

SRDC***Project No: BSS222***

**Improving the Profitability
of
Canefarmers in the Wet Tropics
*Analysis and Strategies***

Authors : David Hanlon and Jill Rigney (RCS)
Support : Gavin McMahon and Steve Garrad (BSES)
Date : September 2002



PO Box 377
SANDGATE QLD 4017
Tel: 07 3869 3044
Fax: 07 3869 3066
Email: brisbane@rcs.au.com

PO Box 86
INDOOROPILLY, QLD 4069
Tel: 07 33313333
Fax: 07 38710383
Email: gmcMahon@bses.org.au

BSES Publication
SRDC Final Report SD02028

CONTENTS

CONTENTS	III
TERMS USED IN THIS REPORT	V
SUMMARY	VI
1 INTRODUCTION	1
1.1 BACKGROUND	1
1.2 WHAT A PERIOD!	1
1.3 KEY DRIVERS OF THE CURRENT SITUATION	1
1.4 OBJECTIVES	2
1.5 ACCURACY OF THE DATA	3
1.6 OUTLINE OF THIS REPORT	3
1.7 ACKNOWLEDGEMENTS	3
1.8 DISCLAIMER	4
2 PUTTING THE PROJECT IN PERSPECTIVE	5
2.1 CANE PRODUCTION	5
2.2 CANE PRICE	5
2.3 COSTS IN THE VALUE CHAIN	5
3 BUSINESS ANALYSIS FRAMEWORK	7
3.1 BACKGROUND	7
3.2 THE RCS BUSINESS ANALYSIS FRAMEWORK	8
4 KEY PERFORMANCE AREA SUMMARY	11
4.1 INTRODUCTION	11
4.2 PRODUCTIVITY	12
4.3 YIELDS	12
4.4 GROSS MARGINS	15
4.5 PEOPLE	16
4.6 PECUNIARY	19
4.7 PROFITABILITY	21
4.8 EARNINGS BEFORE INTEREST AND TAX (EBIT)	23
4.9 RETURN ON ASSETS MANAGED (ROAM)	24
4.10 PROPERTY MEASURES	25
5 COST OF PRODUCTION	28
5.1 OVERVIEW	28
5.2 COST OF CAPITAL	28
5.3 GROWING COSTS	29
5.4 HARVESTING COSTS	30
5.5 INDUSTRY COSTS	30
5.6 OVERHEAD COSTS	30
5.7 NON-CASH COSTS	31
5.8 TOTAL COSTS	32
5.9 SCALE IMPACTS	33
6 IMPROVING BUSINESS PERFORMANCE	34
6.1 THE FRAMEWORK	34
6.2 STEPS TO ADOPT TO IMPROVE BUSINESS PERFORMANCE	35

LIST OF ANNEXURES

ANNEX 1: PROFIT PROBE INPUT SHEETS	
ANNEX 2: SAMPLE PROFIT PROBE REPORT	
ANNEX 3: ASSCT PAPER	
ANNEX 4: CASE STUDIES	

LIST OF TABLES

TABLE 1: WET TROPICS YIELDS	5
TABLE 2: WET TROPICS PRICES	5
-TABLE 3: TRADITIONAL -V- MODERN COST ALLOCATION	7
TABLE 4: KEY PERFORMANCE AREAS - SELECTED DEFINITIONS	10
TABLE 5: KPI SUMMARY – 4 YEAR AVERAGES	11
TABLE 6: GROSS MARGINS (\$/HA) – TOP 20%	16
TABLE 7: GROSS MARGINS (\$/HA) - AVERAGE.....	16
TABLE 8: TC/FTE - TOP 20%.....	17
TABLE 9: TC/FTE - AVERAGE.....	17
TABLE 10: TRAINING DAYS – TOP 20%	18
TABLE 11: TRAINING DAYS – AVERAGE	18
TABLE 12: HOLIDAYS – TOP 20%	18
TABLE 13: HOLIDAYS – AVERAGE	18
TABLE 14: FERTILISER AWARENESS AND EFFICIENCY	27
TABLE 15: COMPARISON OF PRODUCTION COSTS IN THE WET TROPICS (Av 1998-2001)	28
TABLE 16: FRAMEWORK FOR IDENTIFYING THE DRIVERS OF BEST PRACTICE.....	34

LIST OF CHARTS

CHART 1: DIFFERENCE IN PRODUCTION COSTS BETWEEN GOOD AND POOR PERFORMING GROWERS AND MILLS	6
CHART 2: ACTIVITY BASED COSTING IN SUGARCANE PRODUCTION	8
CHART 3: PROFITPROBE™ BUSINESS ANALYSIS SYSTEM	9
CHART 4: CANE YIELD – TOP 20%	13
CHART 5: CANE YIELD – GROUP AVERAGE	13
CHART 6: AVERAGE CANE YIELD 1998-2001	13
CHART 7: SUGAR YIELD – TOP 20%	14
CHART 8: SUGAR YIELD – AVERAGE	15
CHART 9: AVERAGE CANE YIELD 1998-2001	15
CHART 10: EXPENSE RATIO – 1998-2001	19
CHART 11: FINANCE RATIO – 1998-2001	20
CHART 12: FINANCE COSTS – 1998-2001	21
CHART 13: GROSS MARGIN RATIO – 1998-2001	22
CHART 14: OVERHEAD RATIO – 1998-2001	22
CHART 15: EBIT – TOP 20%	23
CHART 16: EBIT – AVERAGE	23
CHART 17: EBIT – 1998-2001	24
CHART 18: RETURN ON ASSETS (ROAM) – 1998-2001	25
CHART 19: DISTRIBUTION OF ENVIRONMENTAL SCORES FOR 53 CANE GROWERS	26
CHART 20: COMPARISON OF EARNINGS BEFORE INTEREST AND TAX (EBIT) (\$/HA) WITH CANE YIELD (TC/HA) AND ENVIRONMENTAL SCORE	26
CHART 21: GROWING COST TRENDS.....	29
CHART 24: TOTAL COSTS (BEFORE FINANCE) – TOP 20%	32
CHART 25: TOTAL COSTS (BEFORE FINANCE) – AVERAGE.....	32
CHART 26: TOTAL COSTS (BEFORE FINANCE) – 1998-2001	33

TERMS USED IN THIS REPORT

Asset Turnover ratio	Gross product / total assets – asset ownership efficiency indicator.
Average	Average for the sample analysed.
Direct costs	These costs are directly related to the operation and its size and the costs will vary accordingly.
EBIT	Earnings before interest and tax.
Effective water use	Total amount of water applied, including effective rainfall and irrigation.
Energy cost	Cost of energy used to produce \$1000 worth of gross income.
Expense ratio	Direct, overhead and finance cash expenses as a % of gross product.
Finance ratio	Interest and leases paid as a % of gross product.
FTE	Full Time Equivalent. Often referred to as one labour year and is equal to 48 weeks.
Gross Margin	Difference between gross product and direct costs for the enterprise.
Gross Product	Gross income plus any changes in inventory.
Holidays	Weeks of holidays taken per owner FTE.
KPA	Key performance area.
KPI	Key performance indicator.
Overhead ratio	Overhead expenses as a % of gross product.
Pecuniary	Finance ratios and other measures which show the impact of financing and expenses on profitability.
People	Labour and time management on a total farm basis as well as looking at the impact on lifestyle.
Productivity	Production measures which are important indicator of the crops production, quality and growing costs.
ProfitProbe™	RCS benchmarking software.
Profitability	Economic measures that look at the profitability and the return on the dollars invested.
Property	Physical property indicators are those on farm actions which have an effect on production or the general farm environment.
ROAM	Return on assets managed. Is the profit before interest and tax from the property expressed as a percentage of the total assets employed in the business.
tc	Tonnes of cane.
ts	Tonnes of sugar.
Top 20%	Top 20% economic performers based on ROAM. They indicate the relationships between each KPI the top 20% have.
Total costs – excl. finance	Cost per unit of produce, excluding any interest payments.
Total farm ha /FTE	Number of hectares per FTE – paid and unpaid labour.
Training	Days of training completed per FTE – paid and unpaid labour.
Unpaid Labour	Family members or owner/operators who have worked and/or managed the farm but have not drawn a salary.

SUMMARY

THE PROJECT

Background

1. This document provides the results of a 4-year benchmarking project in the Wet Tropics region of the Queensland sugar industry. The project examined production costs from Tully in the South to Mossman in the North as well the different production system of the Atherton Tablelands. The bulk of participants came from the Innisfail Tully region. The project was a joint activity between BSES and RCS. Both parties provided complimentary skills to the process, with RCS providing the business acumen and tools and BSES the technical advice and local contacts. Both organisations successfully ran the Prophet project (BS 91 S), which stimulated an interest in business management.
2. During the period covered by this survey the industry experienced some of the worst conditions ever: a combination of low prices and low yields meant that many growers lost money for most of the period of the project.

Objectives

3. The objectives of the project were to:
 - Establish a solid core of financial/physical performance indicators for the region
 - Provide an environment where growers in the northern region could objectively evaluate their business performance
 - Enable growers to a) identify clear trends in the performance of their own business against the wider industry and b) monitor their own performance against personal business goals established in the project
 - Identify practices or conditions that influence financial performance
 - Integrate practical environmental monitoring procedures into each business' annual activities
 - Develop best practice business management guidelines in line with the best management practice program of CP 2002
4. The business analysis workshops were, perhaps, the crucial step in ensuring an understanding, and implementation, of the results. This is discussed later.

The process

5. The steps taken to meet the above objectives were:
 - RCS/BSES jointly conducted a series of awareness seminars within each of the mill areas of the region
 - Preparation of a series of grower information packages
 - Undertaking a series of farm "audits" to establish baseline physical and crop management/husbandry practices
 - Data Analysis
 - Conduct of grower workshops to:
 - ↳ Assist in the understanding of the terms in the report and, more importantly, the implications for individual grower businesses
 - ↳ Ensure growers understood the financial and productivity outcomes both within their own mill area and across the Wet Tropics region
 - ↳ Assist growers establish targets and action plans that were both physically realistic and affordable within the specified timeframe

- Conduct of a series of on-farm visits/walks or further workshops with a structured program developed for each activity

Approach and output formats

6. The approach adopted in costing differs from the traditional approach in two ways. First, growers are asked to allocate costs according to the activity in which the cost occurred. In this way, comparisons between contract and owner operations are made in the same way. Second, growers are taught to seek which one of three key areas is a priority in their business: turnover, gross margin or overheads (referred to as the “three secrets”).

Performance measures

7. The key performance indicators (KPIs) for the major regions in the project are summarised below. The Top 20% of economic performers are compared against the group Average and the industry benchmarks (Wet Tropics only).

KPI Summary – 4-year averages						
		Innisfail Tully	Cairns	Tablelands	Wet Tropics	Wet Tropics Target
Top 20%						
Cane yield	tc/ha	74	92	124	74	>85
Labour	tc/FTE	4,055	5,681	12,240	6,115	>10,000
Costs (before finance)	\$/tc	19	21	22	20	<19
Gross Margin	\$/ha	360	391	1,029	357	>800 ¹
EBIT	\$/ha	592	218	928	383	
ROAM	%	7	1	14	5	>8
Ratios						
Overhead	%	17	26	11	21	<10
Gross Margin	%	36	26	35	32	>40
Expense	%	87	102	81	96	<75
Average						
Cane yield	tc/ha	72	81	113	75	
Labour	tc/FTE	5,066	4,810	6,452	4,914	
Costs (before finance)	\$/tc	23	25	23	25	
Gross Margin	\$/ha	84	(36)	473	29	
EBIT	\$/ha	19	(176)	412	(77)	
ROAM	%	1	-7	3	-3	
Ratios						
Overhead	%	31	35	22	34	
Gross Margin	%	14	6	27	9	
Expense	%	113	126	99	126	
¹ Gross Margin and EBIT are a function of price, yield and costs and the targets are set on the basis of the 1998 crop.						
² > greater than; < less than						
Source: RCS/BSES survey data						

Cost of production

8. A more detailed analysis of cost of production was undertaken and is summarised in the table below. As indicated in this table, the Top 20% are able to achieve a cost of production lower than the group Average. The key areas of difference (\$/tc) growing costs (-\$0.71), unpaid labour (-\$0.58), overheads (-\$0.51) and harvesting costs (-\$0.40). Even if harvesting costs are discounted, the Top 20% are still able to achieve a lower production cost of some \$2/tc.

Activity based cost of production analysis – Wet Tropics					
	\$/ha		\$/tc		Difference (\$/tc)
	Top 20%	Av	Top 20%	Av	
<u>Cash costs before finance</u>					
Growing	514	6.96	569	7.67	(0.71)
Harvesting	427	5.71	460	6.11	(0.40)
Industry	36	0.50	37	0.50	(0.01)
Overheads	153	2.14	193	2.65	(0.51)
<u>Non-cash costs before finance</u>					
Depreciation	153	2.13	173	2.33	(0.20)
Unpaid labour	105	1.36	147	1.94	(0.58)
Total cash costs before finance	1,130	15.30	1,259	16.93	(1.63)
Total costs (cash and noncash) before finance	1,388	18.79	1,579	21.19	(2.40)

Source: RCS/BSES survey data

Implementation

9. Achieving best practice is a less exacting science requiring a mixture of core activities and experience in decision making. However, four growers assisted this component of the project considerably through allowing a detailed examination of their operations to help build the foundation of what we might call best practice options to achieve higher profits. Annex IV provides a summary of what these growers told us and the results are summarised in Table 17.

OBSERVATIONS

Participation

10. Obtaining participation in this project was difficult after year one. Many growers knew their numbers would be worse and felt they had got sufficient information from the first report and workshops to understand their business position. Also, many growers still keep poor records for what is a single enterprise business. Hence, extracting business-performance indicators was difficult and off-putting.

Labour

11. From this exercise, it is clear that the industry finds it difficult to estimate its own labour inputs. As a result, many growers are working for less than wages.

