

BSES Limited



**FINAL REPORT SRDC PROJECT BSS271
BUILDING YOUNG FARMERS' CAPACITY FOR CHANGE
IN THE CENTRAL DISTRICT**

**by
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SD05002**

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SUMMARY

In agriculture, young farmers are rapidly becoming a scarce commodity and any encouragement and assistance for existing young farmers will play an important role in the future of that agricultural industry. The sugar industry is no exception, and must assist in capacity building of its young farmers, as they will be the future managers of this industry. As the sugar industry comes to terms with the challenges that face its growers and their survival, the investment in building young farmers' capacity for change will play a vital role in industry sustainability.

This study tour allowed 13 young farmers from the Central Region to investigate, observe and discuss issues that the group had highlighted earlier at a group meeting.

One objective was to develop a understanding of alternative farming systems that were being utilised in the sugar industry. The group visited a 3-m controlled-traffic farming system (CTFS) in the Burdekin area and 1.8-m CTFSs in the Herbert and Gordonvale areas. A component of some farming systems are rotational crops and the aspects and benefits of rotational cropping were highlighted in the Burdekin, Herbert and Meringa areas. The benefits of rotational crops such as soybeans and rockmelons in soil health, advantages and cash returns were investigated in this study tour. Another objective of this group was to investigate water-quality monitoring and visit a sampling site and how this monitoring is conducted. The study tour also visited BSES Meringa to observe plant-breeding work conducted at the station. A key component of this study tour was the interaction with the Herbert River young farmers' group to discuss activities conducted by that group, particularly their study tour to New South Wales.

The study tour was evaluated in pre-tour and post-tour questionnaires and a feedback sheet. The participants rated the study tour very successful, with knowledge, understanding and attitude change documented. Building capacity of the young farmer group has been achieved, with the majority of the study-tour objectives clearly demonstrating an improvement in the post-tour questionnaire relative to the pre-tour questionnaire. The feedback results were also very encouraging, with the group participants satisfied that all objectives and expectations were met and that the study tour was worthwhile.

The young farmers in this group have been active for a number of years, but activity declined in the last two years because the downturn in the sugar industry (low sugar price and droughts) has forced members to seek alternative income for survival. The experiences of the study tour have reinvigorated the members of the group and the group is keen to look at the challenge that confronts this industry with optimism that it deserves.

1.0 BACKGROUND

The Brightly Young Farmers' Group was formed in 1999, but has not been very active over the last 2 years due to a lack of focus and off-farm work commitments, such as a takeaway business, growing flowers, part-time work in the local coal industry and BSES Limited, and membership of the Marini Shire Council. Travelling to another sugar area was seen as a way of invigorating the group by providing a focus for activities.

All members want to survive the current downturn in the sugar industry and will be future managers of their sugar-growing businesses. They know that management skills and innovation are needed for survival in the sugar industry. It was hoped that the Herbert Young Farmers' Group (SRDC project HYF001) could contribute to the Brightly Young Farmers' Group their experiences of their study tour into New South Wales. The Brightly Group also wanted to explore growing high-value crops in rotation with sugarcane and farming systems that will reduce costs or improve production.

2.0 OBJECTIVES

The proposal was for 10 farmers from the Brightly Young Farmers' Group and four young farmers from Proserpine to travel to northern Queensland sugar areas to build capacity to learn and innovate.

The objectives were:

- Build capacity for change in young farmers;
- Develop knowledge of alternative farming systems;
- Assess how water-quality issues will affect growers in the future;
- Evaluate advantages of rotational crops in sugar;
- Evaluate and adopt leanings from farmers in northern Queensland, especially the Herbert River Young Farmers' Group and their study tour to New South Wales.

These objectives were met in full as detailed in the summary below and the associated evaluations.

