with precision ag



## Summary of Economic Analysis

### **GPP 006 – Precision Farming with Controlled Traffic & GPS Guidance System**

	<b>\$/ha</b>	<b>hrs/ha</b>
1.5 m plant cane with soybean rotation	1766.10*	23.06
1.83 m plant cane with soybean rotation	1736.10*	10.15

\*Exclusive of labour costs

- Note the significant time savings between the two systems with almost 13 hours less per hectare under the 1.83 m row spacing system.

### Key Points for Your Consideration

- **Nitrogen Application on Plant Cane crop:** Under the Integrated Farming Systems' fallow legume program, nitrogen application on the following plant cane crop is not generally required. Legume crop variability influenced by weather conditions may necessitate the use of nitrogen in some circumstances.
- **Cane Planting Rate:** Cane planting rate under the Integrated Farming Systems is an issue which is undergoing research and investigation. Cane tillering dynamics is being investigated to determine appropriate cane planting rates.

*Costs prepared by Sarah Miotto of Department of Primary Industries & Fisheries using the Farm Economic Analysis Tool. Results are based on the records and estimates provided by Colin & Georgina Vassallo. Results will vary depending on each grower's situation and farming practice. Growers need to calculate their own actual input costs for realistic outcomes*

**Economic Analysis – GPP Precision Farming with Controlled Traffic and GPS Guidance System (Septimus Farming Group)**

**1.5m Row Spacing Costs of Production – Plant Cane Following Green Manure Soybean Rotation**

1.5m trial area: 0.64 ha

<b>Machinery Operations (FORM*) Prior to Soybean</b>					
Activity	Tractor hp	Operations	\$/ha	hrs/ha	
Offset	120	1	10.84	0.78	
Offset	160	2	28.18	1.56	
<b>Total</b>			<b>39.02</b>	<b>2.34</b>	
<b>Weed Control (Prior to Soybean)</b>					
	Application/s	Rate	\$/unit	\$/ha	hrs/ha
Roundup PowerMax	1	4L / ha	9.00 / L	36.00	-
Spray Operation (FORM)	1	-	-	2.00	0.39
<b>Total</b>				<b>38.00</b>	<b>0.39</b>
<b>Soybean Planting</b>					
	Rate	\$/unit	\$/ha	hrs/ha	
Seed	51 kg/ha	1.31 / kg	66.81	-	
Planting Operation (FORM)	-	-	3.28	0.39	
<b>Total</b>			<b>70.09</b>	<b>0.39</b>	
<b>Soybean Sprayout</b>					
	Application/s	Rate	\$/unit	\$/ha	hrs/ha
Roundup PowerMax	1	4L / ha	9.00 / L	36.00	-
Spray Operation (FORM)	1	-	-	2.00	0.39
<b>Total</b>				<b>38.00</b>	<b>0.39</b>
<b>Machinery Operations (FORM) Plant Cane</b>					
Activity	Tractor hp	Operations	\$/ha	hrs/ha	
Offset	160	2	28.26	1.56	
Rip	160	1	36.44	1.54	
Rotary Hoe	120	1	38.92	2.38	
Mark Out	62	1	4.43	.78	
Cutaway	62	4	40.80	6.24	
Grubbing	100	3	22.92	2.34	
<b>Total</b>			<b>171.77</b>	<b>14.84</b>	
<b>Cane Planting</b>					
	Amount (t/ha)	\$/unit	\$/ha	hrs/ha	
Plant cane material	9	28.64 / t	257.76	-	
Harvest plant cane	9	6.00 / t	54.00	-	
Planting Operation (FORM)			35.18	3.14	
<b>Total</b>			<b>346.94</b>	<b>3.14</b>	

\*FORM – Fuel, Oil, Repairs & Maintenance (Fuel price after rebate – \$0.68c/L)

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<b>Fertiliser (Cane)</b>					
	<b>Application/s</b>	<b>Rate</b>	<b>\$/unit</b>	<b>\$/ha</b>	<b>hrs/ha</b>
DAP (applied @ planting)	1	216 kg/ha	560.00/t	120.96	-
Fertiliser Just Blend	1	494 kg/ha	430.00/t	212.42	-
Fertiliser Application (FORM)	1	-	-	6.54	0.78
<b>Total</b>				<b>339.92</b>	<b>0.78</b>
<b>Weed Management (Cane)</b>					
	<b>Application/s</b>	<b>Rate</b>	<b>\$/unit</b>	<b>\$/ha</b>	<b>hrs/ha</b>
Velpar	1	3 kg/ha	20.55 / kg	61.65	-
Spray Operation (FORM)	1	-	-	3.81	0.79
<b>Total</b>				<b>65.46</b>	<b>0.79</b>
<b>Pest Management (Cane)</b>					
	<b>Application/s</b>	<b>Rate</b>	<b>\$/unit</b>	<b>\$/ha</b>	<b>hrs/ha</b>
Regent (applied @ planting)	1	50 ml/ha	330.00 / L	16.50	-
Suscon Blue (applied @ planting)	1	18 kg/ha	13.00 / kg	234.00	-
<b>Total</b>				<b>250.50</b>	<b>-</b>
<b>Fungicide Management (Cane)</b>					
	<b>Application/s</b>	<b>Rate</b>	<b>\$/unit</b>	<b>\$/ha</b>	<b>hrs/ha</b>
Cane Sett Treatment (@ planting)	1	150 ml / ha	640.00 / L	96.00	-
<b>Total</b>				<b>96.00</b>	<b>-</b>
<b>Irrigation (Cane)</b>					
		<b>Total Water Applied</b>	<b>\$/ML</b>	<b>\$/ha</b>	<b>hrs/ha</b>
6 x Irrigations		3.20 ML / ha	97.00	310.40	-
<b>Total</b>				<b>310.40</b>	<b>-</b>
<b>Total Variable Expenses (excluding labour costs)</b>				<b>\$1766.10</b>	<b>23.06</b>