Real price and cost knowledge

12. It is also clear that many growers have little idea about their net farm-gate costs relative to their peers within the same district.

OUTCOMES & FURTHER RESEARCH NEEDS

Outcomes

- [13.](#) The project developed a sound basis for best practice in the sugar industry. To date, best practice has been solely production based and, in our opinion, this is a hard culture to break. There has been resistance at all levels of the cane industry to having a solid understanding of the key cost drivers. As a consequence, many in the industry do not have any understanding of the relationships referred to as the “three secrets”; that is, turnover, gross margin and overheads.
- [14.](#) Specifically, the project provided a solid framework for:
- analysis of the cost drivers in cane production
 - integrating environmental performance with business performance
 - identifying practices which improve both business profitability and thus overall industry competitiveness

Further research/extension needs

Data updating

- [15.](#) Data sets such as that developed in this project are invaluable for good decision making. However, to be relevant, updating at least on 3-year cycle is essential.

Recommendation 1: Any business process support within the industry ensures that process captures a sample of growers’ data in a consistent format to enable the drivers of profitability to be monitored.

Business skilling

- [16.](#) The project clearly indicated that grower business skills are lacking. Activities which provide growers with the clear drivers of their business performance are essential in the current climate. Any such programs should clearly highlight the options in an activity-based costing format to show growers where the drivers lie and what are the implications of various options.

Recommendation 2: That industry support regional business improvement seminars and workshops.

1 INTRODUCTION

1.1 BACKGROUND

This project was submitted in response to the poor economic performance by many sugarcane growers within the Far Northern sugar industry during the late 1990s. The plight of the industry was a result of the poor crops, low ccs and lower world prices. Although the industry keeps many records and benchmarks productivity performance, what had not been evaluated was:

- The range of financial performances within the region;
- The relevant targets for the individual businesses to achieve;
- The ability of growers to respond to identified productivity/profitability drivers on their own farm; and
- The effect of different farming practices on profitability, as opposed to productivity.

This project was a joint activity between BSES and RCS. Both parties provided complimentary skills to the process with RCS providing the business acumen and tools and BSES the technical advice and local contact. Both organisations successfully ran the Prophet project (BS 91 S), which stimulated an interest in business management.

1.2 WHAT A PERIOD!

The period of the project, 1998 to 2001, will be remembered as some of the toughest years in the Australian sugar industry and the region in particular. The period suffered unparalleled reductions in yields, a severe downturn in prices, and the collapse of the South Johnstone sugar mill. As this report is being prepared (September 2002), the viability of many growers, harvest contractors and at least two of the mills in the region is seriously questioned.

Understandably, many in the industry have had difficulty facing up to the true costs of production in each of value-chain sectors when seemingly greater pressures are facing the industry. However, we suggest that, if the true costs of doing business in each of the value chain sectors had been taken into perspective, many would not be in the position they are now. It is our hope that growers, harvest contractors and millers alike will read this report and work together to make a viable industry.

1.3 KEY DRIVERS OF THE CURRENT SITUATION

The outlook for sugar in the short term will be difficult. We have seen the high prices of the mid-1990s reduced through aggressive competition from Brazil (supported by continued devaluations). Importantly, the greatest advantage in the Brazilian value-chain is in low costs for cane production.

With lower farm production costs than Australia, Brazil has set the benchmark for low-cost production. Australian cane farmers have to seek new and innovative ways to achieve lower costs of production.

As a result of these factors, everyone in the industry is looking for solutions to ensure that the industry comes out of the downturn more resilient and better positioned to address the issues confronting it.

We are optimistic that a viable industry can be maintained in the Wet Tropics; this will however require a commitment to thinking in a very different manner from what has been adopted in the past.

1.4 OBJECTIVES

The overall objective of the study was to demonstrate to sugar producers that benchmarking is an important tool in understanding one's business and, if used properly, is a powerful aid in identifying key strengths and weaknesses. It provides the gauges for monitoring progress in making changes. Specific objectives were to:

- Establish a solid core of financial/physical performance indicators for the region
- Provide an environment where growers in the northern region could objectively evaluate their business performance
- Enable growers to a) identify clear trends in the performance of their own business against the wider industry and b) monitor their own performance against personal business goals established in the project
- Identify practices or conditions that influence financial performance
- Integrate practical environmental monitoring procedures into each businesses annual activities
- Develop best practice business management guidelines in line with the best management practice program of CP 2002

The steps taken to meet the above objectives were as follows.

Awareness Seminars

- RCS/BSES jointly conducted a series of awareness seminars within each of the mill districts of the region

Grower Information Packages. These packages contained the following:

- Project overview and program outline
- Data collection sheets
- Instructions on how best to collate their data
- A sample output of the business analysis report

Farm "Audits". To integrate the financial data collected, a number of field days and/or grower case studies were developed to:

- Assist in data compilation
- Establish baseline physical and crop management/husbandry practices

Data Analysis. All data were analysed using the ProfitProbe™ software developed by RCS. Reports were in two formats:

- An individual grower report
- Once all the individual grower data sets were collected there was the compilation of a regional analysis

Workshops. These were conducted to assist growers:

- Understand the terminology used in the report
- Assess the implications for their business
- Learn how to establish targets and action plans that were physically realistic

Keep it Touch (KIT) Groups

- A series of farm visits/walks or further workshops with structured programs was developed for each region

1.5 ACCURACY OF THE DATA

We point out that no guarantee is given as to the representativeness of the sample as participation was voluntary. However, in the desire for best practice, we place most emphasis on the comparison of individual performance with that of the top 20% of growers in a particular location. Averages are considered less meaningful.

Despite these limitations, we believe that a number of valuable data sets have emerged. Perhaps, more importantly the data collated by RCS/BSES over a 10-year period continue to confirm the same trends regardless of area. Consistency in trends, we believe, validates the management practices we are advocating for growers. In sum, RCS/BSES have collated in excess of 1,600 business years of data on cane production in Australia. Analysis of these data sets for every cane production region in Australia gives credence to the recommendations set in this document.

Accordingly, the outcomes and recommendations in this report are, we believe, applicable to all regions of cane growing of Australia; from NSW through Queensland to the Ord region.

1.6 OUTLINE OF THIS REPORT

Section 2 provides a brief summary of the conditions facing the industry during the period of this project and Section 3 provides an understanding of the business analysis system used. Section 4 summarises the key findings from the benchmark data, while Section 5 provides more detail on the costs in cane production using an activity based costing approach. Finally, Section 6, drawing on the financial analyses, the case studies and Keep-in-Touch days, provides the framework for identifying the drivers for better business improvement and identifies a series of strategic actions for growers to consider.

In undertaking this study, we broke the Northern Region of the cane production into a number of sub-regions. These are:

- Tablelands areas of Mareeba and Tolga
- Cairns, representing the Cairns, Gordonvale and Mossman regions of Queensland.
- Tully
- Innisfail

The number of growers participating in the project varied between regions and we have placed most attention on the Wet Tropics (as a whole) and the Tablelands. Data from all regions are available, but we believe, from our annual analysis and grower presentation workshops, that the Wet Tropics data provide a good indication of the cost structures for the region.

Quite a lot of terminology is used in the report that may not be standard language for a number of people. While explanation of these terms has been provided above, details of how they are calculated and used in business analysis are provided in Annex 2.

Much data were collected during the course of this project and much of that was analysed during the project. However, as time evolved, it became clear that fewer numbers gave growers a better measure on their business and, perhaps more importantly, what to look for in making management decisions.

1.7 ACKNOWLEDGEMENTS

This project would not have been possible without the support from a number of people. In particular the support of David Sinclair in the first two years of the project and Steve Garrad in the last two years of the project.

Sincere thanks must be given to all growers who participated in this project, as without their support it could not have succeeded. We thank Lance and Ron Blundell for taking the time to analyse their data and being prepared to present their views at grower workshops.

The following growers also were prepared to share their properties and discuss their data in light of their practices: Ken, Mary and Doug Hardwick, Sid and Franca DiMarco, Frank and Lynette Hughes, Anthony and Kia Fermo, John Goodman, and Margaret and Miles Darveniza

We give special thanks to Tom Harney, Sophie and John Quadrio, Lance Rodman and Tom Watters who willingly gave of their time to be the case studies in this project. Their help in putting the “numbers into practical strategies” has been invaluable.

1.8 DISCLAIMER

Funding for this activity was provided in part by the sugar industry and the Commonwealth Government through SRDC, and is gratefully acknowledged. RCS and BSES are not partners, joint venturers, employees or agents of SRDC and have no authority to legally bind SRDC, in any publication of substantive details or results of this project.

2 PUTTING THE PROJECT IN PERSPECTIVE

2.1 CANE PRODUCTION

As indicated in Table 1, cane yields in the period of the study were significantly down on the longer term yields for the region. The 10-year average yield for the region is slightly above 90 tc/ha, however when the 5-year period (1992-1996) is compared to the last 5-year period (1997-2001), the impact of the wet conditions is seen. Overall, the second 5-years (Period 2) has seen an 18% drop in cane yields for the region and when the 2001 crop year is compared to Period 1 (1992-1996) there has been a 28% reduction in yields.

This reduction in tonnes of cane per hectare had a significant impact on the profitability of all enterprises in the region.

Table 1: Wet Tropics yields

	10-Yr Av 1992 – 2001 (tc/ha)	Period 1 5-Yr Av 1992 – 1996 (tc/ha)	Period 2 5-Yr Av 1997 – 2001 (tc/ha)	Change Period 1 to Period 2	Change Period 1 To 2001 crop
Mossman	86	94	78	-17%	-29%
Mulgrave	91	97	85	-12%	-24%
Babinda	78	86	70	-19%	-26%
Mourilyan	79	87	71	-19%	-30%
South Johnstone	80	87	73	-16%	-26%
Tully	84	95	73	-23%	-33%
North Queensland	83	92	75	-18%	-28%

2.2 CANE PRICE

As with yield, the region experienced a similar reduction in price received during the last 5 years. That is, prices during the period 1992 to 1996 averaged \$27/tc and in the second 5-year period this reduced to \$23/tc, representing a 15% reduction in price. The 2001 crop was 25% below that received in Period 1 (1992–1996). Again, price has caused a significant reduction in the profitability of farms in the region.

Table 2: Wet Tropics prices

	10-Yr Av 1992 – 2001 (\$/tc)	Period 1 5-Yr Av 1992 – 1996 (\$/tc)	Period 2 5-Yr Av 1997 – 2001 (\$/tc)	Change Period 1 to Period 2	Change Period 1 to 2001 crop
Mossman	26	28	24	-15%	-28%
Mulgrave	28	28	24	-12%	-27%
Babinda	25	25	21	-16%	-22%
Mourilyan	27	26	23	-14%	-22%
South Johnstone	27	27	22	-16%	-24%
Tully	27	27	22	-19%	-25%
North Queensland	24	27	23	-15%	-25%

2.3 COSTS IN THE VALUE CHAIN

One of the significant features of the sugar industry is that the cost-of-productions issues have been surrounded by secrecy. This has been more evident in the milling sector, which has adamantly refused to participate in any benchmarking that may have a remote possibility of providing any

public information¹. Similarly, the harvesting sector has had no true benchmarking undertaken by an independent group. By comparison, the farming sector was benchmarked by ABARE for the Boston Consulting Group Study and has had three SRDC-funded benchmark studies. Due to an unwillingness of the milling sector to provide any public information, the farm study results have not been made freely available to growers. The harvesting and transport sector has not been benchmarked, despite the overwhelming evidence that this sector offers some of the greatest areas for improvement in profitability of the sugar value-chain.

This lack of transparency in the value chain has, we believe, helped to fuel a considerable amount of misunderstanding of where the costs lie in each sector and what needs to be done to ensure competitiveness of the overall industry.

Chart 1: Difference in production costs between good and poor performing growers and mills

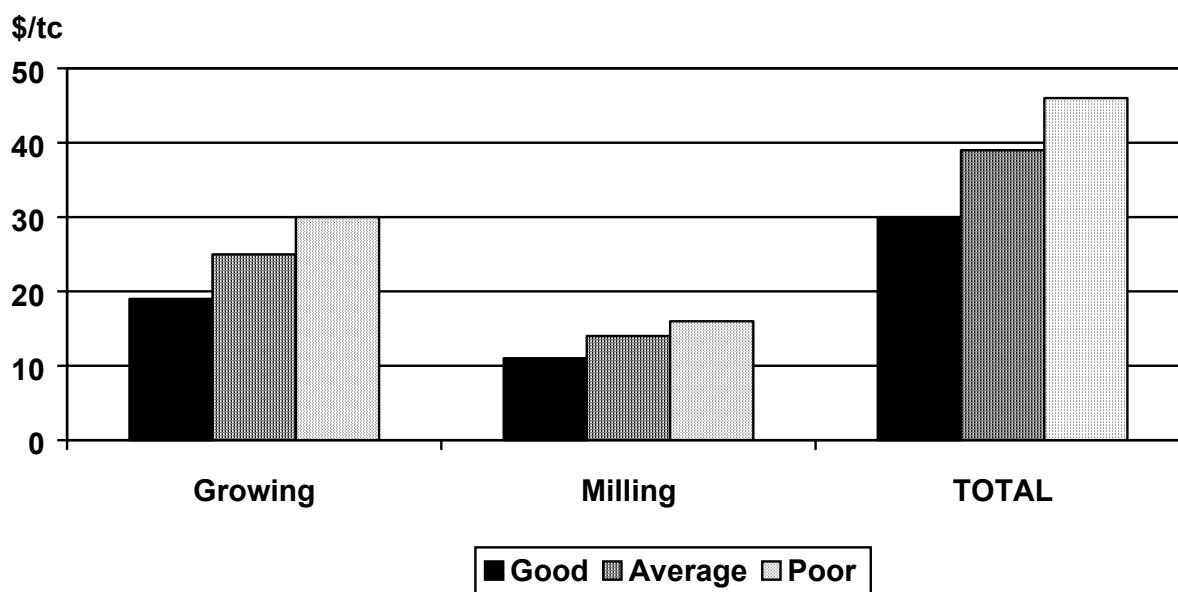


Chart 1 provides indicative difference in the cost of production in the growing and milling sectors. To be competitive, the industry must make profits and both the growing and milling sector need to be able to reinvest. If we have, say, a very low-cost growing area and a high-cost mill area, then growers are subsidising the mill. If, on the other hand, we have a low-cost mill and higher-cost growers, then the mill is subsidising the growers.