3.0 ITINERARY AND PEOPLE MET

Thirteen young farmers from the Mackay and Proserpine areas and one BSES extension officer took part in the tour: Andrew Vassallo; Trease Vassallo; Mark Craig; Kim Craig; Stephen Neil; Dianne Neil; Chris Blackburn; Madonna Blackburn; Steve Said; Sandra Said; Mark Orr; Andrew Auld; Bill Lade; Nathan Price BSES. The tour was organised by Joe Muscat, BSES BMP Officer.

The detailed itinerary is given in the table below. The group visited:

- the Burdekin to see cane on 3-m row spacings and alternate cropping;

- Ingham to see farming-systems research, rotational crops and discuss water-quality and to socialise with the Ingham Young Farmers' group;
- Meringa district to see Plant Breeding and NIR research and farming systems using 1.8 m rows and rotational cropping using soybeans under commercial conditions.

Date	Time	Activities
Tuesday 22/02/2005	7.30am – 11.30am 12.30pm – 2.30pm 3.00pm – 5.00pm 5.00pm -6.00pm	Travelled BSES Mackay to Burdekin Visited David Cox → Farming systems (3 m) Rapisardo farms → Alternate cropping Travelled Burdekin to Townsville
Wednesday 23/02/2005	8.00am - 9.00am 9.00am – 3.30pm 3.30 pm – 5.30 pm 6.30 pm – 9.00pm	Travelled Townsville to Ingham Met BSES Ingham → Farming systems, rotational crops and water quality Met Ingham Young Farmers' group BBQ with Young Farmers' group
Thursday 24/02/2005	8.00am – 11.00am 11.00am – 2.30pm 2.30pm – 5.30 pm 5.30 pm – 7.00 pm	Travelled Ingham to Meringa. Met with BSES Meringa → Plant breeding tour Met with Tom Watters → Farming systems and rotational cropping Travelled Meringa to Mission Beach
Friday 25/02/2005	8.00am – 3.00pm	Travelled Mission Beach to Mackay

Profiles of the grower hosts are given in Appendix 1.

4.0 BENEFITS TO INDUSTRY

4.1 Design

The benefits to industry were evaluated in two processes.

The study-tour participants were exposed to a pre-tour questionnaire (Appendix 2) to evaluate their pre-tour knowledge, skills and attitudes relative to the objectives of the study tour. At the completion of the study tour the same questions were asked of the participants, allowing comparison of the responses. The full dataset is available from the author.

- Questions 1, 4, 9 and 10 were evaluated utilising a matrix ranking the written responses from 1 to 10:
 - 1 - No response;
 - 2 - No useful information (may have missed the concept of the question);
 - 3 - Very poor comment (no reason given);
 - 4 - Poor comment (with reasons why);
 - 5 - A general comment (negative approach);
 - 6 - A very general comment (positive approach);
 - 7 - Positive approach with some comment;

- 8 - Good comment;
- 9 - Very good comment with good ideas;
- 10 - Excellent response determining a well thought-out approach.

- Questions 2 ,5 and 7 rated the response from 1 to 5, with 1 being the least important to 5 being the most important.
- Questions 3, 6, and 8 required a *yes, no, not sure* response.

A feedback sheet (Appendix 3) was also designed so that I could evaluate if tour expectations were fulfilled, and identify the participants' current practices and willingness to adopt practice change. Contacts made are also an important component of this study tour, as this would allow further net working to be conducted.

- Questions 1 and 2 asked for a *yes, no, not sure* response.
- Question 3 ranked the response from 1 to 10, with 1 needing improvement to 10 being excellent.
- Question 4 required a numerical response.
- Question 5 also ranked the response from 1 to 10, with 1 requiring no change and 10 prepared to adopt practice change.
- Question 6 asked if the study tour was worthwhile and required the participant to circle a response *Strongly Disagree, Disagree, Unsure, Agree, Strongly Agree*.

4.2 Results

The study tour was successful for two reasons:

- there was documented change to the participant's understanding, knowledge and attitude towards the tour's objectives;
- the group's responses to the study tour expectations were very favourable, with their time well spent.