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**Economic Analysis – GPP006 Precision Farming with Controlled Traffic and GPS Guidance System**

**1.83m Row Spacing Costs of Production – Plant Cane Following Green Manure Soybean Rotation**

1.83m trial area: 0.64 ha

<b>Machinery Operations (FORM*) Prior to Soybean</b>					
Activity	Tractor hp	Operations	\$/ha	hrs/ha	
Offset	120	1	10.84	0.78	
Offset	160	2	28.18	1.56	
Markout	62	1	4.45	0.79	
Rip	160	1	18.48	0.78	
Mound	100	2	15.23	1.56	
<b>Total</b>			<b>77.18</b>	<b>5.47</b>	
<b>Weed Control (Prior to Soybean)</b>					
	Application/s	Rate	\$/unit	\$/ha	hrs/ha
Roundup PowerMax	1	4L / ha	9.00 / L	36.00	-
Spray Operation (FORM)	1	-	-	2.00	0.39
<b>Total</b>				<b>38.00</b>	<b>0.39</b>
<b>Soybean Planting</b>					
		Rate	\$/unit	\$/ha	hrs/ha
Seed		51 kg/ha	1.31 / kg	66.81	-
Planting Operation (FORM)		-	-	3.28	0.39
<b>Total</b>				<b>70.09</b>	<b>0.39</b>
<b>Soybean Sprayout</b>					
	Application/s	Rate	\$/unit	\$/ha	hrs/ha
Roundup PowerMax	1	4L / ha	9.00 / L	36.00	-
Spray Operation (FORM)	1	-	-	2.00	0.39
<b>Total</b>				<b>38.00</b>	<b>0.39</b>
<b>Cane Planting</b>					
		Amount (t/ha)	\$/unit	\$/ha	hrs/ha
Plant cane material		11	28.64 / t	315.04	-
Harvest plant cane		11	6.00 / t	66.00	-
Planting Operation (FORM)				17.37	1.55
<b>Total</b>				<b>398.41</b>	<b>1.55</b>
<b>Fertiliser (Cane)</b>					
	Application/s	Rate	\$/unit	\$/ha	hrs/ha
DAP (applied @ planting)	1	216 kg/ha	560.00/t	120.96	-
Fertiliser Just Blend	1	494 kg/ha	430.00/t	212.42	-
Fertiliser Application (FORM)	1	-	-	6.54	0.78
<b>Total</b>				<b>339.92</b>	<b>0.78</b>

\*FORM – Fuel, Oil, Repairs & Maintenance (Fuel price after rebate – \$0.68c/L)

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<b>Weed Management (Cane)</b>					
	<b>Application/s</b>	<b>Rate</b>	<b>\$/unit</b>	<b>\$/ha</b>	<b>hrs/ha</b>
Velpar	1	3 kg/ha	20.55 / kg	61.65	-
Spray Operation (FORM)	1	-	-	3.99	0.79
Stomp	1	3.3 L/ha	12.26 / L	40.46	-
Atradex	1	1 kg/ha	10.66 / kg	10.06	-
Spray Operation (FORM)	1	-	-	1.87	0.39
<b>Total</b>				<b>118.03</b>	<b>1.18</b>
<b>Pest Management (Cane)</b>					
	<b>Application/s</b>	<b>Rate</b>	<b>\$/unit</b>	<b>\$/ha</b>	<b>hrs/ha</b>
Regent (applied @ planting)	1	50 ml/ha	330.00 / L	16.50	-
Suscon Blue (applied @ planting)	1	18 kg/ha	13.00 / kg	234.00	-
<b>Total</b>				<b>250.50</b>	<b>-</b>
<b>Fungicide Management (Cane)</b>					
	<b>Application/s</b>	<b>Rate</b>	<b>\$/unit</b>	<b>\$/ha</b>	<b>hrs/ha</b>
Cane Sett Treatment (@ planting)	1	150 ml / ha	640.00 / L	96.00	-
<b>Total</b>				<b>96.00</b>	<b>-</b>
<b>Irrigation (Cane)</b>					
		<b>Total Water Applied</b>	<b>\$/ML</b>	<b>\$/ha</b>	<b>hrs/ha</b>
6 x Irrigations		3.20 ML / ha	97.00	310.40	-
<b>Total</b>				<b>310.40</b>	<b>-</b>
<b>Total Variable Expenses (excluding labour costs)</b>				<b>1736.53</b>	<b>10.15</b>