However, in this industry averages tend to prevail, so payment schedules are based on average industry performance, which means that inefficient businesses (whether they be the mill or growers) are supported by the more efficient businesses.

¹ The milling sector has undertaken private benchmark studies, however the results have never been made public.

3 BUSINESS ANALYSIS FRAMEWORK

3.1 BACKGROUND

To properly assess the viability of any business, there are a number of steps that need to be undertaken to ensure that all factors are properly considered.

Traditional -v- the modern

The traditional approach to “staying-in-business” analysis has been to assess the cash costs of so doing. While this is an important consideration, it has a number of flaws and can end up costing those entering the business greatly.

The modern (or more business-like approach) is to assess the business-investment decision according to parameters, that include the following:

- Cost of capital (that is, what is the cost of entering the cane business on a per tonne of cane basis)
- Breakdown operating costs into key areas of activity (see Chart 2). For farming these are:
 - Growing
 - Harvesting
 - Industry
 - Overheads
 - Finance

In comparing one grower with another, we do not compare finance costs. While finance costs are an important cost for many businesses, the level of debt is a long-term measure of economic performance².

The major difference between traditional and modern is a reallocation between the growing and overheads categories for the categories indicated in Table 3.

Table 3: Traditional -v- modern cost allocation

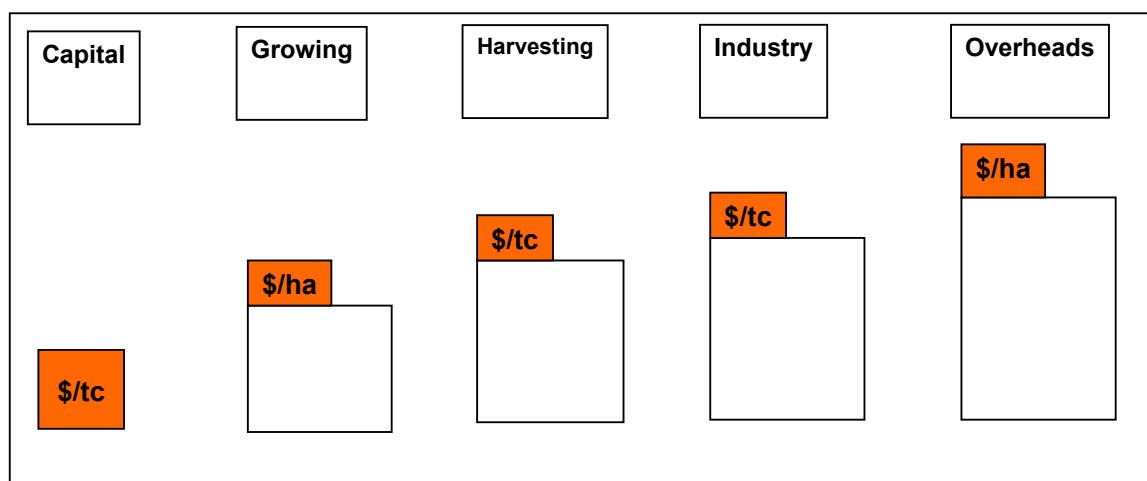
	Traditional	Modern	Comment
Fuel	Overhead	Growing Overheads	Fuel used for farming operations should be costed against that operation Balance of fuel used for vehicles not directly associated with cane growing should be allocated to overheads
Repairs & Maintenance	Overhead	Growing Overheads	Plant R&M costs against growing Buildings, plant and non-farm plant
Labour	Overhead (unpaid not assessed at all)	Growing Overheads	What time is actually spent in growing a crop (one of the key benchmarks is the total tonnes of cane per full time equivalent).
Note: This breakdown assumes that harvesting is by contract, otherwise the modern approach would be to allocate to harvesting.			

By adopting this format, a canefarmer can identify where the major cost items are occurring within the business and then work to address the areas of high costs. Unless costs are broken down in this manner, most canefarmers cannot identify where the problem areas are. Importantly, this

² We acknowledge that high debt may impact in the short term with businesses cutting back on R&M, reducing crop maintenance, etc.

approach enables the cost of contracting services, such as ground preparation, planting and spraying, to be compared on a more equal basis.

Chart 2: Activity-based costing in sugarcane production



3.2 THE RCS BUSINESS ANALYSIS FRAMEWORK

The approach we adopt is to analyse a business on what we call the “three secrets”; secrets because they are so frequently overlooked in the business assessment. These are:

- Increase turnover
- Increase gross margin
- Decrease overheads

The framework to flush out the drivers for best practice is summarised below and the process is outlined schematically in Chart 3.

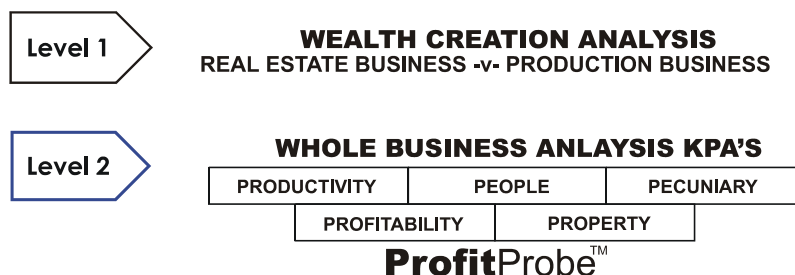
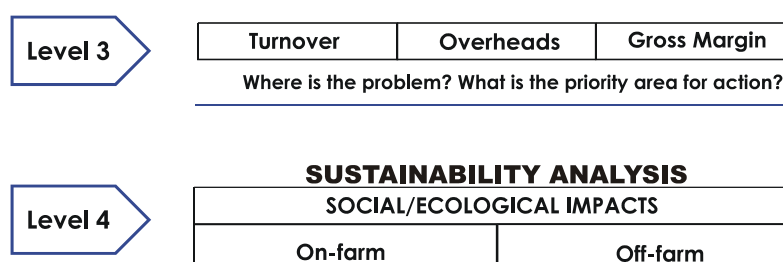
Level 1 provides a measure over time of the return to assets managed. Land, as an asset, must provide an adequate return to labour and risk. In a similar way, the enterprise conducted on the land must provide a return to the landowner. That is, profit is only derived after paying rent for land.

Level 2 undertakes a “whole-of-business” analysis utilising five key performance areas (KPA) of the business through use of the RCS **ProfitProbe™** software. This system enables the establishment and monitoring of business benchmarks. In particular, it evaluates what are the critical issues for the business.

Level 3 provides a more in-depth analysis of the “*three secrets*” – turnover, overheads and gross margins. This is a simple but powerful process in itself. In any business one of these will be a priority area for action. Each enterprise operated by the business is examined in this way. From a detailed assessment of the business, actions for improvement can be developed. Within any business, a poor performance in any one of the three secrets indicates where to look in the business for change to improve returns:

- *Turnover* – is a function of yield, ecological health of the enterprise and scale of operation
- *Gross margin* – is a function of enterprise efficiency
- *Overheads* – are a function of business design, people and labour skills

Level 4 examines the impact of proposed actions on the people in the business and on the environment.

Chart 3: ProfitProbe™ business analysis system**Strategic Analysis****Tactical (Detailed) Analysis**

The output from **ProfitProbe™** is summarised within five key performance areas (KPAs), a selection of which are provided in Table 4. Importantly, these KPAs provide the business operator with a set of gauges that focus on the factors of their business that they **can** influence to achieve better performance. Unfortunately, in the past most businesses have not had access to a rigorous set of business indicators.

Most users have acknowledged that there is nowhere to hide in **ProfitProbe™**. As a state of the art system, it challenges the users to question what they are doing and seek ways of improvement. As a tool it is used in the context of the goals and operation of the business being analysed. Benchmarks themselves are only a by-product of the process, not the desired goal.

Within each of these key areas of **ProfitProbe™** we have over the years derived a unique set of indicators and ratios. These have been sorted by region to provide a powerful set of measures to assist our clients in achieving best practice.

Table 4: Key performance areas - selected definitions	
Productivity	Includes measures which are important indicators of production, quality and growing costs. For sugar, these include: <ul style="list-style-type: none"> ▪ Yield (tc/ha) ▪ Sugar quality (ccs) ▪ Total costs (before finance) (\$/tc) ▪ Gross margin (\$/ha)
People	Includes labour, time management and lifestyle measures. These include: <ul style="list-style-type: none"> ▪ Gross product/FTE(full time equivalent) ▪ tc/FTE ▪ Holidays (wks/owner FTE) ▪ Training (days/labour FTE)
Pecuniary	Includes finance ratios and measures which show the impact of financing and growing expenses on profitability. Included are: <ul style="list-style-type: none"> ▪ Expense ratio (%) ▪ Finance ratio (%) ▪ Debt ratio (%)
Profitability	Includes economic measures that look at the profitability and the return on the dollars invested. Included are: <ul style="list-style-type: none"> ▪ Asset turnover ratio (%) ▪ Gross margin ratio (%) ▪ Overhead ratio (%) ▪ EBIT (Earnings before interest and tax)(\$/ha) ▪ ROAM (Return on assets managed) (%)
Property	Includes physical property indicators which are those on-farm actions impacting on production or the general farm environment. For sugar, these include: <ul style="list-style-type: none"> ▪ Effective water use (ML/ha) ▪ N efficiency (tc/kg N) ▪ Energy cost (\$/\$1000 Gross Income) ▪ Environmental score
Note: this is a selection of the main indicators in each key performance area.	

Key Performance Indicators (KPIs) simply provide an unbiased picture of one business compared with others who operate under similar environmental conditions or the whole of industry. Regional comparisons may be: sub-tropics compared with the wet tropics, or intensive irrigation versus rainfed sugar farming.

Importantly KPIs provide a standard measure of business performance, and these measures may be:

- a) **Strategic** in that they measure overall wealth creation (one example is the "return on funds invested in the sugar business");
- b) **Tactical** in that they provide key ratios to identify where weaknesses of the business exist (examples include gross margin ratio, overhead ratio and expense ratio);
- c) **Environmental** where issues such as crop nutrients and water use efficiencies are monitored.

4 KEY PERFORMANCE AREA SUMMARY

4.1 INTRODUCTION

The Key Performance Indicators provide a gauge of the business performance by area. We have selected the most relevant KPIs and for each summarized the Top 20% and the group Average results. Table 5 puts the major indicators and ratios into an overall framework for the project. As indicated in this table, the period results are not what one would expect in better conditions and with better prices. However, it does point out that there are significant differences in performance of growers in each of the regions between the Top 20% and the group average.

Moreover, we suggest that growers, learning to read their key ratios will identify the priority areas for improvement in the business performance. For example, when the differences between the three ratios illustrated in Table 5 are examined, there are a number of factors that an experienced analyst can point to immediately. The difference in Gross Margin ratio is greater in the Wet Tropics and this is due to higher costs of production per tonne of cane.

Each of these indicators is discussed in more detail later in this section.

Table 5: KPI Summary – 4-year averages						
		Innisfail Tully	Cairns	Tablelands	Wet Tropics	Wet Tropics Target
Top 20%						
Cane yield	tc/ha	74	92	124	74	>85
Labour	tc/FTE	4,055	5,681	12,240	6,115	>10,000
Costs (before finance)	\$/tc	19	21	22	20	<19
Gross Margin	\$/ha	360	391	1,029	357	>800 ¹
EBIT	\$/ha	592	218	928	383	-
ROA	%	7%	1%	14%	5%	>8%
Ratios						
Overhead	%	17	26	11	21	<10%
Gross Margin	%	36	26	35	32	>40%
Expense	%	87	102	81	96	<75%
Average						
Cane yield	tc/ha	72	81	113	75	
Labour	tc/FTE	5,066	4,810	6,452	4,914	
Costs (before finance)	\$/tc	23	25	23	25	
Gross Margin	\$/ha	84	(36)	473	29	
EBIT	\$/ha	19	(176)	412	(77)	
ROAM	%	1%	-7%	3%	-3%	
Ratios						
Overhead	%	31	35	22	34	
Gross Margin	%	14	6	27	9	
Expense	%	113	126	99	126	
¹ Gross Margin and EBIT are a function of price, yield and costs and the targets are set on the basis of the 1998 crop.						
² > greater than; < less than						
Source: RCS/BSES survey data						

4.2 PRODUCTIVITY

Productivity measures are those that most sugar producers are used to seeing. They are measures that directly relate to physical production. In our grower benchmark reports they include:

- Yield (tonnes of cane/ha and tonnes of sugar/ha)
- Relative CCS
- Total costs (before finance)/tc (this is covered in Section 5.8)
- Gross margin per hectare

4.3 YIELDS

Two types of yields are recorded, that is, tonnes of cane per hectare and tonnes of sugar per hectare.

Cane yield

Yields are measured on the basis of area harvested to ensure consistency.