4.2.1 Questionnaire comparison

Objective 1 - Build capacity for change in young farmers

Q1) RESULT 2.5% improvement, this was to implement practice change and the factors considered.

Q2a) RESULT 1.67% decrease, which represents a decrease in importance to financial returns when considering adopting a farming system approach. This reflects that there would be an understanding of other benefits to the business, like soil health which is a longer term benefit.

Q2b) RESULT 3.33% improvement, (soil health).

Q2c) RESULT 0.83% decrease, related to the short-term benefit, reflecting that when considering a farming system approach, the short-term outlook is only a small component.

Q2d) RESULT 3.33% improvement, (long-term gain).

Q2e) RESULT 10% This was a interesting result, as this represents a large change in attitude to water quality after the exposure to this study tour. I think that this reflects the importance that water quality will have in the farming enterprise that this group now understands will provide long-term viability for their business.

Objective 2 - Develop knowledge of alternative farming systems

Q3) RESULT 92% responded yes to 'can you improve your current farming system?'

Q4) RESULT 14.17% improvement, to identifying the areas of their farming system that could be improved.

Q5a) RESULT 7.5% improvement (soil compaction).

Q5b) RESULT 7.5% improvement (rotation cropping).

Q5c) RESULT 10.83% improvement (minimum tillage practice) This is a large change in attitude towards minimum-till operations and may stem from the realisation that this practice is linked to better soil health.

Q5d) RESULT 2.5% decrease. This represents a reduction in the future adoption of CTFS because the cost of adoption may be too high in the current financial circumstance of the industry. It may also reflect that to achieve the best results this needs to be carried out well (row guidance).

Q5e) RESULT 3.33% improvement (making money from rotational crops).

Q5f) RESULT 0.83% improvement (harvesting practices).

Q5g) RESULT 3.33% improvement (addressing soil pathogens).

Objective 3 – Assess how water-quality issues will affect growers in the future

Q6) RESULT 92% responded yes to 'can our farm practices have a impact on water quality?'

Q7a) RESULT 12.73% improvement, from exposure to the study tour with an increased understanding of the importance of each of these categories.

Q7b) RESULT 8.18% improvement (nutrient application).

Q7c) RESULT 11.82% improvement (farm housekeeping). This is a major change in understanding and attitude and can be interpreted as understanding the implications of WH&S issues.

Q7d) RESULT 3.64% improvement (chemical application).

Q7e) RESULT 1.82% improvement (harvesting practices).

Objective 4 - Evaluate advantages of rotational crops in sugar

Q8) RESULT 59% of group participants responded yes to ‘do rotational crops need to be integrated into a functioning farm system?’, whilst 41% responded that they were not sure. This indicates that there needs to be more focus on the benefits that rotational crops have to offer, such as introducing organic matter, reducing pathogens, nitrogen fixation, alternative income streams, etc. My interpretation of this result would be more on-farm demonstration trials with grower involvement.

Q9) RESULT 5% improvement.

Objective 5 - Evaluate and adopt leanings from farmers in northern Queensland, especially the Herbert River Young Farmers’ Group and their study tour to New South Wales

Q10) RESULT 14.17% improvement is a realisation of the substantial value of communicating with growers with similar outlooks to the sugar industry. One comment made by a group member was that talking with growers that have similar issues gave them great encouragement to carry on.

4.2.2 Feedback sheets

Q1) RESULT 100% responded *yes* to the study tour achieving its objectives, which was very encouraging.

Q2) RESULT 92% responded *yes* to ‘did the study tour meet their expectations’, with one grower saying that they had no expectations.

Q3) RESULT 6.83 ranking. This ranking represents a comparison of the farming system observed on tour and the participant’s own operation. The result of 6.83 indicates that there is certainly room for improvement.

Q4) RESULT An average of 11 new contacts were made for each of the group participants.

Q5a) RESULT 6.42 indicates improvement. This represents a positive change in knowledge and attitude (alternative farming systems).