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**Col & Georgina Vassallo Septimus Farming Group**  
**Row Spacing Trial 1.5m v 1.83m Harvest date 21 10 2006**

**Small Mill & Weigh truck results**

		Area	Weigh results tons	CCS	TC/ Ha	TS / Ha	Weighed area	\$/ ton	\$/ Ha	Average \$ / Ha	\$/ ton less harvest & Levy	\$/ ha less harvest & Levy
<b>Treatment A 1.5m</b>	<b>Q209PL 1.5m</b>	0.06	6.88	16.52	69.35	11.46	0.0992	39.44	2735.22		31.85	2208.81
	<b>Q205PL 1.5m</b>	0.06	7.67	15.17	80.06	12.15	0.0958	35.19	2817.04	2776.13	27.60	2209.37
<b>Treatment B 1.8m</b>	<b>Q209PL 1.83m</b>	0.07	7.9	15.39	74.18	11.42	0.1065	35.88	2661.41		28.29	2098.40
	<b>Q205PL 1.83m</b>	0.07	8.24	14.425	76.40	11.02	0.1079	32.84	2509.01	2585.21	25.25	1929.11
<b>Difference</b>										<b>-190.92</b>		

### Treatment A 1.5m Q209PL

Split	62%
Sugar price	350
Area harvested	0.24

Variety/paddock	Date	Rake	tonnage	PRS	t sugar	lievies	Harv cost / ton	Farm gate value	Cane value / ton
Q209 PL	21-Oct	939	28.83	16.83%	4.9	11.3	7.2	840	29.12

<b>Total/Average</b>			<b>28.83</b>	<b>16.83%</b>	<b>4.9</b>	<b>11.3</b>	<b>7.2</b>	<b>840</b>	<b>29.12</b>
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<b>Values/ha</b>			<b>120.13</b>		<b>20.2</b>	<b>47.0</b>	<b>864.90</b>	<b>3499</b>	
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### Treatment A 1.5m Q205PL

Split	62%
Sugar price	350
Area harvested	0.25

Variety/paddock	Date	Rake	tonnage	PRS	t sugar	lievies	Harv cost / ton	Farm gate value	Cane value / ton
Q205PL	21-Oct	940	32.82	17.30%	5.7	12.8	7.2	990	30.15

<b>Total/Average</b>			<b>32.82</b>	<b>17.30%</b>	<b>5.7</b>	<b>12.8</b>	<b>7.2</b>	<b>990</b>	<b>30.15</b>
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<b>Values/ha</b>			<b>131.28</b>		<b>22.7</b>	<b>51.4</b>	<b>945.22</b>	<b>3958</b>	
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average

### Treatment B 1.83m Q205PL

Split	62%
Sugar price	350
Area harvested	0.31

Variety/paddock	Date	Rake	tonnage	PRS	t sugar	lievies	Harv cost / ton	Farm gate value	Cane value / ton
Q205 PL	21-Oct	941	36.45	16.30%	5.9	14.3	7.2	1019	27.97

<b>Total/Average</b>			<b>36.45</b>	<b>16.30%</b>	<b>5.9</b>	<b>14.3</b>	<b>7.2</b>	<b>1019</b>	<b>27.97</b>
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<b>Values/ha</b>			<b>117.58</b>		<b>19.2</b>	<b>46.0</b>	<b>846.58</b>	<b>3288</b>	
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### Treatment B 1.83m Q209PI

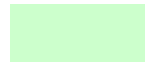
Split	62%
Sugar price	350
Area harvested	0.32

Variety/paddock	Date	Rake	tonnage	PRS	t sugar	lievies	Harv cost / ton	Farm gate value	Cane value / ton
Q209 PL	21-Oct	942	33.96	16.83%	5.7	13.3	7.2	989	29.12

<b>Total/Average</b>			<b>33.96</b>	<b>16.83%</b>	<b>5.7</b>	<b>13.3</b>	<b>7.2</b>	<b>989</b>	<b>29.12</b>
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<b>Values/ha</b>			<b>106.13</b>		<b>17.9</b>	<b>41.5</b>	<b>764.10</b>	<b>3091</b>	
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**\$ / ha less  
Harvest &  
Levy**

2209.09

2013.75

**-195.34**





### Col Vassallo Variety Trial 1.83m duals