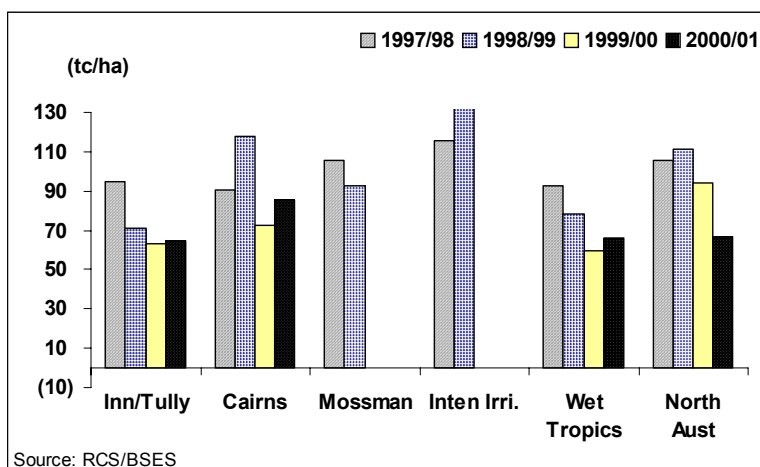
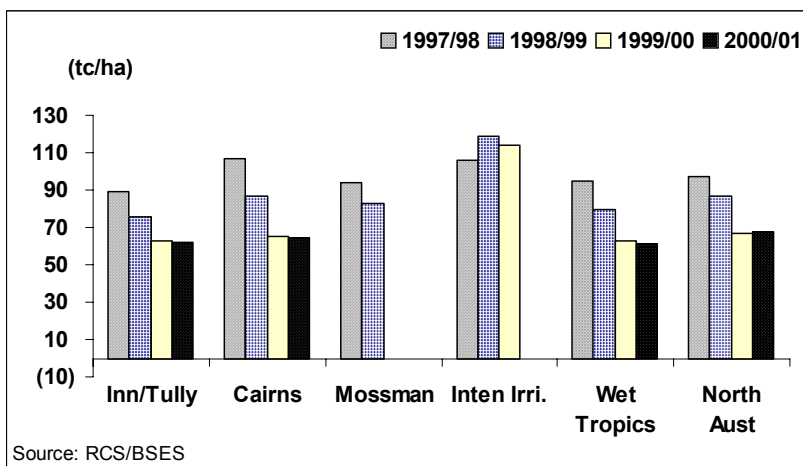
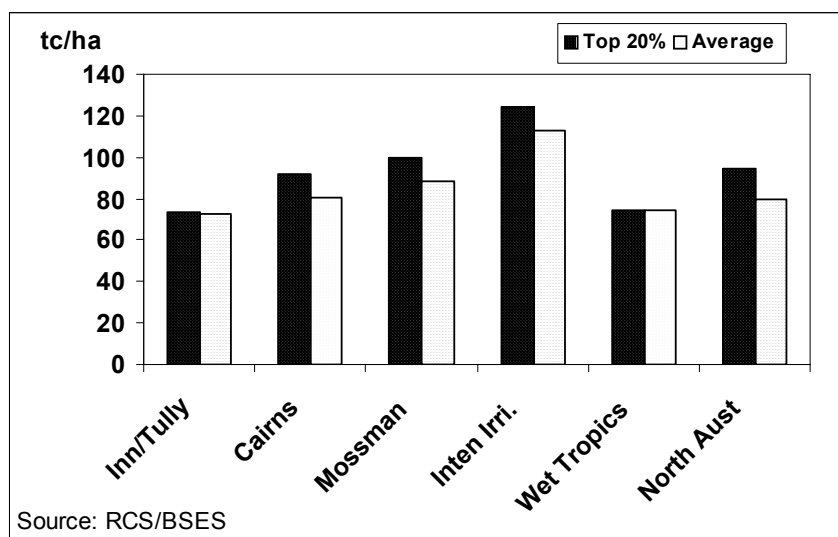
These charts cover 5 sub-regions in the North Australia region:

- Innisfail/Tully
- Cairns
- Mossman
- Intensive Irrigation (Tablelands)
- Wet Tropics (all Wet Tropics excluding Intensive Irrigation)

Chart 4 and Chart 5 summarise the yields for the Top 20% and group Average respectively, while Chart 6 provides a summary of the cane yield for each region over the 4-year period of the project.

These charts cover 5 sub-regions in the North Australia region:

- Innisfail/Tully
- Cairns
- Mossman
- Intensive Irrigation (Tablelands)
- Wet Tropics (all Wet Tropics excluding Intensive Irrigation)

Chart 4: Cane yield – Top 20%**Chart 5: Cane yield – Group Average****Chart 6: Average cane yield 1998-2001**

Key feature of these charts are:

- Cane yields for the Top 20% in the Wet Tropics were 1% less than the group Average;
- Cane yields for the Top 20% in the Intensive Irrigation (Tablelands) were 10% above the group Average (note this applies only to the 1998 and 1999 crops as there were insufficient participants in latter years to separate out Top 20% and group Average);
- As to be expected, all regions experienced a decline in tc/ha over the period. This has been due to difficult growing conditions in the north.

Sugar yield

Sugar yield – the most import productivity output measure, is generally not considered as important as cane yield. Refer to Chart 7 to Chart 9.

Chart 7: Sugar yield – Top 20%

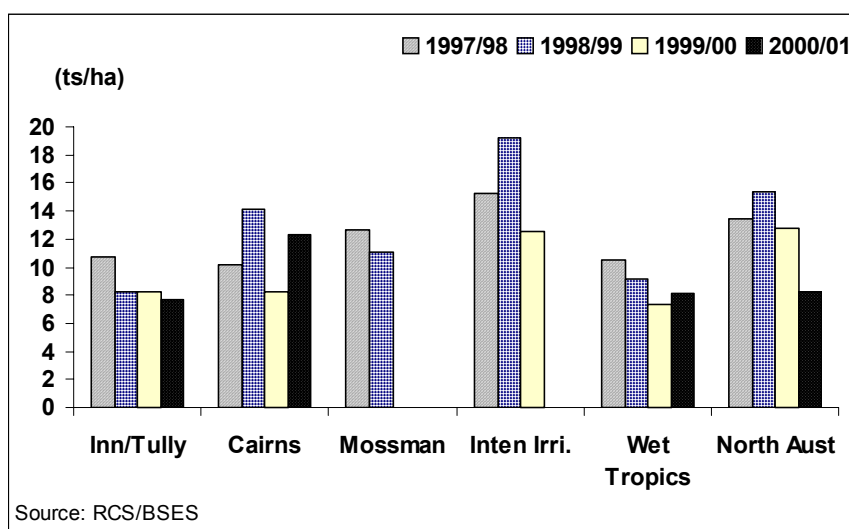
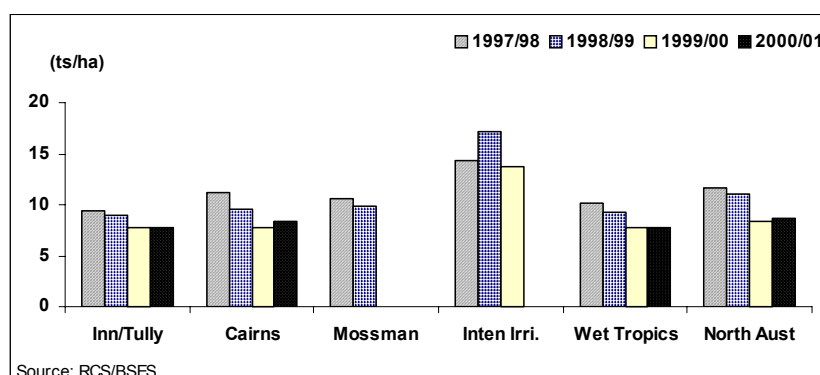
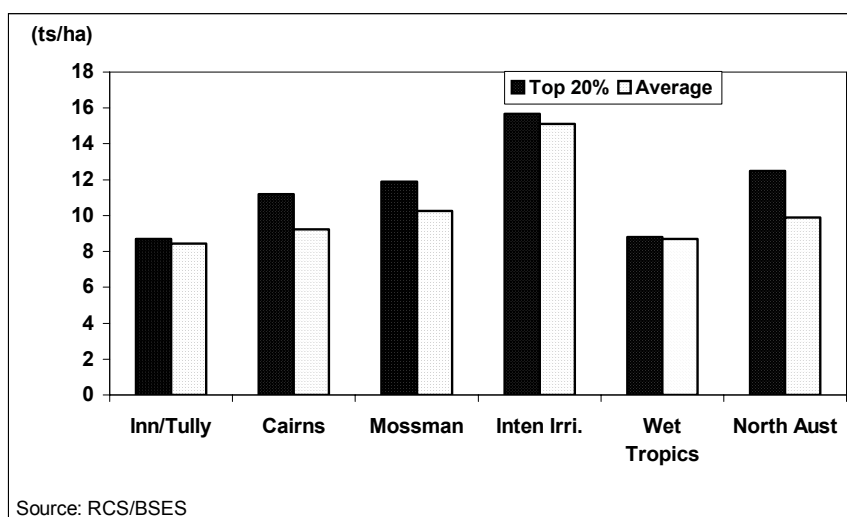


Chart 8: Sugar yield – Average**Chart 9: Average sugar yield 1998-2001**

Key features of these charts are:

- The sugar yield declined in all Wet Tropic regions over the period, however the Intensive irrigation region had an increase in sugar for the 1999 crop;
- Over the 4-year period, sugar yields for the Top 20% were only 1% higher than those of the group Average for the Wet Tropics. In the Intensive irrigation group, the Top 20% had sugar yields which were 4% higher than those of the group Average.

4.4 GROSS MARGINS

Gross margins provide a key indication of business profitability and demonstrate the variability of enterprise performance between regions. The gross margin is one of the key “secrets” to business performance. It demonstrates the efficiency of enterprise performance and improvement is achieved through a focus on:

- Improvement in price received
- Improved yield (management and soil health)
- Reduced inputs (management and cost efficiencies)

The enterprise gross margin is determined as follows:

$$\text{Gross Margin} = \text{Gross income} - \text{Growing costs} - \text{Harvest costs} - \text{Industry Costs}$$

Table 6: Gross Margins (\$/ha) – Top 20%						
	Innisfail Tully	Cairns	Mossman	Intensive Irrigation	Wet Tropics	North Aust
1997/98	857	607	416	1,230	792	1,122
1998/99	158	(309)	(228)	827	95	480
1999/00	(15)	59			25	793
2000/01	440	1,206			514	499
Average	360	391	94	1,029	357	723
Source: RCS/BSES						

Table 7: Gross Margins (\$/ha) - Average						
	Innisfail Tully	Cairns	Mossman	Intensive Irrigation	Wet Tropics	North Aust
1997/98	220	(71)	107	618	116	349
1998/99	(87)	(222)	(368)	466	(165)	6
1999/00	(74)	(132)		335	(95)	18
2000/01	275	280			260	332
Average	84	(36)	(131)	473	29	176
Source: RCS/BSES						

Key points:

- While Section 4.3 indicated yield variations of less than 5% regardless of farming system type (ie, rainfed or intensive irrigation), Table 6 and Table 7 indicate differences in excess of 100%. The reason:
 - A combination of increased sugar **and** lower costs of production
- Over the 4-year period, the Top 20% of growers in the Wet Tropics achieved a Gross Margin of \$360/ha (a 12-fold increase over the group Average), while the group Average had a Gross Margin of less than \$30/ha
- In the Intensive Irrigation, the Top 20% achieved Gross Margin in excess of \$1,000/ha for the 3-year period, while the group Average was less than 50% of this value

4.5 PEOPLE

The specific KPIs for people are those relating to labour efficiency (including unpaid and paid) and the human resource issues such as holidays and training.

Labour efficiency

The labour requirements for cane farming is poorly measured with many assumptions made. Labour requirements: Labour costs were 11% of cost of production (before finance) for the Top 20% and this increased to 14% for the group Average in the Wet Tropics.

This is one of the key critical areas for improvement in the financial performance, as tonnes of cane per full time equivalent (tc/FTE) require rigorous assessment by growers to ensure they can be competitive in these changed conditions.

Table 8: tc/FTE - Top 20%						
	Innisfail Tully	Cairns	Mossman	Intensive Irrigation	Wet Tropics	North Aust
1997/98	8,136	4,799	4,029	6,676	6,994	6,816
1998/99	4,190	5,454	5,745	18,489	4,800	6,093
1999/00	3,300	9,449			5,788	3,832
2000/01	8,091	3,220			6,879	6,842
Average	5,929	5,731	4,887	12,583	6,115	5,896
Source: RCS/BSES						

Table 9: tc/FTE - Average						
	Innisfail Tully	Cairns	Mossman	Intensive Irrigation	Wet Tropics	North Aust
1997/98	5,735	5,513	4,389	5,938	5,477	5,492
1998/99	4,811	5,467	4,596	7,915	4,631	5,479
1999/00	4,536	4,624		4,104	4,555	4,551
2000/01	6,102	3,778			4,992	4,772
Average	5,296	4,846	4,493	5,986	4,914	5,074
Source: RCS/BSES						

Key points:

- The tonnes of cane per full time employee is very low for all groups and one of the key factors in wealth creation that needs examination
- Farms are, in our opinion, achieving labour efficiencies of 40-50% of that required for long-term viability, however it should be noted that the succession of poor years has had a significant impact on this.
- A number of growers have achieved >10,000 tc/FTE in the Wet Tropics and we are of the opinion this is the minimum target for serious canefarmers who wish to maintain wealth

Training and holidays

Training days and holidays are things that many canefarmers do not like to talk about in serious terms. While we all know about the continuous holiday myth that has grown up around many canefarmers, the reality is quite different. Perhaps, more importantly, many canefarmers do not acknowledge a day off is a holiday, just a weekend day worked is a work day.

Training days

The days committed to training averaged about 5 days per FTE for the Top 20% and 4 days for the group Average in the Wet Tropics. While there is no correlation to training undertaken and business performance, we believe it is worth questioning the type of training undertaken by

canefarmers. Training days undertaken by the members of this project are in keeping with the total days committed by other sectors.

