



SRDC Research Project Final Report

Enhancing an Economic Way of Doing Business in the Cane Industry

DPI015

Department of Primary Industries & Fisheries

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Funded by the Sugar Research and Development Corporation



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Table of Contents

1.0	EXECUTIVE SUMMARY	3
2.0	BACKGROUND	4
3.0	OBJECTIVES	5
4.0	METHODOLOGY	5
4.1	Agricultural Economist	5
4.2	Literature Search	5
4.3	Project Links Established	6
4.5	Economic Analysis Topics	8
4.6	Project Evaluation Methods	14
4.7	PROJECT COMMUNICATION	15
4.8	PROJECT OUTPUTS	19
4.9	ENVIRONMENTAL AND SOCIAL IMPACTS	20
4.9	EXPECTED OUTCOMES	21
5.0	RECOMMENDATIONS	22
	APPENDIX A	23

1.0 Executive Summary

Economics is often viewed by farmers as complex and time consuming. Economic work in the Australian sugar cane industry had been undertaken in the past but the large majority of this work was not targeted towards growers and was unsuitable for extension purposes. The emphasis over many years has been on farm viability through increased production with little emphasis and support to growers on analysing whole of farm profitability. The sugar industry is currently going through a period of volatile sugar prices, rapidly rising input costs and adjustment to deregulation. The need to focus on farm profitability through the use of economic tools and grower education is critical in maintaining a sustainable sugar cane industry. To remain viable, growers must now concentrate on reducing on-farm costs as well as increasing cane production. The recent introduction of derivative cane pricing mechanisms to growers is another example of the importance in understanding production costs and business profitability over time.

This project aimed at assisting growers to analyse their production costs and identify opportunities to improve profitability through the implementation of sustainable farming systems. Quantifying the economic benefits of farming system changes is instrumental to speeding up grower adoption rate. Providing economic information in an easy to understand format and participatory involvement from growers to develop real life case studies was an important component of this project. Training on economics was also delivered through several forms of media to build on the current knowledge base in the industry and support more informed decision making skills.

An Agricultural Economist was appointed on the 17th of October 2005 to service the Herbert and Burdekin regions. Five grower groups were approached in the Herbert and Burdekin regions to participate in the project. A baseline survey of the grower participants identified the current knowledge gaps, potential training needs and economic topics of interest. Each grower group provided a base for the collection of data on specific economic topics and provided feedback on the presentation of the results.

A total of eleven case study publications were produced on farming system topics identified by the 42 growers involved in the grower groups. The publications included topics such as benchmarking, fallow management, Soybean fallow crops, sugarcane smut, crop gross margins and farming system change. Each publication had direct grower involvement and was based on actual data which assisted in validating the results to other growers. The case study findings were distributed to throughout the Queensland cane industry by use of the Canegrowers Magazine, ASSCT papers and BSES Limited Magazine.

Four field tours were held relating to the economic topics in the Herbert and Burdekin region to combine the agronomy, economic and environmental issues in a field environment. Building industry knowledge capacity is vital component of this project and a series of educational flyers and workshops were developed to promote the use of sound economic principles in the sugar industry. Each flyer and workshop aimed to stimulate growers to think analytically about their cane growing business and make decisions about farm practices using economic information and tools.

The promotion of the Farm Economic Analysis Tool (FEAT) developed by DPI&F was also a critical part of this project. FEAT training and technical support was provided to over 210 growers and industry staff through workshops, field days and one-on-one extension. Since the programs inception the FEAT program has continually evolved with the addition of farm

benchmarking, smut analysis section and the ability to automatically transfer mill data into the program.

During the project linkages were also established with other industry projects to assist with the economic assessment of the trial results. These included the SYDJV project, EPA project, BSES Canegrub Model, Herbert BSES Farming System Trial, Demonstration Farming Project and the Burdekin Alternative Irrigation Project. Acknowledgment is given to the strong collaborative support by BSES Limited, CSR Sugar, Productivity Services, BIFMAC and CSIRO through providing staff resources and use of facilities.

Project evaluation methods included FEAT Industry Survey, grower survey, records of forum attendance and discussion and economic topics survey. Results from the project evaluation methods indicate improved grower knowledge on economic principles and adoption of new farming practices over the period of the project.

2.0 Background

There is not a great deal of appropriate economic information readily available for use by cane farmers in Queensland. Most of the work conducted in the past has not been suitable for extension purposes and as such was not widely distributed or well known to growers. In the past a failure to involve growers in the economic analysis process has led to scepticism about the results and little improvement in farm management skills. There are very few agricultural economists employed in the sugarcane industry and as a result the emphasis on farm level economics has been quite poor. The formal consideration of economics at the research and development level is also limited and is frequently considered after the project has been completed or during the commercial phase of development.

This SRDC funded project targeted these issues through assisting cane farmers to analyse their production costs and identify more profitable and sustainable cane farming practices. Farming systems have changed considerably since the introduction and adoption of findings from the Sugar Yield Decline Joint Venture (SYDJV) which focuses on minimal tillage, controlled traffic and crop rotation. In the past a considerable amount of research and extension effort has focused purely on the agronomic benefits to encourage adoption of these SYDJV principles. Providing growers with a combination of economic, agronomic and environmental information on enhanced farming system practices increases the likelihood of adoption and builds grower knowledge capacity.

An Agricultural Economist was appointed to the FutureCane initiative to provide services to growers in the Herbert and Burdekin region. FutureCane is a joint initiative between the DPI&F and BSES Limited aimed at promoting the adoption of profitable and sustainable farming systems in the sugar industry. Although the primary focus of the project was in the Herbert and Burdekin region, economic services were also provided to growers and industry staff in Tully, Mackay and Bundaberg.

Developing industry knowledge on economic principles and the use of economic tools provides a strong basis for improved decision making skills. Many of the decision making tools developed for the sugar industry are complex and rarely used by farmers. The Farm Economic Analysis Tool (FEAT) developed by FutureCane Initiative aimed to overcome these issues through innovative design and extension support. The FEAT spreadsheet is designed for sugarcane farmers and can be used to evaluate the economic impact of a change in farming practice. The program is easy to use and provides the grower with information on farm gross margin, farm

operating return, return on investment, break-even point and optimal ratooning length. FEAT is not limited to use by farmers and in many cases it has been used by industry researchers and extension officers.

3.0 Objectives

The project objectives include:

1. To increase the level of economic information available to cane farmers to build into their management decision making.
2. To provide this economic information in a range of formats which are easily accessible and understandable to cane farmers.
3. To build cane farmer decision making capacity to use economic/profitability data as well as productivity figures.
4. To support the benchmarking activities being developed in the Burdekin by Burdekin Productivity Services.
5. To provide economic input into external projects titled “Improved Cane Farming Systems”.

Objective four varied slightly from the original proposal because of the Burdekin Productivity Services being unable to secure funding to proceed with the project. Despite the failure to receive funding, benchmarking activities were still completed through DPI015 and were undertaken in conjunction with two Burdekin grower groups. The remaining objectives were successfully completed according to the original proposal.

4.0 Methodology

4.1 Agricultural Economist

Mark Poggio was appointed to the position of agricultural economist with DPI&F on the 17th of October 2005. Mark is based in Ingham and provides services the Herbert and Burdekin regions as part of the DPI015 project objectives.

4.2 Literature Search

A literature search of existing economic analysis material was undertaken to determine the scope of economic information available, potential refinements and current knowledge gaps. The review indicated a limited amount of economic tools and information specifically designed for growers. The number of extension staff available to train growers on economic principles and deliver existing economic tools was also limited and reflected the paucity of economic information. The following was seen as relevant information to this economics project and identified as useful to deliver the project objectives or to assist in developing new material for the sugarcane industry:

- Whole of Farm Costing Analysis (BSES Limited, HCPSL, CANEGROWERS and CSR)
- Farm Economic Analysis Tool - FEAT (FutureCane)
- Fertiliser Gross Margin Calculator (BSES Limited)
- Machinery Cost Calculator (BSES Limited)
- Plane Creek Productivity Services Limited Harvesting Cost Model

- Farm Forms (NSW Department of Primary Industries)
- Machinery Costing (NSW Department of Primary Industries)

Ownership of economic information or analysis tools varies considerably and in many cases is share owned by industry stakeholders. The FEAT program played a major role in the project and was developed by DPI&F through the FutureCane initiative. FEAT is provided free of charge to sugarcane farmers in Queensland and is readily available through DPI&F. The remaining information was primarily used as background material and identified the need for further economic information on production costs, machinery costs, whole farm profitability, crop gross margins and new farming system profitability.

4.3 Project Links Established

Links were developed with external projects and sugar industry organisations to ensure the efficient use of staff resources. A project outline was presented to staff in BSES Limited, CSR Sugar, Productivity Services, BIFMAC and CSIRO during the commencement of the project. Assistance was provided to several external projects to undertake the economic analysis. The project links included:

- Hebert BSES Farming System Trial;
- Demonstration Farm Project;
- BSES Limited Cane Grub Model;
- SYDJV project.

A key component of the project was the involvement of growers. Five grower groups in the Herbert and Burdekin region (59 growers) were approached and agreement was received to participate in the DPI015 project. Over the course of the project some of the growers involved in developing economic case studies expanded beyond the original groups approached at the start of the project. The grower groups were engaged in the project through the Cane Productivity Initiative (CPI) forums, grower group meetings, field tours, training courses and one-on-one extension. The original grower group details are outlined below:

Grower Group One

Group Name:	RISE (Retaining Industry Sustainability and Environment)
Location:	BSES Herbert
Grower group size:	14 growers

This group was initially established as part of the SRDC funded Sarina/Emerald field tour in April 2005. The field tour investigated the adoption of innovative farming systems in other sugarcane regions and primary industries in central Queensland. Following the field tour the group agreed to meet on a regular basis to learn more about farming system technology and to share their own farming experience. The group members varied during the course of the project and generally consisted of growers with a common interest in adopting enhanced farming systems.