Q5b) RESULT 7.92 indicates improvement (water-quality issues and how monitoring and collating of results relate to our farming system).

Q5c) RESULT 6 indicates improvement (rotational crops in sugar farming system).

Q5e) RESULT 4.33 indicates improvement (interactions with the Herbert River Young Farmers' group will this influence the operation of your group).

Q6) RESULT 92% of the study tour participants strongly agreed that the study tour was worthwhile.

5.0 COMMUNICATION OF FINDINGS

- News article *Pioneer News* (Appendix 4);
- *BSES Bulletin* article being prepared and scheduled for Issue 3 2005;
- Poster paper being developed for the ASSCT 2006 Conference in Mackay.

6.0 RECOMMENDATIONS ON TRANSFER OF KNOWLEDGE GAINED

Representatives of the Brightly Young Farmers' Group met on 1 April 2005 at BSES Mackay to:

- Recap on the impact of the study tour;
- Discuss the potential of the group;
- Set the next meeting , date time and venue;
- Develop a list of names that will be invited to the next meeting, in a attempt to increase the group size;
- Conduct a activity to determine common interests;
- Develop a work plan of group activities that will transfer the knowledge gained on the tour.

The Young Farmers' Group is struggling with committing to group work because of the time requirement. The off-farm work currently undertaken by group members has taken all their spare time away. This was evidenced by only four of the 13 touring growers attending the meeting.

The next meeting is set for 22 April 2005 at 7.30 pm and will gauge group interest at this point. One option that was discussed was to look at forming a Central Region Young Farmers' Group to spread the learnings from the study tour more widely. This still hopefully happen.

7.0 ACKNOWLEDGMENTS

The study-tour participants acknowledge SRDC for their financial commitment to building capacity of its growers. The study tour is a practical approach for its participants to investigate, observe, ask direct questions, and make new contacts to enhance the decision making process in their farming enterprise.

I also acknowledge BSES Limited for its role and financial input to organising and supporting its staff to allow these study tours to take place, as well conducting station tours of their ongoing work.

We all thank the grower hosts for their support of the study tour concept and for extending their information and experiences.

APPENDIX 1 – GROWER-HOST PROFILES

Welcome to your Study Tour

This study tour will encompass action learning processes from the field trips, observations, and contact with growers, BSES Staff and the Herbert Young Farmers' Group. The study tour objectives are clearly outlining the focus of the farm visits that have been organized.

Please take advantage of the notebook that has been supplied to keep a study tour diary that can provide contact details and a record of observations that have been made.

Please enjoy your study tour.

Below are profiles of the growers that will host our study tour. We will also visit BSES Ingham and conduct farm tours, and view water monitoring that has been conducted at Ingham. At BSES Meringa, we will undertake a tation tour which will encompass plant breeding activities.

GROWER PROFILES

David Cox

David is a cane grower in the Burdekin area and has a production area of 2000 hectares; he harvests 1600 hectares annually and produces 215,000 tones annually. This makes David one of the largest sugar producers in Australia. David incorporates a 3.0 meter controlled traffic farming system which is fully irrigated. David will address the concepts of his farming system before viewing plant and equipment utilized in his farming enterprise. We will conduct a farm tour where David will point out various aspects of his farming enterprise.

Suggested questioning

- Why 3.0 meter row spacing
- What have been the short and long term benefits
- Advantages and disadvantages of a 3-meter farming system
- Is matching row spacing to equipment important
- What delivery rate can he achieve from his harvesting system

Rapasarda Farming

Evan Shannon is the farm manager for Rapasarda farming in the Ayr district. The farming enterprise produces approximately 190000 tons of sugarcane annually. This large scale farming operation has incorporated rockmelons for 25 years in rotation with sugarcane; they also now are producing honeydew melons, pumpkins and other cucurbits.

The farming enterprise utilizes Trimble guidance system mainly associated with the rotation crops, and they also harvest their own cane with two harvester set ups. Their cane planting operation is contracted in, and is a wholestick planting system.