Table 10: Training days – Top 20%				
	Innisfail Tully	Cairns	Intensive Irrigation	Wet Tropics
1997/98	11.2	2.4		7.9
1998/99	2.4	6.7	8.3	3.6
1999/00	2.3	4.4	2.8	3.8
2000/01	4.0	6.1		4.5
Average	5	5	6	5
Source: RCS/BSES				

Table 11: Training days – Average				
	Innisfail Tully	Cairns	Intensive Irrigation	Wet Tropics
1997/98	4.7	3.6		3.9
1998/99	3.1	11.5	2.2	5.8
1999/00	2.1	4.1	3.8	2.8
2000/01	3.4	8.7		5.1
Average	3	7	3	4
Source: RCS/BSES				

Holidays

The amount of holidays taken reflects the state of the industry. That is, the industry as a whole takes less than 2 weeks holidays per year. While the accuracy of the data can be questioned, the fact is this is what many **believe** they take. Having said that, the first year's results need to be treated with caution as we believe many growers understated their position, however with a better understanding of how the results were used, subsequent data are more reliable.

Table 12: Holidays – Top 20% (weeks/owner FTE)				
	Innisfail Tully	Cairns	Intensive Irrigation	Wet Tropics
1997/98	3.5	2.6		5.2
1998/99	15.3	16.9	16.6	14.9
1999/00	14.0	13.0	5.1	15.3
2000/01	12.0	24.4		15.1
Average	11	14	11	13
Source: RCS/BSES				

Table 13: Holidays – Average (weeks/owner FTE)				
	Innisfail Tully	Cairns	Intensive Irrigation	Wet Tropics
1997/98	7.9	4.9		7.1

1998/99	9.6	12.7	9.4	11.6
1999/00	10.7	10.9	12.1	10.8
2000/01	12.6	20.3		13.9
Average	10	12	11	11
Source: RCS/BSES				

4.6 PECUNIARY

Pecuniary indicators relate to the finances of the business. These include the expense ratio and finance ratio.

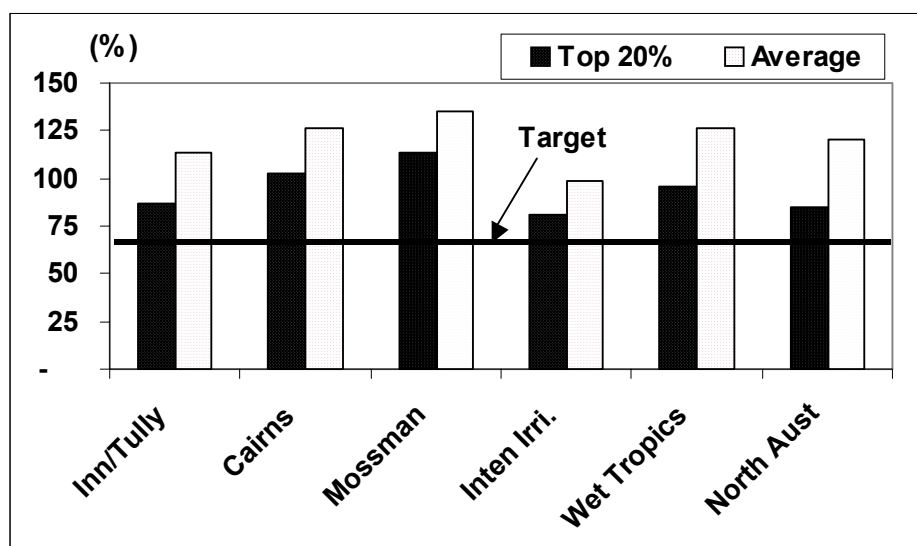
Expense ratio

This ratio provides a measure of the income to expenditure for the business. It includes both cash and non-cash measures and is calculated as:

$$\frac{(\text{Growing costs} + \text{harvest costs} + \text{industry costs} + \text{overhead costs} + \text{depreciation} + \text{finance costs})}{\text{Gross Product}}$$

As expected, no business could achieve the target³ ratio of 70% or less during this period, however the differences in the expense ratios between the Top 20% and the group Average were quite significant.

Chart 10: Expense ratio – 1998-2001



Key points:

- In all the regions, the Top 20% achieve a significantly lower expense ratio than the group Average
- The Wet Tropics, Top 20% were some 30% lower than the group Average, while in the Intensive irrigation, the Top 20% were some 20% lower

Finance

Finance ratio

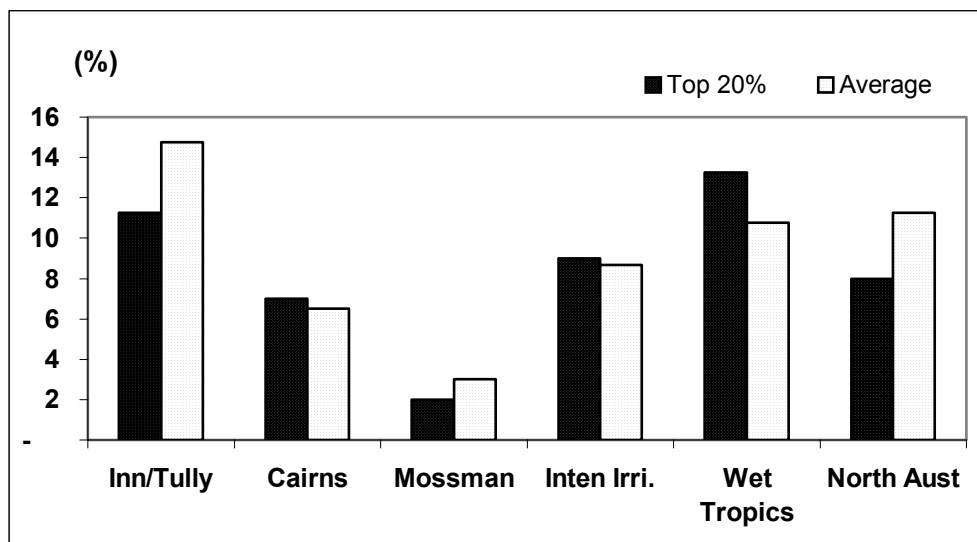
³ Targets have been established after analysing cane growing areas over the past 10 years.

The finance ratio is of more importance to individual businesses than to the industry as a whole as many businesses accept reasonable debt loads while others are more risk adverse. Of more significance is the change in finance costs over time and this is shown in Chart 12.

This ratio is calculated as follows:

$$\text{Finance costs} \div \text{Gross Product}$$

Chart 11: Finance ratio – 1998-2001



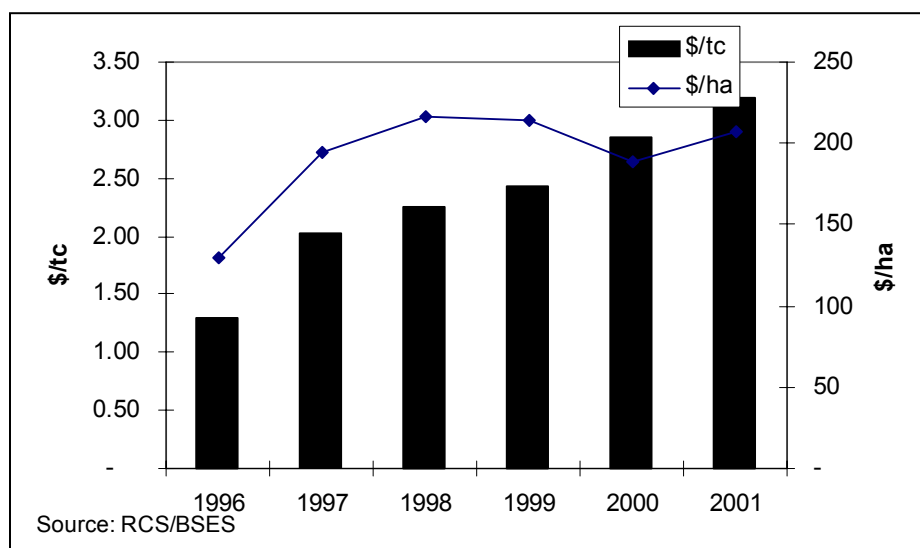
Key points:

- Debt levels generally bear no relationship to business performance as indicated in this table, however it is acknowledged that high debt levels can reduce performance.

Finance costs

The impact of changing debt levels was also assessed during the life of the project and, as to be expected, the result was an increase in interest payments from around \$1.30/tc to in excess of \$3.00/tc from the period 1996 to 2001. Affected by a production cost of \$19-20/tc, debt repayments have risen from some 6% of total costs to in excess of 15%. As indicated in Chart 12, finance costs also increased per ha allocated to sugar during the same period with finance costs increasing from \$130/ha to in excess of \$200/ha.

Chart 12: Finance costs – 1998-2001



4.7 PROFITABILITY

Profitability shows the economic profit of the business. There are two sets of indicators that make up this section. The first are three indicators known as the 'three secrets to profits'. These include:

- Asset turnover ratio
- Gross margin ratio
- Overhead ratio

Asset turnover ratio

This measures the income generated per dollar invested and, given the poor yields and prices, this is low for the period considered. That is:

$$\text{Gross Product (Gross Income)} \div \text{Total Assets}$$

Our benchmark, established in better years and compared to other farming enterprises, suggests that, for long-term viability, cane farms should generate at least 30% - that is, for every dollar invested a cane farm should generate at least \$0.30. Low prices, poor crops and a period of continuous land rises before the current downturn have all contributed to reducing this ratio below the benchmark.

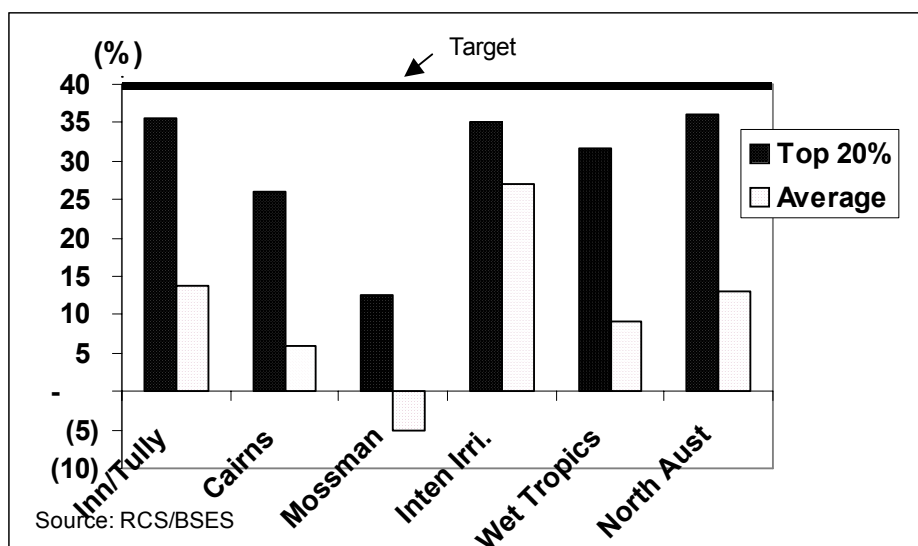
Gross Margin Ratio

This ratio measures the efficiency of the enterprise. It is:

$$\text{Gross Margin} \div \text{Gross Product}$$

Again, the target for this ratio was not expected to be reached in the period. However, it was pleasing to see the Top 20% of growers in the Wet Tropics and the Intensive Irrigation achieving ratios greater than 30%.

Chart 13: Gross Margin Ratio – 1998-2001



Key points:

- The Top 20% of growers in the Wet Tropics had a Gross Margin Ratio 4 times greater than that of the group Average.
- In the Intensive Irrigation, the Top 20%'s Gross Margin Ratio was 1.3 times that of the group Average for first two years

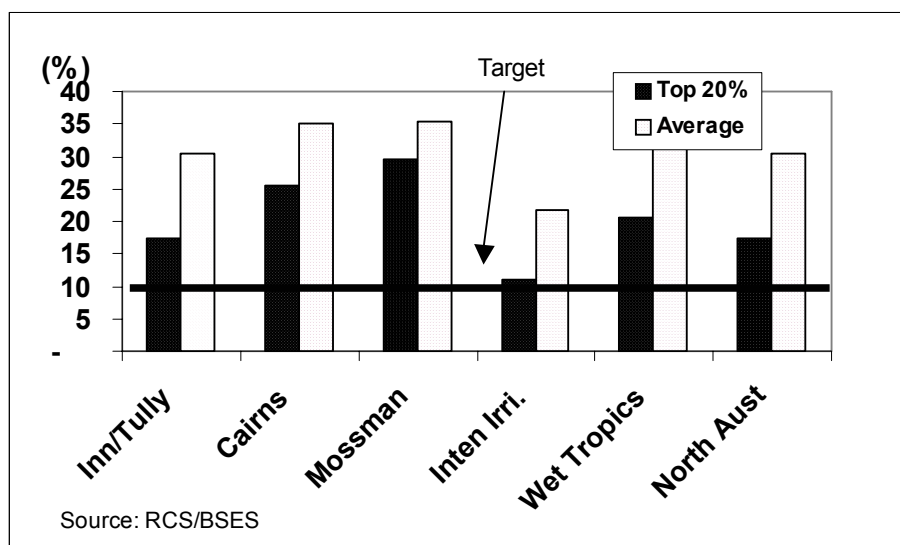
Overhead ratio

This ratio measures the costs incurred to manage the enterprises. It is:

$$\text{Overhead costs (including depreciation but excluding finance costs)} \div \text{Gross Product}$$

The target overhead ratio of less than 10% has been difficult to achieve with low gross income. None-the-less, growers in some areas managed to maintain overheads at 15%, which was a good effort.