Grower Group Two

Group Name:	Pinnacle Precision Farming Group
Location:	Herbert
Grower group size:	7 growers

The Pinnacle Precision Farming Group was formally established in 2005. The group centres on the Morris brothers, which provide contracting services to other growers in the group. Recently the group modified a HBM billet planter to enable cane to be planted on a dual row configuration with a double disc opener system. Group members realize that there are significant benefits from utilizing the Morris brothers contracting services. The benefits include expertise, modern equipment, new technology, time saving and economic benefits. The group members are at various levels in the adoption of the new farming system.

Grower Group Three

Group Name: Rita Island
 Location: Burdekin
 Grower group size: 12 growers

The Rita Island group was formed in 2002 as part of the CSR Cane Productivity Initiative. The group is based on geographic location, with all members situated in the Rita Island area. The group has no formal structure and most members work on an individual basis. Overall, the group would like to improve their productivity in the short term. The group is slowly adopting some new farming practices, however most members are still sceptical about the benefits of the new farming system (minimal tillage, controlled traffic and crop rotations).

Grower Group Four

Group Name: HCL
 Location: Burdekin
 Grower group size: 6 growers

The group was formed in 1995 by growers in a similar geographic location in the Burdekin area. The group's initial aim was to gain control of their machinery operations, with the group first acquiring a cane harvester through a co-operative arrangement. The HCL group consists of seven members and collectively owns harvesting, planting and bed forming equipment. They are a very innovative group and have adopted the three major principles of the Sugarcane Yield Decline Joint Venture, 1) controlled traffic 2) crop rotation and 3) minimal tillage.

Grower Group Five

Group Name: MAFIA
 Location: Burdekin
 Grower group size: 20 growers

The MAFIA group is situated in the Mulgrave area of the Burdekin River Irrigation Area. The group has a common interest in working together to address both productivity and sustainability issues. The MAFIA group farms approximately 6000ha in the Mulgrave area. The group is very progressive and have adopted various cutting edge technologies and have taken part in numerous research trials.

4.4 Identify Economic Topics and Training Needs

Forums were held with each grower group to identify analysis topics and training needs. A baseline survey was undertaken with the grower participants to identify potential training areas and economic topics of interest to the group. Further investigation was needed to determine which economic analysis topic was most important to the group. Prioritising economic topics

proved to be a difficult task with some grower groups because of the tendency to focus on agronomy rather than economic issues. To ensure the forum remained focused, the economic analysis topics were listed according to those identified on the baseline assessment. Growers were also given an opportunity to add additional economic topics over the course of the project. To assist in prioritising the economic topics the group was asked several key questions. The questions were based on the economic topics listed and assisted in determining the importance of each issue:

- 1) What decisions are we trying to make?
- 2) Why do we need this information?
- 3) Where do you plan to use this information?
- 4) Does this meet the overall group objective?

The questions assisted in clarifying the important analysis topics and acted as a catalyst for group agreement.

The economic topics identified during the forums included:

- New farming system methods;
- Comparison of two planting systems;
- Machinery costs;
- Fallow management options;
- Growing a legume crop for harvest;
- Measuring business performance;
- Comparative Analysis;
- Sugarcane smut;
- Alternative irrigation systems;

Group training needs was determined from the information collected in the baseline survey and from feedback provided during the forum. Training on economics will consist of a four components: 1) forum discussion 2) workshops 3) information sheets/media articles and 4) self learning activities.

The training needs identified during the forums included;

- Management records;
- FEAT training;
- Partial budgets;
- Economic terms;
- Calculating machinery costs;
- Business management;
- Co-operative arrangements.

4.5 Economic Analysis Topics

An economic analysis was conducted for the various economic topics identified by the grower groups and in conjunction with industry organisations. Some of these topics were developed into case study publications and distributed throughout the Queensland sugarcane industry. A summary of the methodology and results of each economic topic is outlined below.

Machinery Costing Analysis

A limited understanding of the process used to calculate machinery costs was identified by each grower group during the baseline assessment. Machinery management is an important part of running a farm business and can have a significant impact on farm profitability through unnecessary use of machinery or overcapitalization. In consultation with interested growers an information sheet was developed to outline the process used to calculate machinery costs.

During the development of the machinery costing sheet, growers were asked to identify a typical machinery operation that they may carry out on their farming enterprise. The relevant information was collected from growers in the RISE and Pinnacle Precision group to enable a costing sheet to reflect a typical machinery operation in sugarcane. The example used was a 90HP tractor with a weeder implement. The machinery costing sheet was used in conjunction with the Farm Economic Analysis Tool (FEAT), a computer spreadsheet developed by the DPI&F FutureCane Initiative. The FEAT program is a whole of farm economic analysis tool and contains a machinery cost spreadsheet. The spreadsheet displays the process used to calculate machinery costs in an electronic form and simplifies the machinery cost calculations in comparison to the machinery costing information sheet.

Economic Analysis of Two Planting Systems

In February 2006 an economic analysis of two planting systems was completed in conjunction with the Morris family and the Pinnacle Hill farming group. The aim of the exercise was to provide a case study to growers in the Herbert and Burdekin regions on the economics of a plant cane crop grown conventionally in comparison to a plant cane crop grown using the new farming system. The case study was based on input from the Morris family and provided a useful insight on the economic benefits of the new farming system.

Given the input costs in 2006, the old planting system would cost the Morris family \$1578/ha compared to the \$1434/ha with the new planting system. These figures include the variable costs of fuel, oil, repairs and maintenance. The biggest saving in the new planting system is in land preparation costs (\$233/ha → \$96/ha), weed control (\$219/ha → \$177/ha) and a reduction in the time spent maintaining a plant cane crop by 57% (\$174/ha → \$76/ha).

The number of hours spent on farm planting operations has decreased by 57% with the new planting system. Given the same complement of tractors and machinery the Morris family could increase their farming area by at least 50% whilst maintaining a similar plant cane operations time, depreciation costs and interest costs over a greater area and significantly increasing their farm profitability. The grower based case study also investigated the marginal return on investment based on the extra capital required to make the change to a new farming system.

Measuring Business Performance in the Sugar Industry

A benchmarking exercise was conducted in the Burdekin region in July/August 2006 and comprised of a group of growers in the Aerodrome area. Measuring and comparing the performance of a business is a critical part of successful business management. Information on the past and present performance of a business can provide a basis for improved manager decisions and greater profitability. The main objectives of the benchmarking exercise were to:

- evaluate the use of FEAT (Farm Economic Analysis Tool) to undertake a benchmarking and comparative analysis exercise in the Burdekin;

- modify FEAT and develop suitable performance indicators to provide a uniform measure of farm business performance in the sugar industry;
- document the process to enable growers to undertake a benchmarking or comparative analysis exercise;
- promote a better understanding of how farm management practices and business structure effect farm profitability;
- identify the use of benchmarking or comparative analysis to develop business strategies and improve efficiency.

Analysis of the sugarcane farming business was conducted using the Farm Economic Analysis Tool (FEAT). The FEAT program was modified in order to provide the information required to undertake a comparative analysis or benchmarking exercise. The modifications included the addition of a performance indicator (PI) page and performance indicator definitions (PID) page and extra information in the instructions page.

The PI page contains a series of performance indicators that analyse the physical components, resources, profitability and cost ratio's of a business. The indicators provide information to enable growers to measure and compare their business performance within their own business or with other businesses containing similar characteristics. The instructions page provides examples of the information required in each section of FEAT and the use of the performance indicator page. The PID page contains a brief description of each performance indicator and how they relate to business performance.

The benchmarking report provided a means to stimulate group discussion and variations in the performance indicators prompted the evaluation of data to determine why the differences occurred. One of the most significant variations in results between farming businesses was the return on investment for each enterprise. This was heavily influenced by the differences in machinery investment and labour resources used for each business. The identification of this issue reinforced the groups drive towards the more efficient utilization of resources (machinery and labour) through group ownership and restructuring of the business.

Another issue that was discussed and promoted over this period was the use of farm management records. This was identified as a limitation to growers successfully using objective financial information to make informed on-farm decisions. An information sheet was developed and discussed with growers to reinforce the need to monitor costs and control expenditure. A project proposal was also developed to evaluate the use of an electronic farm management system in the Burdekin region. Growers interested in using the electronic records system attended an introductory training workshop in the Burdekin to gauge interest. Unfortunately the project did not proceed because of funding and labour constraints, however it provided growers with an insight into the value of farm management records.

Grower group case study on new farming practices in the Herbert

A case study was developed with members of the Pinnacle Precision Farming Group in November/December 2007. The case study provides an insight into the changes made by the Pinnacle Precision Farming Group and their journey to adopt the new farming system practices. It also details the changes made by the group machinery contractor and a comparison of the old and new farming systems adopted by a group member. A focus point of the document is the impact of the new farming system on the economic, social and environmental components of the farming business. The economic analysis also investigates the use of legume crops within the farming system.

Analysis of the new farming system with a legume crop rotation revealed an increase in the farm gross margin by \$22 024 and, in addition, a reduction in tractor operation time by 38% across the whole farm. This represents a return on marginal capital of 14.68 times the original capital outlay required by the group member. Using the new farming system without a legume crop will still improve the group members whole of farm gross margin by \$6 839 and a reduce tractor operation time by 43% across the whole farm.

The Pinnacle Precision Farming Group case study was submitted to the Australian Society of Sugar Cane Technologists (ASSCT) for publication and presenting at the conference in May 2007. The case study was presented by the Pinnacle Precision Farming Group members at the conference.