The farm also has an extensive water recycling system

Suggested questioning

- After 25 years of rotational cropping is there evidence of healthier soil structure.
- Why only incorporate guidance in the alternative crops.
- Why utilize a wholestick planting system.
- What tonnes per man are currently being achieved

Brian Tabone

Brian is an integral part of a family farming operation producing up to 12800 tons of sugarcane from their 116 hectare property. Their farming enterprise also consists of a harvesting contract and an estuary charter boat operation.

Brian's farming system incorporates watermelons in rotation with sugarcane. He is also in the process of transferring his row configuration to 2 meter raised beds and dual rows at 600 mm row spacing.

Brian is also chairman of the Herbert River Young Farmers' group, which has 19 active members and has been incorporated. The group has been established since 2000.

Suggested questions

- Why 2 meter beds
- Can rotational crops benefit his bottom line while addressing soil health issues
- Has being a member of a grower group paid any dividends
- Where to from now in regards to the grower group

Tom Watters

Tom is a cane grower in the Gordonvale area in North Queensland he annually produces between 6000 and 7700 tons on his 69 hectare property. Tom has incorporated minimum tillage practices into his farming system for the last six years. He also has a soybean crop rotation program. Tom has been part of a funded project investigating a controlled traffic, high density rotational cropping farming system.

Tom is the far north liaison officer with Future Cane DPI&F, and we will view photos of work conducted in his farming enterprise followed by a farm tour.

Suggested questions

- What evidence have you seen that addresses soil health issues in Tom's farming practices
- Has soybean ever been grown for grain
- Is there a receipt approach which he incorporates within his farming system

APPENDIX 2 – PRE- and POST-TOUR QUESTIONNAIRES

Both questionnaires were the same.

Study Tour Questionnaire

Question 1

To implement change into your farming business what processes do you consider? (eg: financial return, reduced labour, environment benefits, etc)

This question relates to Objective 1-----

Question 2

If you were considering adopting a farming system approach to your business, which areas of the business would impact on your decisions making, how would you rate the responses below.

Rate the responses from 1 → 5 with 1 being the least important to 5 being the most important.

- a) **Financial return. -----**
- b) **Soil health. -----**
- c) **Short term gain. -----**
- d) **Long term gain. -----**
- e) **Water quality. -----**

This question relates to Objective 1

Question 3

Can you improve on your current farming system?

Objective 2

Question 4

If yes can you write down in which specific area that could be improved from your current practices?

This question relates to Objective 2-----

Question 5

What rating would you give to the specific issues in the following responses when considering adoption of a new farming system?

Rate the responses from 1 → 5 with 1 being the least important to 5 being the most important.

- a) Soil compaction.-----
- b) Rotational cropping.-----
- c) Minimum tillage practices.-----
- d) Matching row space to machine width (Controlled Traffic Farming)

- e) Making money from your rotational crop. -----
- f) Harvesting practices. -----
- g) Addressing soil pathogens. -----

This question relates to Objectives 2/3

Question 6

Can our farm practices have an impact on water quality?

This question relates to Objective 3

Question 7

If yes, how would you rate the responses below.

Rate the responses from 1 → 5 with 1 being the least important to 5 being the most important.

- a) Cultivation practices. -----
- b) Nutrient application. -----
- c) Farm housekeeping. -----
- d) Chemical application. -----
- e) Harvesting practices. -----

This question relates to Objective 3

Question 8

Do rotational crops need to be integrated into a functioning farm system?

This question relates to Objective 4-----

Question 9

What benefits are derived from rotational crops within your farming system?

This question relates to Objective 4-----

Question 10

What are the benefits by meeting with young growers from other areas?

This question relates to Objective 5-----

APPENDIX 3 – FEEDBACK SHEET

Study Tour Feedback Sheet

Please circle the responses

Question 1

Do you feel that the study tour objectives have been achieved?