Chart 14: Overhead Ratio – 1998-2001



Key points:

- Intensive Irrigation was the only group which had an overhead ratio of around 10% (Top 20%), however it must be remembered that this group's figures were for the first 3-years of the project only

4.8 EARNINGS BEFORE INTEREST AND TAX (EBIT)

This is one of the most important measures of cash availability after making allowance for replacement of plant and equipment. It is calculated as follows:

$$EBIT = \text{Gross Product} - \text{Growing Costs} - \text{Harvest Costs} - \text{Industry Costs} - \text{Overhead Costs} - \text{Depreciation}$$

Chart 15: EBIT – Top 20%

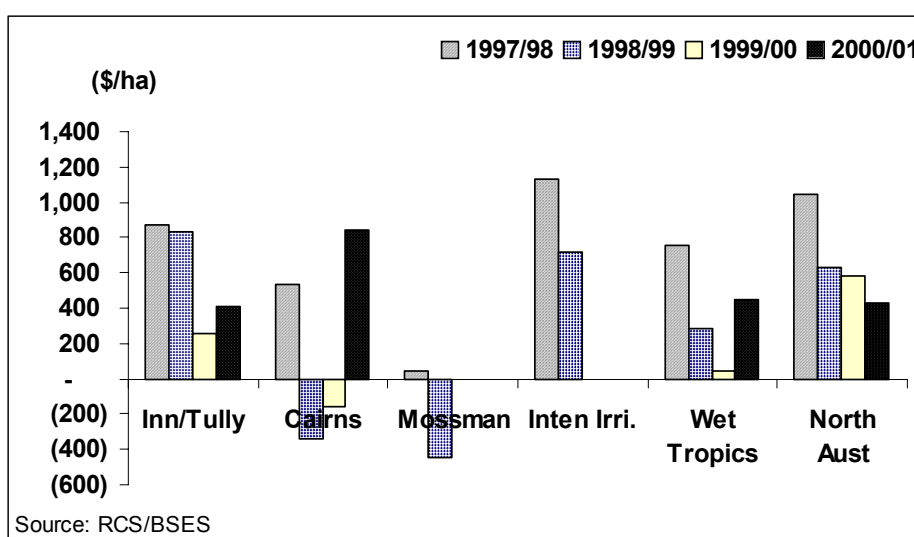
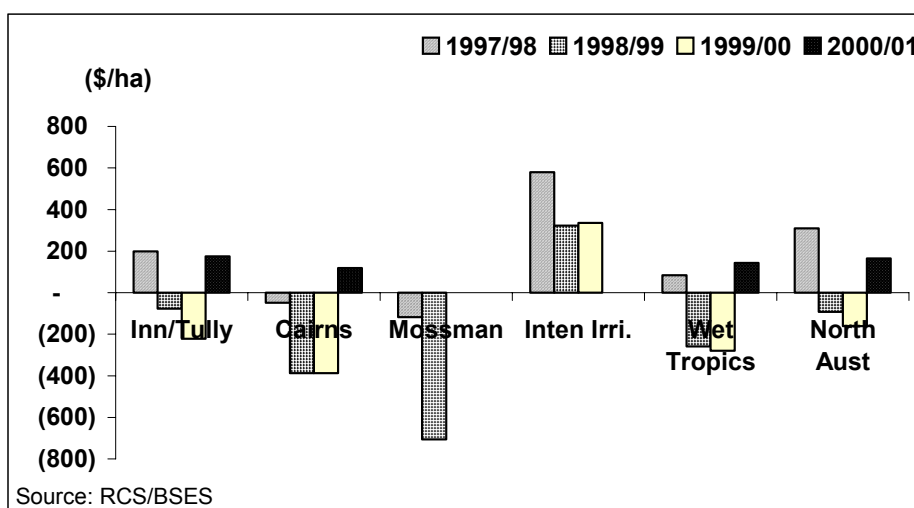


Chart 16: EBIT – Average

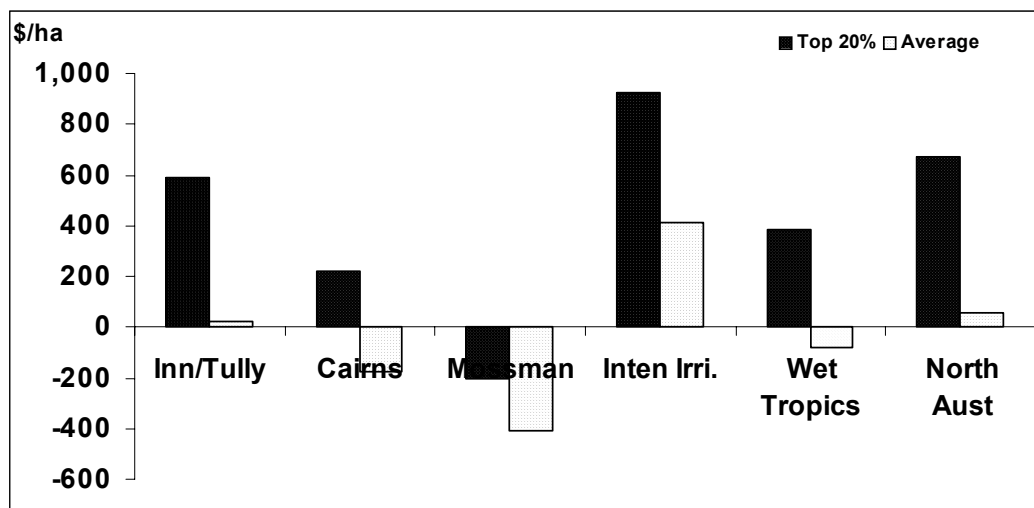


Key points from the above charts:

- The Top 20% in the Wet Tropics were able to achieve an EBIT of some \$800/ha for the 1998 crop, however the group Average was less than \$100/ha. Further examination shows that the yield and unpaid labour impact on this result as follows:

- Cane yield: Top 20% - (93.3tc/ha), Average - (95.2tc/ha)
- Unpaid labour: Top 20% - (\$182/ha), Average - (\$222/ha)
- In 2001 the Top 20% achieved an EBIT of some \$450/ha while the group Average was \$150/ha. Unpaid labour in this period was as follows:
 - Cane yield: Top 20% - (66.8tc/ha), group Average - (61.9tc/ha)
 - Unpaid labour: Top 20% - (\$72/ha), group Average - (\$111/ha)

Chart 17: EBIT – 1998-2001



Key points

- The Top 20% of growers in the Wet Tropics managed to maintain a positive EBIT of \$400/ha (after meeting allowances for unpaid labour) compared to the regional Average of negative \$77/ha

4.9 RETURN ON ASSETS MANAGED (ROAM)

Return on assets managed is calculated as follows:

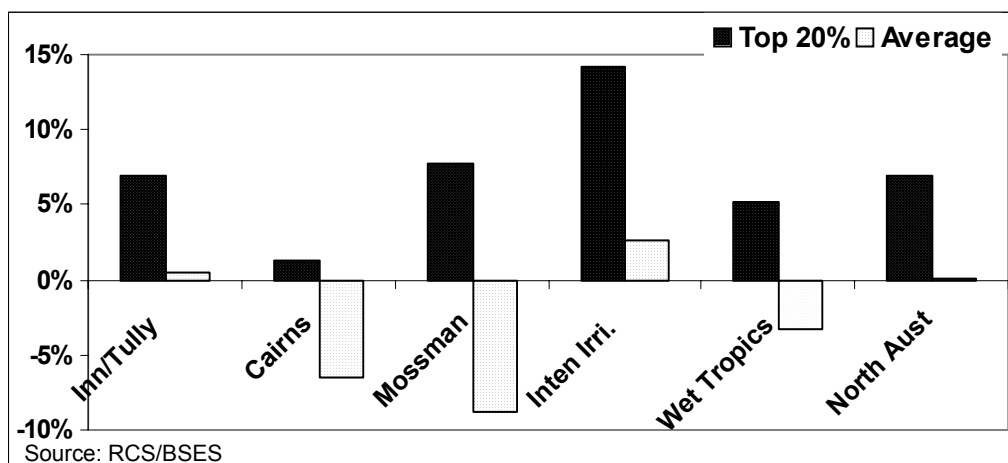
$$ROAM = EBIT \div \text{Total Assets (at current value)}$$

What is the benchmark?

We establish the benchmark at 8%. This is the value used by Lincoln Indicators as one of the criteria for sound performing stocks listed on the Australian Stock Exchange and we believe that property investment should be treated in a similar manner. Of interest, it is only 20% of listed stocks that achieve this rate.

The majority of canefarmers made a negative return on assets over the 4-year period. However, the Top 20% did still manage a positive return during this period.

The other important fact is that much of the caneland has been priced to a level such that the majority of canefarmers cannot achieve this return. Further discussion on the cost of capital is provided in Section 5.2.

Chart 18: Return on Assets (ROAM) – 1998-2001**Key points:**

- For 4 years, the majority of canefarmers have made a negative Return on Assets. Unfortunately this has not been a warning to many that their assets (land primarily) are overpriced
- Good canefarmers have demonstrated very good ROAMs during this period

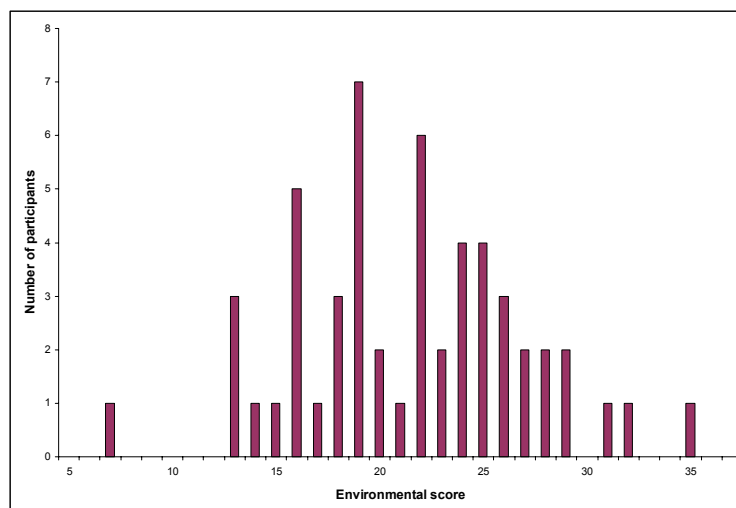
4.10 PROPERTY MEASURES

RCS and BSES combined their canefarmer in commercial benchmarking and this project to expand our understanding of canefarmer understanding of, and adherence to, environmental monitoring. The results were presented at the 2001 ASSCT Conference⁴. The key features of that paper are presented below and copy of the full paper is presented in Annex 3.

Environmental index

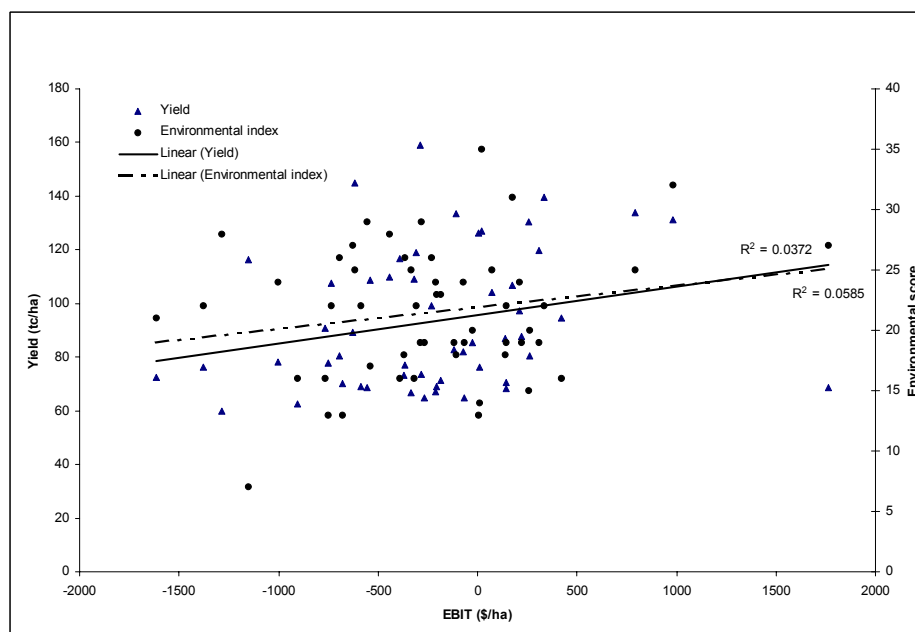
An environmental index was calculated by totaling the responses recorded for each grower, with a maximum score of 37 being obtainable. The average score returned by participants was 21.5, with participants ranging in score from 7 through to 35 (Chart 19). The questions used to derive this score are provided in Annex 4. Importantly, all growers participating in the benchmarking project identified areas where their environmental practices were not in accordance with best practice.

⁴ Hanlon, DWG, McGuire, PJ and Carney (2001), Environmental monitoring – a framework for benchmarking best practice.

Chart 19: Distribution of environmental scores for 53 cane growers

Environmental index, yield and profitability

As indicated in the full paper, we found no relationship between a growers environmental index, crop yield or profitability (ROAM). That is, both good and poor performing growers could be either good or poor environmental custodians. An alternative comparison can be made utilising earnings before interest and tax (EBIT) instead of ROAM (Chart 20). There is no significant relationship between environmental index and EBIT. However, there does appear to be a general trend across all growers of an increasing environmental index and an increasing yield of cane associated with an increasing EBIT.

Chart 20: Comparison of earnings before interest and tax (EBIT) (\$/ha) with cane yield (tc/ha) and environmental score

Fertiliser application

Application rates of fertiliser (recorded as a fertiliser efficiency, kg/tc) were of key concern, due primarily to the environmental impacts that may result through excessive and inappropriate application. Table 14 displays information on participants' awareness of fertiliser application rates, fertiliser efficiencies and ranges of efficiencies.