A case study on the use of a legume crop rotation in sugarcane

Growing legume fallow crops has proven to be an important factor in reducing the yield decline effect in sugarcane production. Legumes can also provide a direct economic benefit to sugarcane farmers through providing a source of nitrogen and in some cases sale of grain or seed. In March/April 2007 an economic analysis was completed on the use of a legume crop rotation in the Burdekin sugarcane industry. The case study provides an insight into the changes made by Russell Young, a sugarcane farmer situated in the Rita Island area of the Burdekin district. The old farming system is based on the conventional farming practices previously used by Russell Young in 2002 compared to the 2006 farming system which involves a reduction in tillage practices and use of a Soybean rotational crop for seed production.

The old system provided a farm gross margin of \$1 730/ha at a sugar price of \$300/t. This is considerably less than the new system which provided a farm gross margin of \$1 858/ha. This represents an increase in whole of farm gross margin by \$7 680. If the soybean fallow crop improves the farm yields as anticipated, the new system would result in a farm gross margin of \$1 891/ha. This represents an increase in whole of farm gross margin by \$9 660. Under the old system in 2002, the Young family would have had a 4.1 per cent return on investment using today's input costs. Using the new system, the return on investment has improved to 4.8 per cent and can be expected to increase to 5.0 per cent if an increase in plant cane yields is achieved.

A case study on the economic impact of smut in the Burdekin and Herbert

Since the detection of smut on the east coast of the Australian sugarcane industry, sugarcane growers have been extremely concerned about the potential economic impact on their farming business. Following requests from growers, industry personnel and DPI&F colleagues, several case studies were developed in April 2007 to assess the economic impact of smut for growers situated in the Burdekin and Herbert sugarcane growing areas. The economic impact studies were developed from input with growers, BSES Entomologists, BSES Extension Staff, BSES Variety Officers and DPI&F FutureCane staff.

The economic analysis of smut incursion was completed using a modified version of the Farm Economic Analysis Tool (FEAT), a computer program developed by DPI&F as part of the FutureCane initiative. Modifications were undertaken by Paul Stewart and Trish Cameron (FutureCane Bundaberg) with assistance from Mark Poggio (FutureCane Ingham) to localise the program for Herbert and Burdekin areas. The FEAT modifications streamlined the amount of time needed to undertake a smut economic analysis and provided details on the farm variety mix, time of harvest and smut tolerance levels of varieties.

A total of six smut economic impact studies were completed for sub-regions within the Burdekin district. These sub-regions included Jardine, Mulgrave, Causeway, Jarvisfield and Selkirk. A further three smut economic analyses were also completed for Mid Stone, Lower Stone and Bambaroo sub-regions within the Herbert district. The case studies assumed a farm size of 100ha. Each economic analysis had three scenarios to determine the potential economic impact of smut from 2006 - 2012; 1) no smut and planting of susceptible varieties, 2) smut incursion and planting of smut resistant varieties and 3) smut incursion and planting of susceptible varieties. The overall impact of smut was determined by evaluating the effect on the projected farm gross margin in each scenario. The CSR data cube was used to determine the current variety mix and productivity of each major variety within a sub-region.

The Burdekin case studies indicated that smut incursion will cause a slight reduction in the farm gross margin if the grower plants 100% resistant varieties from 2007 – 2012. The maximum reduction in farm gross margin ranged between 1% – 5% across the different sub-regions. The contributing factors include the yield and CCS losses as a result of smut incursion and a short term reduction in productivity potential with the introduction of existing smut resistant varieties. The farm will be planted to 100% resistant varieties by 2011. It is anticipated that the farm gross margin will return to normal levels beyond 2012 with the release of additional highly productive smut resistant varieties in the Burdekin district. Smut incursion in 2007 and the continual planting of susceptible varieties would cause a significant decline in farm gross margin. In this case, the farm gross margin would decline by over 50% and the business would become unviable. The results found in this analysis are dependant on the rate of spread and impact of smut and the productivity levels of the new smut resistant varieties.

The Herbert case studies indicated that smut incursion will cause a moderate reduction in the farm gross margin if the grower plants 100% resistant varieties from 2007 – 2012. The decline in farm gross margins was more pronounced in the Herbert region, with a maximum reduction between 10% - 20% across the different sub-regions. The reason for a higher impact in the Herbert region is due to the lower amount of intermediate/resistant varieties currently planted and the longer crop cycles. The farm will be planted to 100% resistant varieties by 2012. The analysis indicates that the farm gross margin should return to a more profitable level in 2011 and 2012 when the farm is planted with a higher percentage of smut resistant varieties. The introduction of new varieties with a higher productivity potential will also improve the farm gross margin in the medium/long term. Like the Burdekin region, smut incursion and the continual planting of susceptible varieties would cause a significant decline in farm gross margin and result in the business being unviable beyond 2012.

Calculating the profitability of different fallow management options

A case study was developed in August 2007 to investigate the economics of typical fallow management practices in the Herbert region. A list of four fallow management scenarios were developed using information provided by cane farmers currently using each system. Each farmer provided information on the typical operations and machinery required to manage the fallow based on their own experience. The economic analysis was conducted using the Farm Economic Analysis Tool (FEAT) developed by the DPI&F FutureCane initiative.

The four scenarios analysed in the case study included:

- Legume fallow with new farming system practices (NFS)
- Legume fallow with zonal tillage practices
- Legume fallow with conventional farming practices
- Bare fallow with conventional farming practices

The case study was based on a 120ha grower with a stable sugar price of \$300/tonne. The economic analysis showed that a legume fallow with the new farming system provided the highest farm gross margin (\$856/ha) and farm operating return (\$37 623). This represents a \$3 123 increase over his bare fallow and conventional farming practice. The improvement in profitability was a result of less tractor operations, fertilizer savings and lower weed control costs. In addition to the cost savings, the amount of time spent on a tractor will also decrease by over 45% or 128 hours across the entire farm (2.31 – 1.24hrs/ha).

Assuming 2007 input prices, cane farmers will not be worse off in economic terms if they grow a good legume fallow. In fact, the legume fallow scenarios provided a higher farm operating return compared to the conventional bare fallow system. A legume fallow also improves your overall soil health and can lead to higher sugarcane productivity and further economic benefits that are not considered in this analysis.

Grower group row spacing trial

This economic analysis topic was identified following a request for assistance from members in the MIG group. Although the economic analysis is quite simplistic, the topic provides an opportunity to discuss production costs amongst the group and identify areas for improvement. The characteristics of each system are outlined in Table 1. The conventional system is based on the old row spacing and plant cane operations used by the MIG group in previous plantings. The single and twin row mound system is based on the plant cane operations used by the MIG group in their 2007 demonstration trial.

The economic analysis was conducted in conjunction with the MIG group members using the Farm Economic Analysis Tool (FEAT) developed by the DPI&F FutureCane initiative. A comparison between the costs of three different row spacing's can be made by applying the current input prices to both the current and historical planting systems. The productivity of the single and twin row mound planting is based on the plant cane trial results obtained by the MIG group demonstration trial in 2007.

Following the economic analysis, the group now has confidence that preformed beds will reduce input costs compared to the current system, at least for the plant crop. In particular, significant opportunities to reduce land preparation costs and general growing costs appear to exist. All members of MIG have moved over to planting into preformed beds; however some members of MIG prefer 1.52m singles over duals on 2.0m centres. While some errors were made with the trial design, differences of at least \$300/ha saving in plant cane can be made by adopting a preformed mound system.

Implementing Sustainable Farming Practices

A case study on the Oakleigh Farming Company was completed in December 2007. The Oakleigh Farming Company has been progressively changing its farming practices on its property at Cordelia in the Herbert River District. During the last ten years the changes have included the adoption of raised beds at 1.8m row spacing, controlled traffic and dual row planting using double disc opener planters. This case study describes some of the changes that have been made to the farming system and examines their impact on farm productivity and economic performance. Since changing to the current farming system, the farm gross margin has increased from \$789/ha to \$897/ha. In addition to the numerous cost savings, the new farming system has reduced the time spent on tractors by 54% across the whole farm. Return on investment on the 1997 farming system was 1.6% versus 2.7% on their current farming system.

The farming company is continually looking for new ways to improve profitability and believes that innovation is critical for the long term sustainability of the sugar industry.

The Oakleigh farming case study was submitted to the Australian Society of Sugar Cane Technologists (ASSCT) for publication and presenting at the conference in May 2008. The case study was presented by Peter Carr, a partner in the Oakleigh Farming Company.

Comparative Analysis

A comparative analysis was undertaken in May 2008 to compare the profitability of two sugar cane farming businesses prescribed by farmers in the HCL and Waterview group. Each group is located in the Burdekin Delta region and relatively close in proximity to each other. The two groups were selected because of their close proximity to each other, difference in management practices and willingness to cooperate in the comparative analysis study.

A meeting was held with each grower group to discuss the typical farming system practices and business structure used to operate a sugarcane farming business in their area. Each group was asked various questions on the typical characteristics and inputs required to operate a hypothetical 200ha farm in their region. Analysis of the production levels and performance indicators of each farming business revealed potential opportunities for increasing overall farm profitability. The farming system prescribed by HCL provided a saving of \$14 599 per year in growing costs for the 200ha farming business. The cost savings are a direct result of improved machinery work rates, reduced cultivation and lower weed control costs. Fixed costs were also \$18 995 lower as a result of the cooperative arrangement and the adoption of the new farming system. The calculated labour savings of the HCL prescribed system were not considered in this economic analysis, however it presents a potential saving of \$14 550 per year and may assist with the current issue of limited labour resources.