Yes Not sure No

Question 2

Did the study tour meet your expectations?

Yes Not sure No

Question 3

From the field walks conducted and the observation that you made how would you rank your present farming practice?

Needs improvement (1) -→ Excellent (10)

1 2 3 4 5 6 7 8 9 10

Question 4

How many contacts have you made while on this study tour?

Question 5

From the study tour conducted has your knowledge and attitude towards the following categories been influenced?

Could you rank each categories as per below.

No change (1) -→ prepared to adopt practice change (10)

1 2 3 4 5 6 7 8 9 10

Alternative farming systems.

Water Quality issues and how monitoring and collating of results relate to our farming practice.

Rotational crops in sugar cane farming system

From your interactions with the Herbert Young farmers group will this influence the operation of your group

Question 6

Has this study tour been worthwhile?

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
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APPENDIX 4 – PIONEER NEWS ARTICLE**BUILDING CAPACITY TO LEARN AND INNOVATE
– YOUNG FARMERS’ STUDY TOUR**

The Mackay Young Farmers’ Group has recently returned from their study tour of the northern sugar industry. This group of young farmers have been working together for over 10 years where they meet to discuss common issues relevant to their cane growing enterprises. The majority of this group is made up of Brightly growers, although we were lucky enough to have 3 Proserpine growers and 2 Seaforth growers join us, which allowed the exchange of ideas and experiences from other growing regions.

The overall aim of the tour was to build capacity to learn and innovate. Our pre-tour objectives included building capacity for change in young farmers, develop knowledge of alternate farming systems, increase awareness of water quality issues, evaluate advantages of alternate cropping systems and to learn from the outcomes and experiences of the Herbert River Young Farmers Group in Ingham.

After a steady start to the tour with a flat tyre on the bus, we arrived at our first port of call, the Burdekin. Here, the group looked at horticulture in a cane rotation, irrigation systems in place and controlled traffic farming. The group had a great opportunity to see and discuss the advantages and disadvantages of 3-m row spacings, water recycling and guidance systems.

After seeing things on a LARGE scale in the Burdekin, we headed to Ingham BSES to look at soybean grown in rotation with cane, examined trials on controlled traffic, saw some interesting water quality data from the region and discussed the results of a low nitrogen rate trial currently underway by BSES Ingham. This day generated a lot of interest from the group and was topped off by a BBQ dinner with the Herbert River Young Farmers Group. It was a good opportunity for the group to meet likeminded people and discuss how some of the initiatives they have used may be applied to the Mackay Young Farmers Group. Judging from the noise generated in the room that night, it could be classed as a success, right ladies!!

The following day saw us travel to BSES Meringa to look at the plant breeding facilities, some of the canes from years gone by and presentations on NIR data and the process behind breeding new varieties for release. A visit to local grower Tom Watters was a good opportunity to see New Farming Systems trials in the paddock. Tom gave the group a presentation of the trials on his property which included soybean rotations, controlled traffic and high density plantings.

So.....was the study tour a success? Did we meet our objectives?

All members of the group agreed the tour was a success and said it was a very worthwhile couple of days. The group feedback indicates objectives were met and highlighted the willingness of group members to adapt their farming systems to incorporate some of the ideas and innovations observed on the trip.

Thanks must go to SRDC and BSES Limited for the joint sponsorship of the Mackay Young Farmers Study Tour and allowing this to happen.

“Personally it was good to speak to growers who have, for a number of years been on a controlled traffic system, wether it be on 1.6, 1.8 or 2 meter centres with single or dual rows and the benefits of a good fallow crop such as soybean. The discussion with the Ingham BSES on water quality was very informative and also what local farmers are doing to address the issue of water quality, such as silt traps and planting of trees in strategic areas. Also on behalf of the group I would like to thank Nathan from BSES for being such a great host and Joe Muscat from BSES for his time organising the trip”

Andrew Vassallo, member of Mackay Young Farmers Group