Table 14: Fertiliser awareness and efficiency					
		Southern region	Wet tropics	Intensive Irrigated	Mackay /Herbert
Nitrogen	Awareness (%)	55	79	71	64
	Efficiency (kg N/tc)	1.66	1.94	1.07	2.49
	Range (kg N/tc)	1.46 - 1.88	1.19 - 3.66	0.68 - 1.50	1.94 - 3.75
Phosphorous	Awareness (%)	36	83	86	55
	Efficiency (kg N/tc)	0.22	0.94	0.33	1.12
	Range (kg P/tc)	0.05 - 0.60	0 - 1.97	0 - 0.62	0.72 - 1.60

Source: RCS/BSES

Other points of interest

Points of interest generated by the survey include:

- Soil samples were taken prior to fertilising by 15% of participants on all blocks cultivated, 62% on some blocks, and 23% did not conduct any soil samples at all.
- Professional advice was sought prior to fertilising by 64% of producers on all blocks cultivated, 32% on some blocks, and 23% did not seek any professional advice at all.
- Soil loss was not monitored by 46% of participants. Self-monitoring of soil loss was conducted by 46% of participants, and only one participant was engaged in an externally monitored program (i.e. a third party).
- Chemical use and application conditions when applying pesticides were always recorded by 38% of participants, with 37% of participants keeping records most of the time, and 25% of participants only sometimes/never recording use and conditions.
- On-farm chemical storage areas complied with state requirements in 56% of the cases.
- Annual rainfall was recorded by two-thirds of the participants
- Water use (ML/ha) was calculated by 22% of participants, be it effective rainfall, irrigation or both irrigation and effective rainfall.

Discussion

The incorporation of environmental performance into the standard industry benchmarking project has been viewed by the majority of growers as a worthwhile step. Importantly, the results show a high degree of honesty with growers admitting non-compliance with best practices in many areas. In keeping with the business component of the benchmarking programs, participating growers are keen to identify their individual strengths and weaknesses. Accordingly the environmental benchmarking survey has been beneficial in helping determine overall industry status in terms of environmental sustainability. Information and concerns generated through the environmental benchmarking project also have the potential to be utilised as a means of developing effective practices to rectify/prevent environmental degradation. The current environmental status of the sugar industry and growers may not have been apparent without a stimulus prompting grower self-assessment.

5 COST OF PRODUCTION

5.1 OVERVIEW

Cost of production in the Wet Tropics has been assessed over a 4-year period with significant changes in yield, primarily impacted by weather conditions. However, other factors, such as disease and reduced inputs, have also impacted.

As a result of the benchmarking process, that is, a combination of data analysis, explanatory workshops and canefarmer field days, most canefarmers were able to understand the key drivers of their business. Given the adverse conditions and a deteriorating business performance, many canefarmers elected not to continue participation in the project after the first year.

Within the life of the project, we saw a reduction by canefarmers in their cost of production per hectare, however the group Average moved closer to the Top 20% in the latter stages of the project. This was one of the key objectives of the project, demonstrating that attention to costs when compared against the Top 20% can assist in reducing unnecessary expenditure.

Table 15: Comparison of production costs in the Wet Tropics (Av 1998-2001)

	\$/tc		\$/ha	
	Top 20%	Av	Top 20%	Av
Growing	6.96	7.67	514	569
Harvesting	5.71	6.11	427	460
Industry	0.50	0.50	36	37
Overheads	2.14	2.65	153	193
<i>Cash costs before finance</i>	<i>15.30</i>	<i>16.93</i>	<i>1,130</i>	<i>1,259</i>
Non-cash costs	3.49	4.27	258	320
Total costs (before finance)	18.79	21.19	1,388	1,579

5.2 COST OF CAPITAL

In our experience very few canefarmers identify the true cost of capital required to produce a tonne of cane. Consideration of this is important for the following reasons:

- Maintenance of world competitive status
- Wealth maintenance

Competitiveness status

With land values in Australia prior to 2000 at heady levels, Australian canefarmers have been investing 2-3 times the cost of capital compared to Brazil. In other words, to enter the sugar production business in Queensland canefarmers have invested anywhere between \$100 and \$150 per tonne of cane (this includes land and plant and equipment). By comparison, Brazilian canefarmers have to invest around \$50 to produce a tonne of cane. This has dual implications: first, for long term competitiveness of the industry as economies of scale are more easily achieved where entry costs are lower, and secondly, innovations are attracted to such areas.

Wealth maintenance

In our experience, canefarmers who have purchased cane farms in the 1990s, are unlikely to see any capital appreciation in land in the next decade (an exception is land having other uses, eg: rural residential, horticulture, etc). In many cases land depreciation will be the norm. We saw similar situations in the wool industry where prices paid in the boom times of the late 1980s have yet to return. For example in the Riverina, sheep country purchased in 1987 for \$80/ac is now selling in 2002 for \$50/ac. That is, producers have lost both capital appreciation and part of their investment.

Critical decision factor

- Can the land maintain a 5% rent at a sugar price of around \$300/ts?

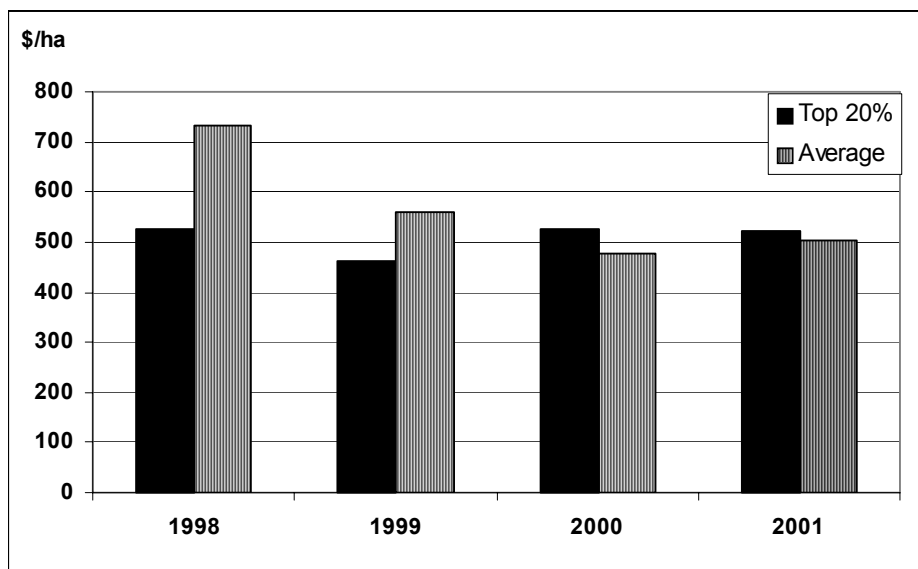
Steps to evaluate

- Is land value (best on a \$/tc basis) greater than \$100/tc?
- Can it produce cane for \$19/tc before finance costs?
- Is there realistic other use potential for the land in the next 5-10 years?

5.3 GROWING COSTS

The costs of growing cane is one of the key ways in which canefarmers can manage quality of cane, through their nutrition and weed control programs. However, our experience has shown that the cost to grow a hectare of cane in any particular agro-ecological region does not vary by more than about \$100/ha between the Top 20% of growers and the group average. As indicated in Chart 21, variance in Top 20% compared to the group Average growing costs over the 4-year period was less than \$60/ha for the Wet Tropics.

Chart 21: Growing cost trends



Key points:

- Fertiliser, chemicals and repairs & maintenance accounted for 80% of the growing costs over the 4-year periods
- Growing costs for the average reduced more dramatically than for the Top 20%
- Major variances are due to fertiliser costs, R&M and casual labour (in 1998, casual labour accounted for more than 70% of the increased growing costs)

Critical decision factor

Can this land grow cane for \$9-11/tc

Steps to evaluate

Examine key costs driving this – fertiliser, fuel and R&M

5.4 HARVESTING COSTS

Harvesting costs averaged \$5.71/tc for the Top 20% of canefarmers and \$6.11/tc for the group Average over the 4-year period. With these costs accounting for 30% of the production costs we suggest that there must be better ways of doing this.

This is an area that needs significant attention. There is a lot of traditionalism impacting on the industry that is reducing profit – to both the harvester and the canefarmer.

Critical decision factor

- Are you prepared to pay for quality?

Steps to evaluate

Critically assess current harvester arrangements:

- Ask why all harvesters cannot achieve at least 80,000 tc per annum
- Are losses measured?
- Is your ground adequately prepared to maximise harvester performance?

5.5 INDUSTRY COSTS

These averaged \$0.50/tc for both groups over the 4-year period. While a seemingly small cost, a \$0.10/tc reduction for a 50,000 tc canefarmer results in a business saving of \$5,000 while a \$0.20/tc results in a \$10,000 saving. With the industry inevitably moving towards larger farms, this cost should be examined closely.

Critical decision factor

Industry costs need to be transparent and lean

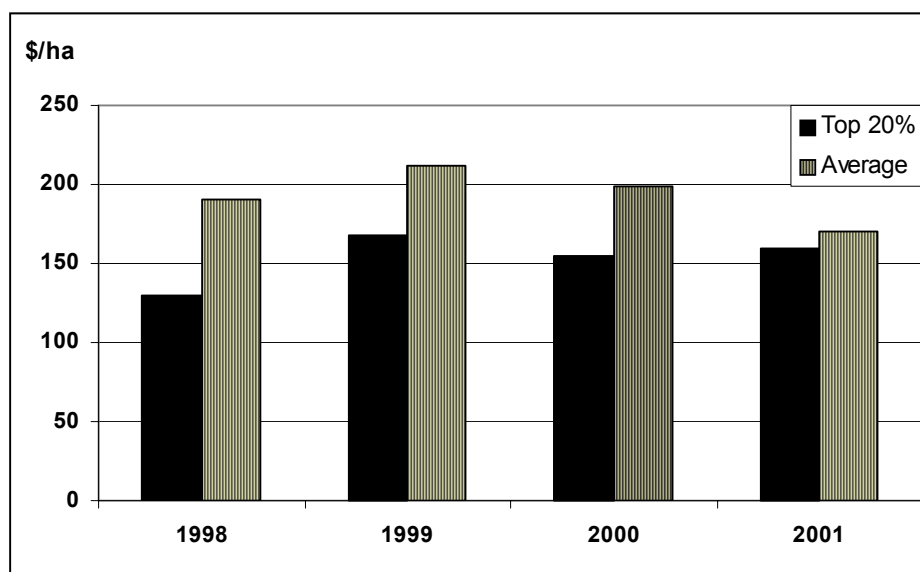
Steps to evaluate

Critically assess payments to grower associations, industry and R&D bodies:

- Are all bodies necessary?
- Can amalgamations reduce costs?
- Can more services be on a user-pay basis?

5.6 OVERHEAD COSTS

Cash overhead costs varied by some \$40/ha between the Top 20% and the group Average over the 4-year period. The trend was for the group Average to reduce costs during this period.



Key points:

- Rates account for just under 50% of all overhead costs
- General administration accounts for around 30% of total
- Maintenance of buildings and non-farm plant accounts for some 20% of total

Critical decision factor

- Overheads are more likely to be reduced with larger operations

Steps to evaluate

Critically assess overhead costs:

- Renegotiate land rates with benchmark comparison to other broadacre crops, eg cotton
- Can administration costs be reduced through spreading over a larger operation?
- Is there too much non-farming plant and infrastructure?

5.7 NON-CASH COSTS

Non-cash costs include depreciation and owners' unpaid labour. Over the 4-year period the Top 20% of canefarmers non-cash costs were \$62/ha less than the group average. Plant and equipment ranged from a low of \$500/ha to \$5,000 per ha. Most canefarmers have just under \$2,000/ha invested in plant and equipment. Unpaid labour is the other area of concern with many canefarmers not able to achieve production rates necessary to provide an adequate return to their efforts.

Critical decision factor

Non-cash costs are the most critical areas of un-competitiveness in the cane industry

Steps to evaluate

Critically assess labour effectiveness and farm plant usage:

- Can my farm achieve 10,000 tc per full time equivalent employee?
- Are there other options for employment of family members in my region?
- Are all plant and equipment items working at commercial contractor hours?

5.8 TOTAL COSTS

The following charts summarise the changes in total costs (before finance) for the region over the 4-year period.