Herbert Farming System Trial Reports

A farming system trial was established at the Herbert BSES station in December 2004. The trial consisted of three treatments and two replications. The treatments are based on a conventional farming system versus a new farming system. The new farming system incorporates the main principles promoted by the Sugar Yield Decline Joint Venture. Publications have been developed on an annual basis to provide growers with information on the data collected from the trial site. The reports contain information on weed counts, soil temperature, rainfall, production and economic records in each of these treatments over the crop classes. Improved productivity combined with a considerable reduction in labour and other variable costs have resulted in the new farming system treatments being more profitable compared to the conventional system to date. A full copy of the results is included in the electronic case study file attached with this report.

4.6 Project Evaluation Methods

Grower surveys were conducted in December 2005 and February 2008. A total of 34 growers from the Herbert and Burdekin regions were surveyed in 2005 and 24 growers in 2008. Surveys were distributed to growers directly involved in the SRDC funded project and the same questions were asked in each survey to gauge the impact of the project on grower knowledge and decision making capacity over time.

Detailed notes were recorded at each forum to provide an indication of the topics discussed by each group and their frequency. At the beginning of the project a list of key terms was developed and grouped according to the relevant category of 1) Economics 2) environment 3) social and 4) agronomy. Group language was assessed by recording the number of times each key term is used during the forum, eg. 'Family' mentioned once = 1 mark. The total marks for each category was recorded and ranked from highest to lowest. The category with the highest ranking will indicate that the language used by the group focused on that particular category. Over the period of the project the key terms used by growers was monitored to determine if there was a change in focus topics or knowledge.

A survey of the key Herbert/Burdekin stakeholders was undertaken in October 2007. The survey participants included cane farmers and representatives from BSES Limited, CSR Limited and the Canegrowers organisation. In order to streamline the process an e-mail was sent to twenty one key industry stakeholders with fifteen replying. The main objective was to review the relevance and impact of the economic topics analysed in the DPI015 project. Additional questions were also asked on the media channels and future needs of the sugarcane industry.

A FEAT survey was conducted at the SYDJV conference in Cairns in March 2008. The survey targeted extension staff and aimed at quantifying the use of FEAT and their knowledge on economic principals. A total of 15 staff was surveyed from various regions across in the Queensland sugar industry.

4.7 Project Communication

The DPI015 project provided information to growers and industry staff using one or a combination of these four methods:

- Case study publications;
- Workshops;
- Forums/Field Tours/Field Days;
- Information flyers;
- Short media articles;
- One-on-one extension.

Table 1 contains details of the communication methods used to promote the key findings of each publication across the sugar industry.

Table 1. Economic topic and communication of findings

Publications	Communication Of Key Findings
<ul style="list-style-type: none"> ▪ Measuring Business Performance In The Sugarcane Industry 	<ul style="list-style-type: none"> ▪ GIVE Website, E-mail to industry staff
<ul style="list-style-type: none"> ▪ HCL Benchmarking 	<ul style="list-style-type: none"> ▪ HCL Forum (confidential)
<ul style="list-style-type: none"> ▪ Economics Of Two Planting Systems In The Herbert 	<ul style="list-style-type: none"> ▪ BSES Newsletter, Canegrowers Magazine and forums
<ul style="list-style-type: none"> ▪ New Farming Practices In The Herbert 	<ul style="list-style-type: none"> ▪ ASSCT paper, International Sugar Journal, CPI forums and GIVE Website
<ul style="list-style-type: none"> ▪ Fallow Management Options 	<ul style="list-style-type: none"> ▪ Legume Workshop, BSES Quarterly Newsletter and Herbert Field Tour
<ul style="list-style-type: none"> ▪ The Use Of Legume Crop Rotations In Sugarcane 	<ul style="list-style-type: none"> ▪ BSES Quarterly Newsletter and Field Tour
<ul style="list-style-type: none"> ▪ Economic Impact Of Smut 	<ul style="list-style-type: none"> ▪ BSES Bulletin, smut meetings and CPI forums
<ul style="list-style-type: none"> ▪ BSES Farming System Trial 	<ul style="list-style-type: none"> ▪ Annual Productivity Report 2006 & 2007, forums, BSES Newsletter & Field Day
<ul style="list-style-type: none"> ▪ Comparative Analysis 	<ul style="list-style-type: none"> ▪ HCL & Waterview Group Forum
<ul style="list-style-type: none"> ▪ Burdekin Row Spacing Case Study 	<ul style="list-style-type: none"> ▪ Grower meeting and grower group report
<ul style="list-style-type: none"> ▪ Implementing Sustainable Farming Practices 	<ul style="list-style-type: none"> ▪ ASSCT paper 2008

Feedback from the industry survey indicated that the format of economic materials were appropriate for the different learning styles. Many of the growers have commented on the benefit of economic case studies, as it presents a real life situation based on a fellow grower's experience. The case study participant also gets an opportunity to quantify the economic impact of their change in management practice. The case studies are generally limited to a maximum of four A4 pages and include visual aids such as tables, photos and graphs to present the information. Many of the case studies were presented to growers during field tours which included a visit to the case study property (Figures 1, 2, 3, 4 & 5). This allowed the information to be provided to growers in a familiar surrounding and allowed the case study participant to freely present his experience to other growers.

Figure 1. New planting system**Figure 2. Herbert BSES Field Day**

Figure 3. Morris family mound former**Figure 4. Soybean field tour****Figure 5. Farming system trial site**

Several workshops were held over the project period to promote sustainable farming systems and sound business management principles. The DPI&F FEAT program was widely promoted across the Herbert and Burdekin region through a series of workshops. This introductory course allowed participants to have a hands-on experience at using FEAT and provide an insight into some of the program applications. Twelve FEAT training workshops were conducted over the project period (Figure 6).

A legume workshop was held in the Herbert region to inform growers on the agronomy and economic aspects of growing legumes in a fallow situation (Figure 7). The workshop discussed issues such as legume varieties, planting, weed control, soil health, growing costs, economic benefits and potential risks.

Information meetings were also held in the Herbert region to discuss various forms of grower groups and how they operate in other sugarcane regions. Three growers from the Burdekin region, who are currently part of successful grower groups, presented their differing experiences with grower led groups and what this has meant for them in terms of adopting change and innovation. The grower groups varied in structure, ranging from a formal cooperative structure to an informal group sharing ideas and knowledge. Over 27 growers attended the dinner meeting at the Noorla Hotel in Ingham.

The “Staying On Track” workshop was developed for the Mackay, Burdekin and Herbert regions (Figure 8). The workshop was a joint initiative between Mark Poggio (DPI&F), Sarah Miotto (DPI&F) and David Brown (DPI&F). The aim of workshop was to investigate the impact of the

new farming system on the way we manage our business and how we can utilize these opportunities to maximise our business profit. The one day workshop consisted of a guest speaker from the grains industry presenting information on the effect of minimal tillage and precision farming had on their farming business. The grain industry is well advanced in the use of minimal tillage and controlled traffic and provided an insight into the potential effects on business operation and structure in the sugar industry.

The workshop also included a presentation from Ian Plowman (consultant) to outline the possible tools growers may use to ensure continual improvement in their business enterprise and the social implications of a change in business management. Growers were also given a workbook containing sections for them to complete during the workshop. The workbook also contained information on the tools necessary to evaluate business performance (cash flows, FEAT, balance sheet etc) and the relevant information sources that growers may use for further assistance. The workshops were very successful with over 45 growers attending the information session.

Figure 6. FEAT workshop



Figure 7. Legume workshop



Figure 8. Staying On Track workshop



Educational flyers were developed to provide information on economic topics identified during the initial grower survey. The flyers were distributed through BSES Limited newsletters and generally targeted growers who prefer information in a document style. The flyers also acted as a stimulus to prompt inquiries from growers about other issues (eg. FEAT) and assisted in building on our existing grower base.

During the project period a DPI&F Farm Business Management Award was also included in the Herbert Sugar Industry Acknowledgment Night. This award aimed at promoting sound business practices in the sugar industry and to achieve sustained profitability in a complex and continually

changing business environment. The selection criteria is based on many areas of farm business management, including farm record keeping, innovative management systems, enterprise costing and control measures, training and knowledge, use of economic tools, diversification and on farm management practices. Prior to the introduction of this new award, the award categories focused on farm production, environment, harvesting and personal achievements. The business management award aimed at highlighting the importance of focusing on farm profitability. Unfortunately the Business Management Award has now been removed from the award categories due to a restructure in the format of the event.

4.8 Project Outputs

Publications

A series of case study publications were produced and distributed to over 300 growers across the Queensland sugar industry. A copy of the publications is enclosed in the 'case study' file attached with this report. The publication titles include:

- A Case Study On The Economics Of Two Planting Systems In The Herbert River District;
- Measuring Business Performance In The Sugarcane Industry;
- Grower Group Case Study On New Farming Practices In The Herbert;
- A Case Study On The Use Of Legume Crop Rotations In Sugarcane;
- A Case Study On The Economic Impact Of Smut In The Burdekin Region;
- A Case Study On The Economic Impact Of Smut In The Herbert Region;
- Fallow Management: Calculating the profitability of different fallow management options;
- Burdekin Row Spacing Case Study
- Implementing Sustainable Farming Practices In The Herbert: The Oakleigh Farming Company Experience;
- Comparative Analysis: HCL and Waterview Group;
- Herbert Farming System Trial Report.

Educational Flyers

The educational flyers were distributed to over 150 growers in the Herbert and Burdekin region. A copy of each flyer is enclosed in the 'sugar economic education - SEE \$\$\$' file attached with this report. The educational flyers include:

- Machinery costing analysis (CPI forums, BSES Newsletter, GIVE Website)
- Farm management records (BSES newsletter)
- Partial Budgets (grower forums)
- Herbert Maize Gross Margin (Maize Workshop)
- Burdekin Soybean Gross Margin (Soybean Workshop)
- Burdekin Maize Gross Margin (e-mail to FutureCane network)
- Staying On Track Workbook (Staying On Track Workshop)

FEAT Training

The DPI&F FEAT program is designed for users with a low/moderate level of computer skills. FEAT is designed specifically for cane farmers and has been widely distributed throughout the cane industry. Over 210 growers and industry staff have been trained in the use of FEAT

through the DPI015 project. The introductory course enabled participants to have a hands-on experience at using FEAT and provided an insight into some of the program applications. Feedback from growers and industry staff has been positive because of the programs easy to use format, minimal input of data and technical backup and service.

Roving Field Tours

Field tours have proven to be an excellent way of combining economics and agronomy together in an environment that is comfortable for growers. A list of the field tours is outlined below:

- Planting system field tour, 14th August 2006 (14 growers);
- Herbert roving field tour, 17th of April 2007 (24 growers);
- BSES Field Day, 13th of April 2007 (45 growers);
- Burdekin legume field tour, 10th of July 2007 (9 growers);
- Herbert roving field tour, 31st of March 2008 (18 growers).

External Projects

Input was provided to several external projects to assist with the economic analysis process. The external projects ranged from the development of a decision support tool (Greyback Cane Grub) to the analysis of a change in farming system. The external projects that were collaborated with include:

- SYDJV project;
- The BSES Farming System Project (EPA co-funded);
- BSES Canegrub Model;
- Herbert BSES Farming System Trial;
- DPI&F Demonstration Farming Project;
- Burdekin Alternative Irrigation Project (MAFIA Group).

4.9 Environmental and Social Impacts

Focusing on profitability and quantifying the economic benefits of new farming systems aided in the process of adoption among cane farmers in the Herbert and Burdekin regions. The farming system practices investigated are based on the broad principles developed through the SYDJV project, these include:

- 1) minimal tillage;
- 2) controlled traffic;
- 3) legume crop rotation;

This project assisted in increasing the uptake of these general principles which are considered to reduce the loss of sediment, chemicals and nutrients from cane lands as well as significantly improve soil fertility due to a healthier soil in terms of its physical, chemical and biological components.

Soil fertility decline is a recognised problem in the cane industry due to decline in organic matter, disparity between nutrient inputs and outputs, compression of soil by machinery and altered composition of soil flora and fauna. Increasing the amount of organic matter (minimal tillage) left on the paddock throughout the crop cycle, reducing the need for artificial fertiliser inputs (legumes rotation), reducing the amount of times the paddock is 'worked' with machinery (controlled traffic) and less interference with the natural composition of soil flora and fauna will

all lead to increased soil fertility and consequently sustainability of the natural resource base. Reduced requirements for chemical and fertiliser inputs, due to better management practices and improved soil structure, will reduce the downstream impacts on the biodiversity and ecology of downstream waterways, wetlands and the Great Barrier Reef lagoon.

4.9 Expected Outcomes

The primary objective of this project is to accelerate the adoption of sustainable farming practices using sound economic information and building grower decision making skills. The expected outcomes from this project include:

- Increase farm profitability through the introduction of economically assessed farming practices;
- Build knowledge capacity among growers and industry staff on the use of economics;
- Improved decision making skills through the sustained use of the FEAT program and case study documents;
- A greater focus on whole of farm profitability versus the conventional focus on production levels (eg. yield);
- The future development of benchmarking programs in other cane growing regions;
- Accelerated adoption of enhanced farming systems across the sugar industry through a greater understanding of the economic, environmental and social benefits;
- Growers determining the profitability of a change in the farming business and evaluating the potential risks involved.

The case study findings indicated an improvement in farm operating return ranging from \$104 - \$288/ha across the cane production area compared to the conventional farming system. Given these findings, a farm with 150ha of cane would realise an increase in farm operating return between \$15 600 - \$43 200. The improvement in farm operating return is primarily attributed to savings in variable and fixed costs. This is quite a substantial benefit and in all the case studies investigated the individual grower invested less than \$10 000 to make the change in farming system. The investment required in some of the grower case studies was minimised by using contractors, forming partnerships or co-operatives. It is anticipated that the positive project findings will result in more growers adopting these enhanced farming practices in the future. The need to adopt efficient farming practices is highlighted by the rapid rise in input costs in recent time.

The impact of the project was measured through a series of surveys. The surveys included:

- 1) Grower Survey
- 2) Key Terms Assessment
- 3) Relevance of Economic Topics
- 4) FEAT survey (Farm Economic Analysis Tool)

The “grower survey” was conducted in Herbert and Burdekin regions in November 2005 and February 2008. Evaluation of the results indicate that growers now place more of an emphasis on using economics as part of their decision making process. The results also suggest that the economic knowledge base of those surveyed has improved with a greater understanding of economics terms, machinery costs and use of the FEAT program as a planning tool. For example, knowledge on machinery costs improved from 15% to 75% over the project period. A summary of the grower survey results are contained in Appendix A.

A 'key term assessment survey' was conducted at a number of grower forums to determine the relevance of economic, environmental, social and agronomic topics over time. The results indicate a trend of growing importance towards economic issues over time, however isolating the reasons for this change is complex. The growing importance and recognition of economic issues may be a result of the DPI015 project objectives and the diminishing economic returns experienced in the industry. A summary of the key term assessment results is contained in Appendix A.

The 'relevance of economic topics' survey was conducted in October 2007. The survey participants included cane farmers and representatives from BSES Limited, CSR Limited and the Canegrowers organisation. The survey indicated that the economic topics analysed in conjunction with growers are still relevant and include changes that can be implemented in the short term. Feedback was also provided on the forms of media channels, with a suggestion to utilise the local newspaper as a form of getting the message across to growers. The survey also raised the need to investigate the economics of big ticket items such as geographical harvesting and other product streams from sugarcane (eg. ethanol, cogeneration).

A 'FEAT survey' was conducted at the SYDJV meeting in Cairns this year. The survey targeted extension staff and aimed at quantifying the use of FEAT and their knowledge on economic principals. The promotion of economics as a decision making tool and the delivering of FEAT training was an important aspect of the DPI015 project. The survey results indicated that over 70% of extension staff have used the FEAT program before and 53% use it as a decision making tool. A summary of the results from this survey is included in Appendix A.

5.0 Recommendations

It is proposed that the following recommendations be considered following the completion of the DPI015 project:

- Continued development and promotion of grower case studies in order to deliver immediate economic gains to industry;
- The establishment of benchmarking groups within each region of the sugar industry to stimulate business efficiency gains and improve decision making skills;
- Continued establishment and promotion of grower demonstration sites to advocate economic benefits and commercialise enhanced farming systems;
- A greater focus and investigation of different business structures to minimise risk and enable farm expansion (eg. cooperatives, grower managed corporate farms with private investment in land or crops);
- Build grower knowledge capacity by using the FEAT program (or other economic tools) to evaluate the potential profitability of derivative prices (eg. Futures, Swaps);
- Further research, development and extension resources directed towards the efficient use of the farm fallow area to maximise profitability (eg. fallow crops, fallow time);
- Investigate the economics of cross-industry issues on a regional basis. These may include geographical harvesting, improving harvester efficiency, alternatives to granular fertiliser and the feasibility of various product streams from sugarcane.

APPENDIX A

Project Evaluation Results

Grower Survey

The results presented in this document relate to the grower surveys conducted in December 2005 and February 2008. A total of 34 growers from the Herbert and Burdekin regions were surveyed in December 2005 and 24 growers in February 2008. The growers surveyed are directly involved in the SRDC funded project and the same questions were asked in each survey. The aim of these surveys is to determine the impact of this project on grower knowledge and decision making capacity over time.

Q1) How do you currently determine the financial success of your sugarcane farming business?

Business Success Indicator	Ranking	
	2005	2008
Yield	5	5
CCS	6	6
Yield & CCS	2	4
GM/Ha	1	2
ROI	4	1
Total Profit	3	3

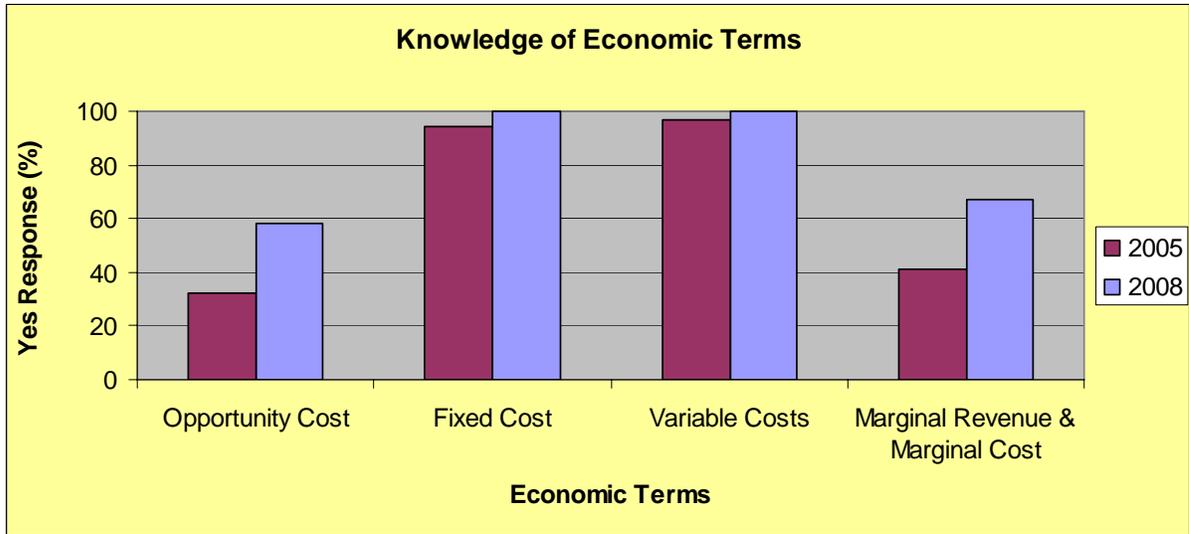
Q2) Indicate the importance you place on the following issues when making a farm management decision?