Chart 22: Total costs (before finance) – Top 20%

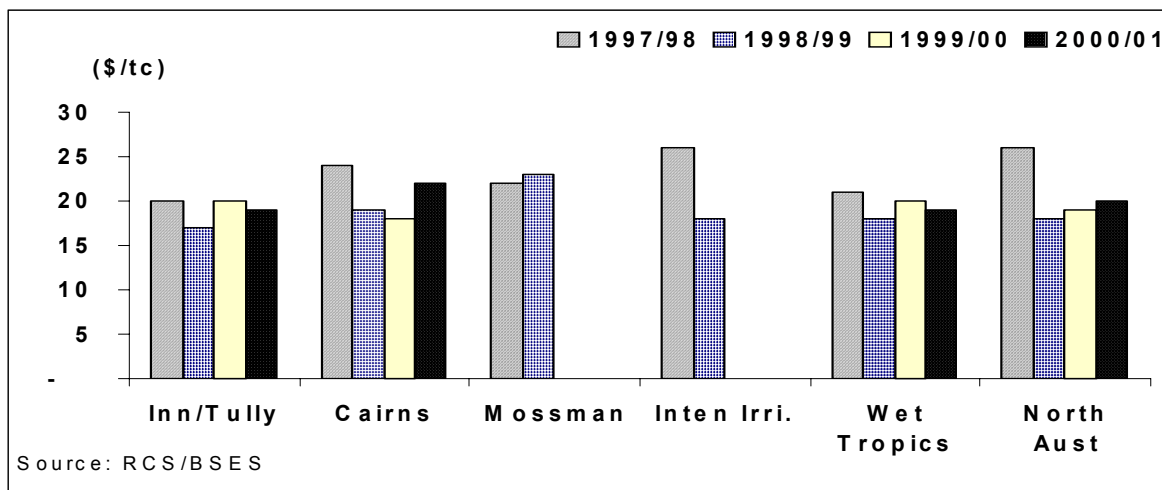


Chart 23: Total costs (before finance) – Average

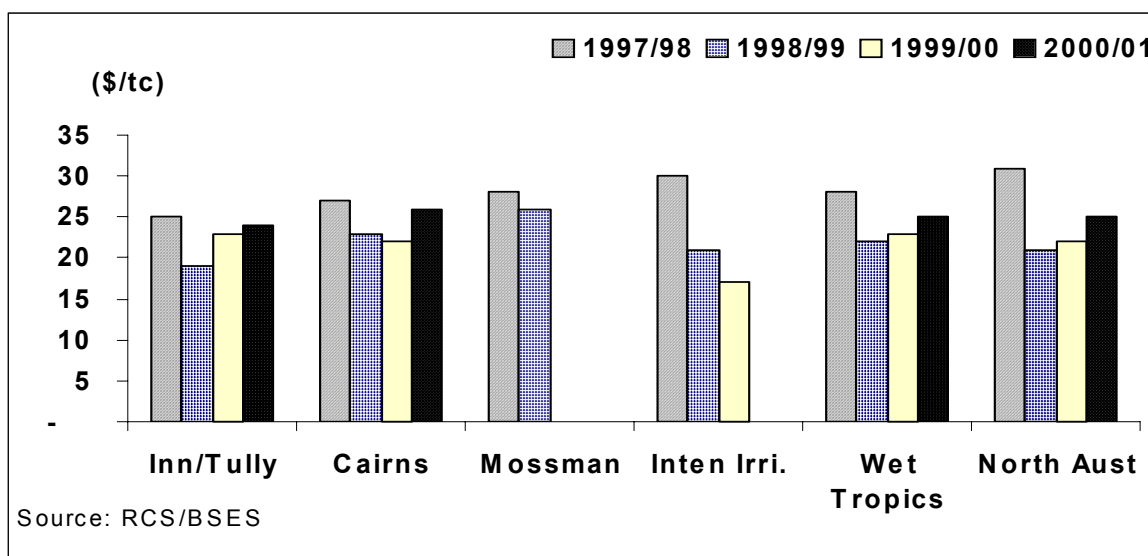
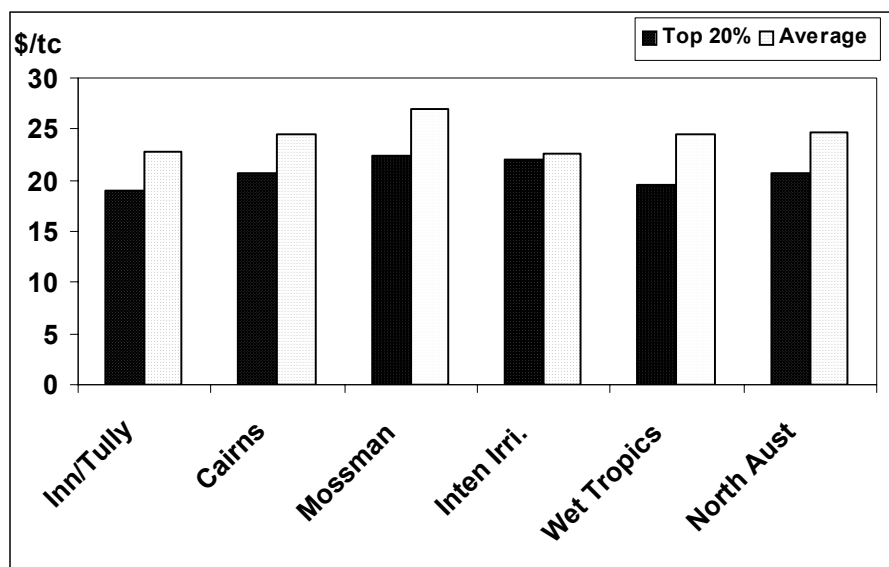
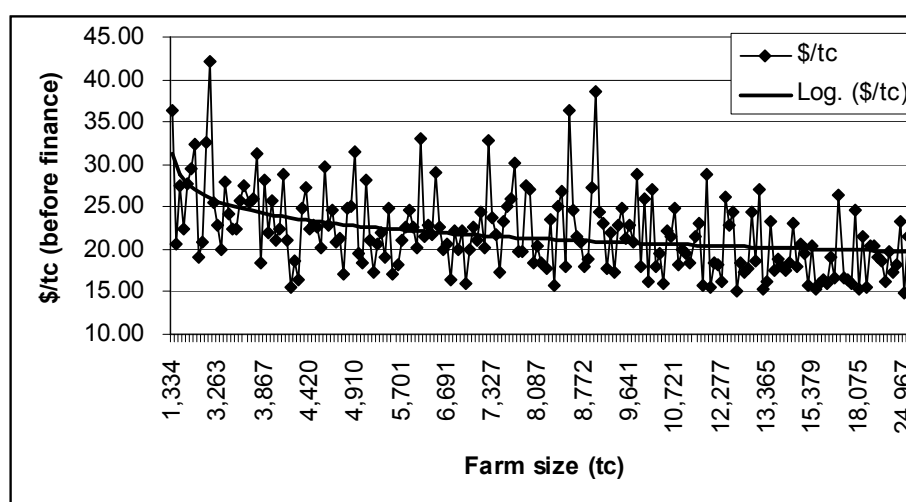


Chart 24: Total costs (before finance) – 1998-2001

5.9 SCALE IMPACTS

The issue of scale is always a crucial issue in the cane industry and we examined this factor as part of the project analysis. This project had many more smaller farms than we had in previous benchmark studies. The business years selected here range from 1997-2001 from rainfed farms. Those farms with seemingly very low costs have been removed from the sample. While no clear picture emerges, the trend would seem to suggest that larger farms have a greater probability of lower costs of production. A trend that was significantly clearer in our previous benchmarking work where farm sizes were from 2,000 tc to 100,000 tc.

Chart 25: Farm size and production costs

6 IMPROVING BUSINESS PERFORMANCE

6.1 THE FRAMEWORK

Based on the business analysis format, we have used the RCS framework for identifying drivers of best practice (Table 16). In Summary these are:

- Improvement of the economic situation:
 1. Increase turnover
 2. Improve gross margin
 3. Reduce overheads
- Improvement of the financial situation
 4. Reduce finance costs

Table 16: Framework for identifying the drivers of best practice

PRIORITY	DRIVERS	
	LEVEL 1	LEVEL 2 (where to look for improvement)
GROSS MARGIN	PRODUCTIVITY	Yield and/or quality (ccs)
	DIRECT COSTS	Fertiliser, pest & disease control, weed control, fuel, irrigation, labour (including unpaid labour directly involved in crop production), harvesting, freight, plant R&M
OVERHEADS	ADMIN	Phone, accounting, legal, stationery, computer supplies, consulting, insurance
	BUILDINGS & PLANT	Maintenance (vehicles, plant & equipment, buildings), fuel & oil, depreciation
	LABOUR	Wages, staff management, unpaid family labour
	LAND	Rates and rent, maintenance (fencing, roads etc)
TURNOVER	ENTERPRISE MIX	Profitable enterprises, additional resource use, risk management
	FARM CAPACITY	Area grown relative to area available
	SCALE	Size of business relative to target
FINANCE	DEBT LEVEL	Ability to repay, interest rates and risk margin being charged
	DEBT STRUCTURE	Loan structure, long term debt in overdraft, means of finance

6.2 STEPS TO ADOPT TO IMPROVE BUSINESS PERFORMANCE

Cost analysis is critical in assessing the business position, however maintenance of productivity is one of the key drivers in keeping costs per tonne of cane low.

In conjunction with financial monitoring, the following strategies (see Table 17) can be used as a checklist to improve business performance. They are drawn from a number of sources which include:

- benchmark data from those canefarmers who had their key ratios in balance
- case studies from a selection these canefarmers to extract the key success practices (see Annex 4)
- Other industry best practice guidelines

Table 17: Grower strategic action plan for best practice

<i>Activity</i>		<i>Objectives</i>	<i>Strategies to Adopt</i>
GROWING	FALLOW	<p>Improve Farm Health</p> <p>Ploughout Timing</p>	<p><u>Under current management practices</u></p> <ul style="list-style-type: none"> Have >15% of farm under fallow Cost options for fallow cropping Bare or Non-grass (legume) rotation <p><u>Strategies to consider</u></p> <ul style="list-style-type: none"> Spray crop out and direct drill-legume Assess if an economic return based on plough out early costs dollars) Cost best case and worst case scenarios
	GROUND PREPARATION	<p>Optimum Nutrition</p> <p>Ground Preparation</p> <p>Optimising Varietal Selection</p> <p>Ratoon Plan</p>	<ul style="list-style-type: none"> Establish critical dates for soil testing to planting Soil test at critical dates for regions Record inputs to enable monitoring costs (eg. units of N per tonne of cane) <p>Where replanting is necessary, consider:</p> <ul style="list-style-type: none"> Cultivating out the stool and replant in the same place Monitor compaction and the condition of the soil <ul style="list-style-type: none"> Selection of the right variety for the site Develop an overall plan for best time to plant and weather (eg Q174 for best time to plant and weather) Adopt strategies to have ground preparation Critically evaluate if you can obtain a better ratooning plan Only use replanting when weather is good Otherwise consider ratooning (eg a drier district but disadvantages drier districts) <p><u>Under current management practices</u></p> <ul style="list-style-type: none"> Prepare best case and worst case ratooning plan for the next 2-3 years) <p><u>Strategies to consider</u></p> <ul style="list-style-type: none"> Chemical ploughout and replant in same place

Table 17: Grower strategic action plan for best practice

<i>Activity</i>		<i>Objectives</i>	<i>Strategies to Adopt</i>
GROWING	PLANTING	Uniform and Non-Damaged setts (especially Billet Planting)	<ul style="list-style-type: none"> ▪ Set feed-train roller speed at 65% of ▪ Rubber coat rollers (2-3k) ▪ Ensure sharp chopper blades <ul style="list-style-type: none"> - 85% @ same length - 80% undamaged
		Optimal timing	<ul style="list-style-type: none"> ▪ Optimise timing early ▪ Obtain Longest growing time as poss ▪ Assess the risks associated with plan ▪ Estimate critical dates for your farm
		Maximisation of Window/ Capital Utilization	<p><u>Strategies to consider</u></p> <ul style="list-style-type: none"> ▪ Utilise resources with the harvesting ▪ Timetable effort for efficient use of m
		Rotation Plan	<ul style="list-style-type: none"> ▪ Fit varieties, blocks and classes to m ▪ Plan ahead to shortlist preferred \
		Disease-free Plant Material	<ul style="list-style-type: none"> ▪ material, amounts to propagate &/or ▪ blocks (eg RSD, Chlorotic Streak, Ye ▪ Sterilise all planting equipment (esp.

Table 17: Grower strategic action plan for best practice

Activity		Objectives	Strategies to Adopt
CROP MANAGEMENT	a) Nutrition	Optimise Timing and Amount	<ul style="list-style-type: none">Design fertiliser program based on : fertiliser applicationObtain correct blends of fertilizer to make extraordinary claims)Allow ratooning cane time after har (where possible)Positioning according to weather fo broadcasting). Never apply to intersp
	b) Weed Control	Maximise Growth in first 12 weeks	<ul style="list-style-type: none">Calibrate fertiliser box when changing <p>Never put ‘a bit’ extra o</p>
	c) Irrigation	Maximise Water Use Efficiency	<ul style="list-style-type: none">No weeds to be present in pre-plan the least cost strategy for weed frequently timed for when weeds are for big weeds is a failure and becom incurred).Strategic tillage to reduce costs
	d) Drainage	Minimise Water Laying in Fields	<p>Prioritise available water for establishing</p> <ul style="list-style-type: none">Monitoring crop growth and compareApply at the right timeDeliver exactly what the crop requires: <ul style="list-style-type: none">Good coordinated in-field drainage (eEnsure end field drainage is impecca block to allow water to clear)

Table 17: Grower strategic action plan for best practice

Activity		Objectives	Strategies to Adopt
HARVESTING	a) Recovery	Minimize Losses from Harvestors	Under current management practices, a the harvester <ul style="list-style-type: none"> Reduced fan speed to ensure losses Ensure hill-up and row spacing is correct
		Maximize Product Quality	<ul style="list-style-type: none"> Minimize extraneous matter through : <ul style="list-style-type: none"> Ensure sharp base cutter blades Ensure ground speed is appropriate 1
		Minimize Stool Damage	<ul style="list-style-type: none"> Ensure ground speed is appropriate 1
		Reward Operators for Quality Performance	<u>Strategies to consider</u> <ul style="list-style-type: none"> Operators and/or delivery sites require <ul style="list-style-type: none"> losses paddock 'score' EM/dirt Conditions at time of har Train operators to achieve above Encourage the fitting and use of data
	b) Capital Usage	Significantly Increase Time/Machine/Year	<u>Under current management practices</u> <ul style="list-style-type: none"> 24-hour harvesting 7- day weeks
		Integration with other contracting operations	<ul style="list-style-type: none"> 6 m wide headlands in good condition maximum row length
		Farm Layout	<u>Strategies to consider</u> <ul style="list-style-type: none"> Communication of needs and conce infrastructure <ul style="list-style-type: none"> Workshops Ancillary and support vel extended "season" for lab share own labour with ne

OVERHEADS	a) Industry Costs	Minimise Costs/tc	<ul style="list-style-type: none"> Reduce duplication of payments Question necessity of membership Evaluate performance of organisations, inc Support initiatives that reduce research co and SRI
	b) Depreciation	Maximise Performance and Invested Capital	<ul style="list-style-type: none"> Design a logistics plan for all machinery op Evaluate where contractors can save money <ul style="list-style-type: none"> have contracts with major cor relationship is developed to en Forget the "cheapest" costs policy – pay to Sell or undertake contract operations with :

	c) Labour	Short Term > 10,000 tc per fulltime equivalent Longer Term > 20,000 tc per fulltime equivalent	Value your labourFarm & Workplace Health ; reviewed regularly <ul style="list-style-type: none">▪ Lease or sharefarm bigger areas▪ Develop or work with contracting operation▪ Seek other part-time work
--	------------------	---	---