Decision Making Issues	Ranking	
	2005	2008
Economic benefits	1	1
Environmental benefits	2	2
Lifestyle benefits	3	3

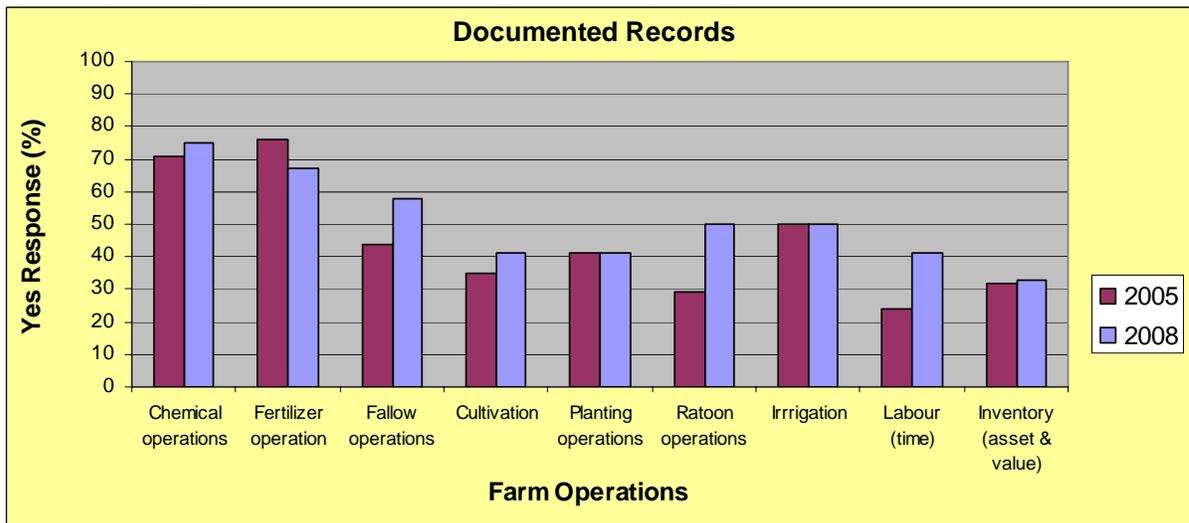
Q3) Briefly list below the planning tools you currently use to make economic decisions on your farm?

Planning Tools Used By Growers	
2005	2008
Budget	FEAT
Soil Tests	Accounting figures
Benchmarking information	Cash flow
Farm Map	Gross margins & ROI
Accountant	Production costs
Agribusiness Representatives	Bank manager
Pocket calculator	Futures
Macinery hours	Benchmarking information
current sugar price and expected income	Agribusiness representatives
Input costs	CSR web site

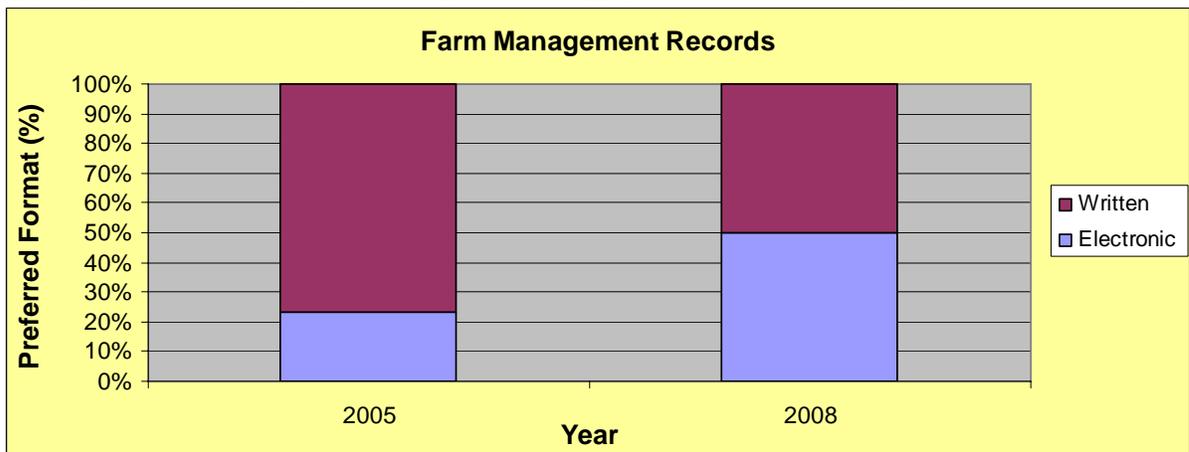
Q4) Do you have an understanding of the following terms?



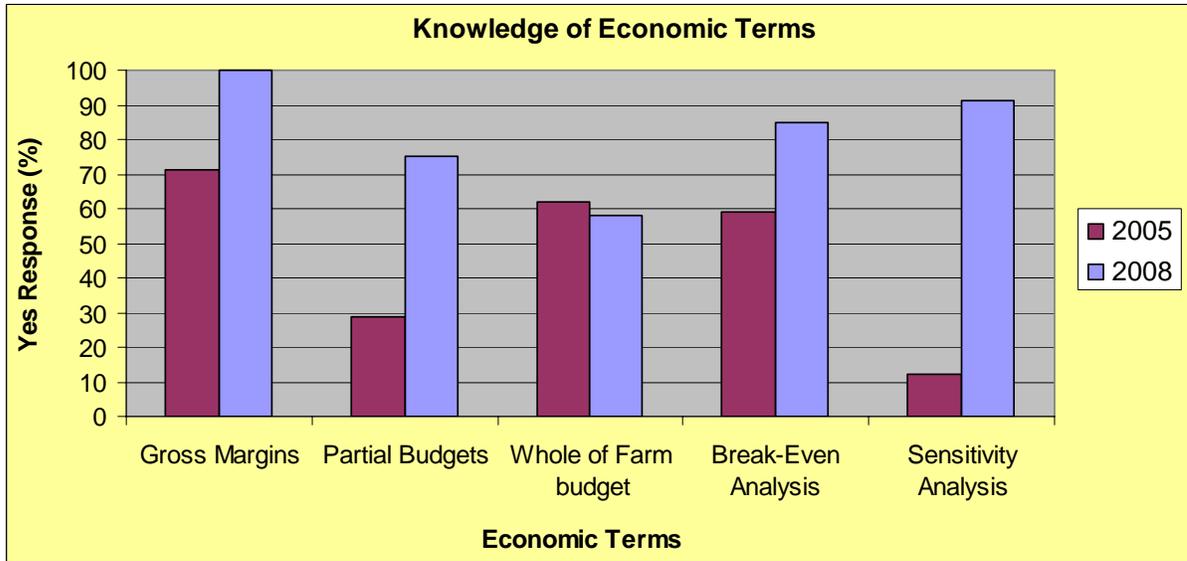
Q5) Do you keep documented records of your farming enterprise?



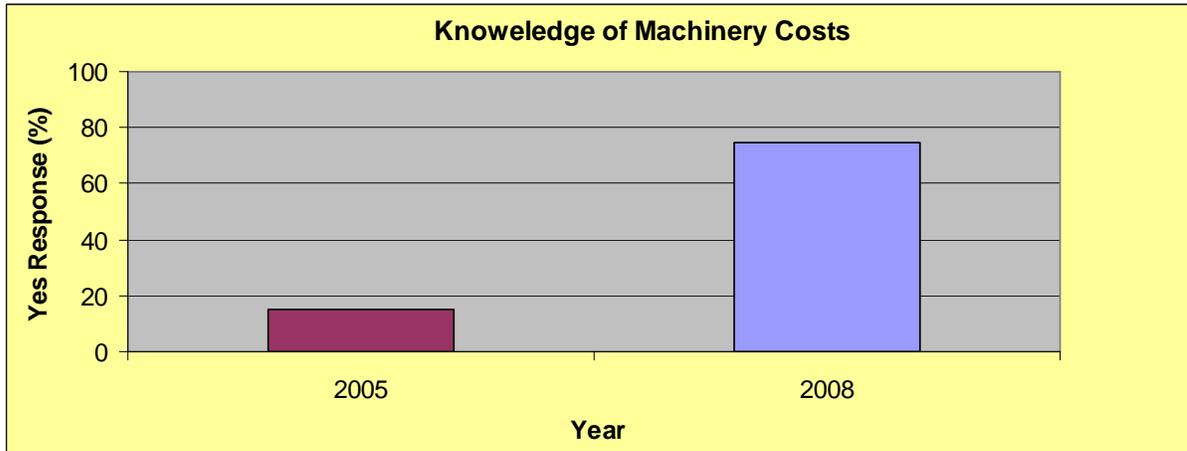
Q6) If you currently keep records of your farming operations, how are they documented?



Q7) Do you have an understanding of the following terms?



Q8) Are you aware of your machinery costs (\$/ha or \$/hr)?



Q11) What topics would you like to see more economic information and analysis provided to assist you in making better on-farm decisions?

Economic Topic of Interest	
2005	2008
Cost of cultivation versus spraying	Value adding sugarcane
Fallow management	Alternative crops
Cost/benefit analysis of various irrigation systems	Production costs & pricing mechanisms
Season length	Mill mud calculator
Economics of new farming system	Machinery costs
User friendly economic analysis	Legume gross margins
Whole of farm analysis	Two year fallow crops
Conventional versus new planting system	Gross margins for Maize
Net present values and partial budgets	
Cost of various fertilizer application methods	
Benchmarking between growers	

KEY TERM EVALUATION

Key terms were recorded and grouped according to the relevant category 1) Economics 2) environment 3) social and 4) agronomy. Group language was assessed by recording the number of times each term is used during the forum, eg. 'Family' mentioned once = 1 mark. The total marks for each category will be recorded and ranked from highest to lowest. The category with the highest ranking will indicate that the language used by the group focused on that particular category.

Over the period of the project the key terms used by growers was monitored to determine if there was a change in focus topics or knowledge.

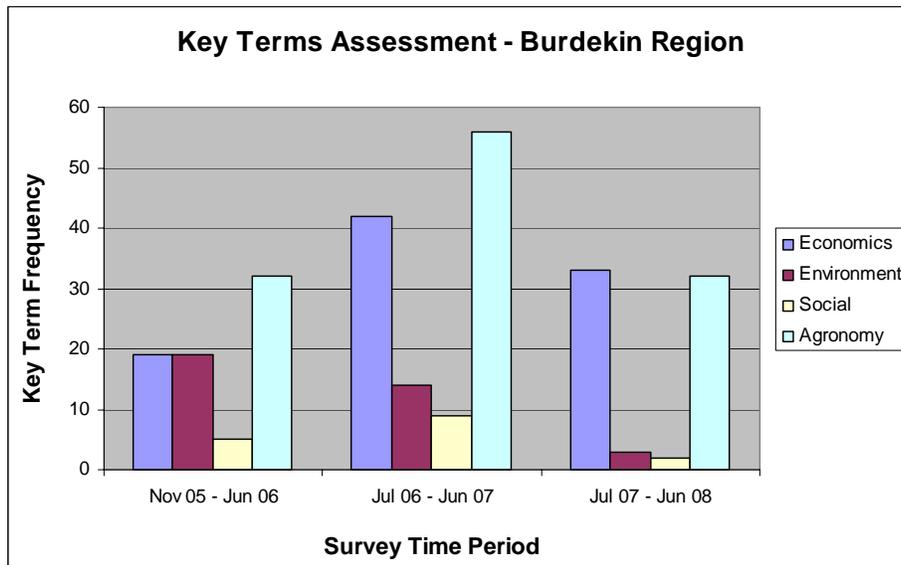
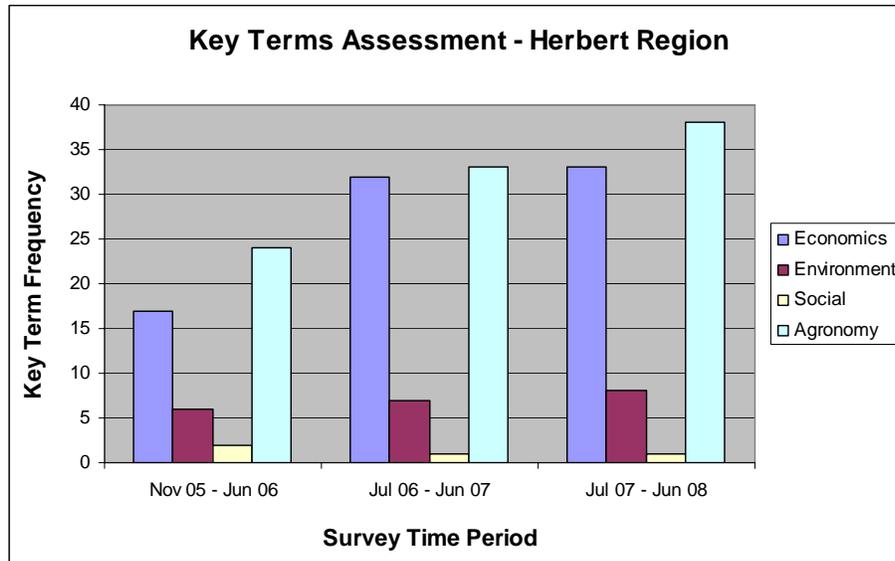


Table 2. A list of the key terms used to evaluate the discussion topic

CATEGORY	Economic	Environment	Social	Agronomy
KEY TERMS	Labour	Sustainable	Family	Harvester
	Profitability	Soil health	Stress	Varieties
	Cost	Water Use	Communication	Fertilizer
	Time	Trees	Workload	Irrigation
	Resources	Revegetation	Community	Pests
	Income/money	Wildlife	Training	Disease
	Expenses	Water quality	Knowledge	Yield
	Return On Investment	Pollution	Lifestyle	CCS
	Benchmarking	Leaching	Hobbies	Cultivation
	Loss	Erosion	Groups	Weeds
	Gross margin	Great Barrier Reef	Meeting	Weather

RELEVANCE OF ECONOMIC TOPIC SURVEY

A survey of the key Herbert/Burdekin stakeholders was undertaken in October 2007. The survey participants included cane farmers and representatives from BSES Limited, CSR Limited and the Canegrowers organisation. The main objective was to review the relevance and impact of the economic topics. A summary of the major comments are included below:

Question 1) Are the completed economic topics still relevant to current grower needs? Why or why not?

- Definitely the economic topics are still relevant to current needs as we are still being challenged to remain viable.
- The work on farming systems has been relevant and will no doubt continue to be relevant. Its uptake will be governed by factors such as the capacity to invest in new equipment and the perceived benefits of so doing.
- As far as I can know the topics are still very relevant because of the tight economic pressures on the industry at this time.
- The completed topics are still highly relevant to current grower needs. Simple tools for measuring business performance have been needed for a long time; case studies on aspects of new farming systems are essential if we are to promote these systems to growers on the basis that they will increase their profitability as well as their soil health;

the impact of smut is highly topical as the disease will have an increasing impact in the Herbert over the next 2-4 years; fallow management practices cannot be promoted on their soil health benefits alone and the analysis needs to consider their economic impact on the farming system as an alternative to nitrogen fertiliser.

- Topics are still relevant.

Question 2) Do you believe the distribution channels used are effective at getting the economic topics out to growers? If not, please make suggestions as to how this can be improved.

- Field days are not a big avenue in the Burdekin.
- *The Ayr Advocate* as a distribution system, rather than relying on newsletters.
- The distribution channels used are effective to the growers who are interested but I think this should be improved to make the greater majority take notice. How, I don't really know.
- Generally the medium has been appropriate for local involvement by interested people.
- Greater involvement with the fortnightly Australian Canegrower would take the message further.
- An occasional article in the local rags is the only suggestion I have.
- The use of existing distribution channels are the best way to go rather than trying to create new ones.
- Smaller groups. Newsletters.

Question 3) Are the planned economic topics relevant to grower needs? Are there any economic topics or knowledge gaps that need to be addressed?

- GCTB in the BRIA.
- Comparative analyses of different farming systems.
- Economic topics relevant to the bigger picture income needs of growers should be considered. For example, examining the main drivers for generating potential new income streams from cane such as a new investment in ethanol production from cane juice, molasses and lignocelluloses. Additionally, carbon trading opportunities must be evaluated for cane growers in preparation for carbon trading that now appears to have the support of all political parties in Australia
- Analysis of the big ticket topics involving decisions by more than one stakeholder such as geographical harvesting based on CCS and soil moisture, starting the season earlier in some parts of the district and some of the other topics currently being addressed in the SRDC Field to Factory project. Decisions on cogeneration, biofuels, harvesting a greater % of trash in cane. Many of these issues are crying out for sound economic analyses from a whole of industry perspective.
- Marketing and pricing of sugar. Maybe look at some of the bigger industry issues (Ethanol, co-generation).
- Still important to do economics on smaller issues to implement change.
- Production costing.
- Benchmarking in small groups.

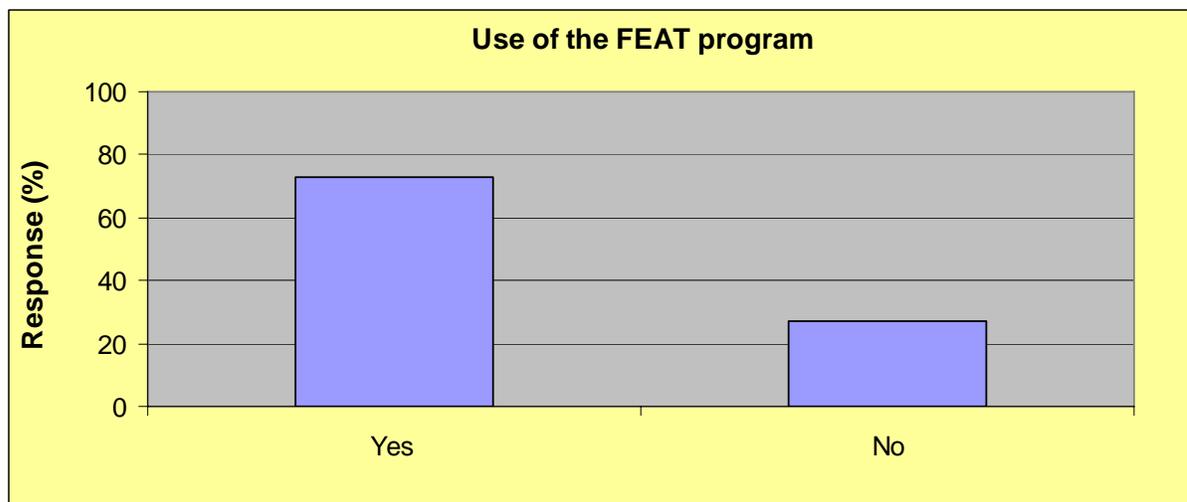
Question 4) Do you believe that the analysis and discussion of these economic topics has had an impact on the way growers make farm management decisions?

- I agree that these economic topics discussion and analysis has made an impact on the way growers make farm management decisions in that at least we as growers can put a cost to different farm operations and question whether old farming methods can be replaced my more cost effective farming methods to achieve the same or better results.
- Probably reflecting what is happening, rather than influencing decisions. In some cases it is also reinforcing what growers have decided to do!
- It's all been good analysis and discussion. There is often more than one right answer to some of the problems discussed in the economic topics. It is suggested that a stronger alliance with CANEGROWERS in addressing some of the big picture issues for growers and the industry would be pertinent to the future of cane growers as primary producers than a continuing focus on farming systems where there is now plenty of information available on the choices available from the work already done.
- It is my personal belief that your work will have provided growers with greater insights from a farm profitability perspective but we still have a long way to go in changing most growers thinking on cane farming.
- Yes I believe it has. Quality of information is very important

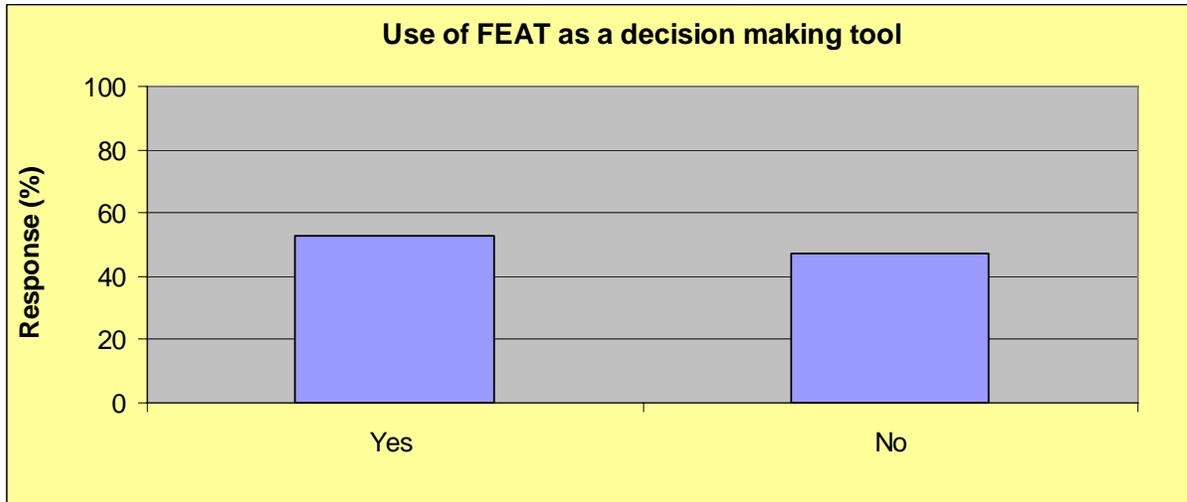
FEAT SURVEY

The results presented in this documented relate to a survey conducted at the agronomy conference held in Cairns on March 26th - 28th 2008. A total of 15 staff were surveyed to evaluate the use of FEAT as a decision making tool in the Queensland sugar industry.

Q1 Have you used the FEAT (Farm Economic Analysis Tool) program before?



- Q2 Have you used the FEAT program as a decision making tool in your current line of work? If yes, please specify the topic/s you were investigating.

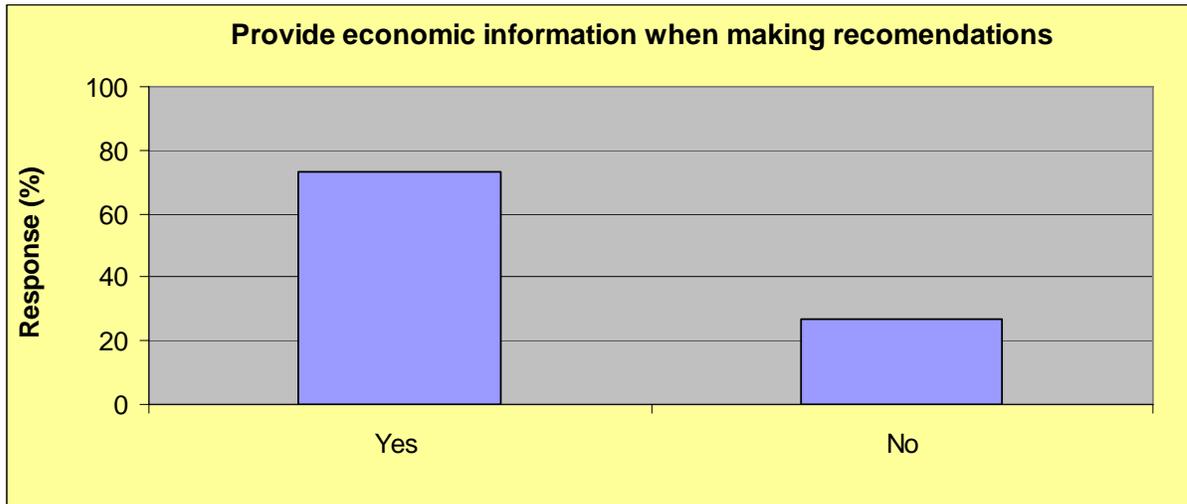


Topics investigated using FEAT
Farming systems (legumes, PORP v fallow, NFS v conventional)
Sugar pricing in relation to farm profit
Evaluating reduced tillage options (strategic tillage)
Evaluating a change in input costs (fertiliser, fuel, chemicals, etc)
Cost of machinery operations
Purchase of new farm

- Q3 If you've previously use FEAT, please list any improvements that will enhance the effectiveness of the programme.

Suggested improvements to FEAT
Consider placing on a web site
Automatic transfer of new data into program
Ability to upload farm map (will assist growers in identifying particular blocks)
Make the irrigation section easier to step through
Addition of a recording system
Automatic linking of machinery sheet to growing practices

Q4) When providing recommendations to growers on farming system change, do you provide information on the potential economic implication of making a particular change?



Q5) Apart from the FEAT program, briefly list any other planning tools you currently use to make economic decisions in a sugarcane farming business.

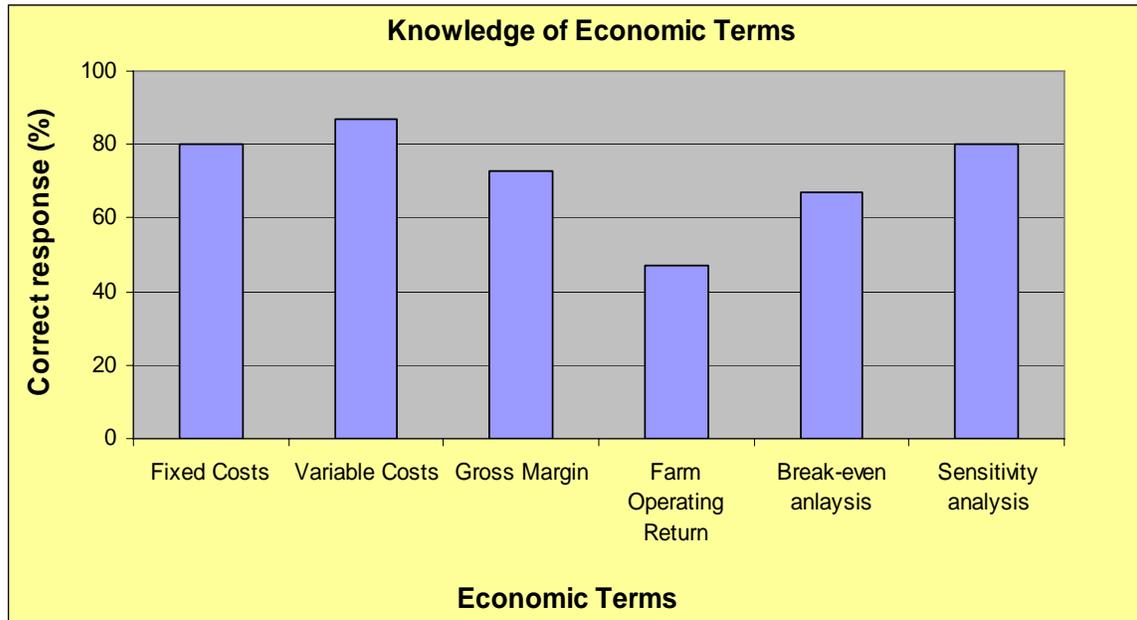
Additional planning tools used to make economic decisions
Rainman
\$/ha from sugar yield
BSES spreadsheets
Machinery cost 2000
Gross margin analysis & production costs
Impact analysis

Q6) Indicate the importance you place on the following issues when making a farm management decision?

Decision Making Issues	Response					Overall Importance	
	1 = Very Important 5 = Least Important					Weighting	Rank
	1	2	3	4	5		
Production benefits	III	III	I	II	I	28	2
Economic benefits	IIIIIIII			I	I	19	1
Environmental benefits	III	II	IIII	I		32	3
Lifestyle benefits		III	IIII	I	I	36	4

#Example of weighting calculation = Production benefits (1 x 4) + (2x4) + (3x1) + (4x2) + (5x1) = 28

Q7) Please write down your understanding of these terms.



Q8) What topics would you like to see more economic information and analysis provided to assist growers in making better on-farm decisions?

Economic Topics Of Interest
Cane payment system
The ability to undertake an analysis on a block by block basis
Budgeting tool
Tractor fuel usage / machinery ownership costs
Benchmarking costs on machinery / irrigation / labour
Irrigation infrastructure