

Farm Management Systems for the Sugarcane Industry

Subprogram 5: Evaluation of the sugar industry FMS

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Executive summary

This report documents the evaluation of the Sugar Industry FMS project funded by the Commonwealth Department of Agriculture Fisheries and Forestry under the Pathways to Industry Environmental Management Systems (EMS) Programme (Pathways Programme). The aim of the program is to develop and implement EMS and other environmental assurance approaches to achieve adoption of profitable and sustainable farming practices, improve natural resource management and environmental outcomes, and provide an ability to demonstrate environmental stewardship to domestic and international markets.

Commonwealth targets

One of the targets set by the Commonwealth for the Sugar Industry FMS was 100% recognition of FMS in 3 years and 10 % of grower participation in FMS training completed in 3 years.

The results of the final grower survey in March 2007 show that while only 50% of growers were aware of the Sugar Industry FMS project, the level of awareness of the term FMS was 88%. Further, the level of sophistication in the understanding of the FMS concept increased significantly during the project; growing from “it’s a sort of farm plan” to “it incorporates planning for profitability and sustainability”.

Due to changes in direction on the other sub-programs, no actual training on FMS was carried out as part of any sub-program. However, it is worth noting that different components of the FMS tools developed are being used in different regions of the industry for the purposes of helping growers to develop and implement FMS type plans.

In terms of the broad objectives of the Pathways to EMS program, grower’s increased understanding of the concepts of environmental risk assessment since the beginning of the Sugar Industry FMS program, combined with an already good level of awareness of environmental risk in their management practices, will lead to improved environmental outcomes for our sugar producing regions.

Sub-program 5

The requirement of FMS005 was to “collect and analyse data on the levels of awareness, understanding, knowledge, attitudes, skills and aspirations of sugar-cane farmers in relation to FMS “.

Three grower surveys were conducted during the project. The number of growers responding in each survey comprised around 10% of the grower population and were representative of five major sugarcane regions; Bundaberg, Burdekin, NSW, Central (Plane Creek) and the Herbert.

These surveys revealed a change in awareness and knowledge of the Sugar Industry FMS program and related topics and reflect general grower practices and attitudes over the period of the project. The main points are summarised below;

- Knowledge and understanding of FMS and associated concepts has increased during the project with grower showing increasing sophistication in their understanding and knowledge of what FMS is – moving from “it’s a farm plan” to “it incorporates planning for profitability and sustainability”- during the 3 years of the project.
- As the project progressed, the Canegrowers organisation emerged as the main source of information on FMS. This coupled with the increase in understanding of what FMS was highlights the success of the Canegrowers communication strategy.
- There was a significant increase in understanding the concept of environmental risk assessment over the life of the project and growers are aware of some of the environmental risks associated with farming. The majority appear to be using appropriate management practices to take that risk into account
- During the course of the project the number of growers with farm plans increased, however the majority of these plans are not recorded formally; a challenge for a paper or computer based FMS The period also saw an increase in the number of growers who completed COMPASS training
- Growers believe industry bodies are doing well in addressing community environmental concerns over sugar, although many feel this is not being communicated effectively to the urban community which they believe has a negative impression of the industry as a result.
- Growers largely agree the industry needs an FMS – the main reasons being that eventually the government will require it and that the industry could improve its performance through an FMS program. Growers were interested in doing an FMS but they didn’t feel strongly that an industry FMS would improve their image with the wider community or have any significant benefits for their farming enterprises.
- Growers would prefer to audit their own plans for their own benefit. They are not interested in paying anyone to help them do an audit and they have very little interest in taking their audit reports to industry or government

A further component of FMS005 was to evaluate the program from a number of angles using the Balanced Scorecard approach. This approaches uses measures from four aspects of overall performance including; Internal Activities Undertaken, Customer, Outcomes and Learning and Knowledge

The linking of Internal Activities with Customer surveys showed that one of the more successful Internal Activities in the overall Sugar Industry FMS program was the communication program developed and implemented by Canegrowers. The message they have extended about FMS has been clearly incorporated into growers’ thinking and understanding about FMS.

There were a number of outputs successfully produced from activities in sub-programs FMS001, FMS002 and FMS003; however, these tools and other outputs have not been widely utilised by the Sugar Industry at this stage.

Many of the learning's gathered in the Knowledge and Learning component of the Balanced Scorecard are grouped into common themes which are expanded on in the recommendations section of this report. Briefly the common themes or learning's to enhance the future of the Sugar Industry FMS are;

- 1. The Sugar Industry FMS should developed owned and embraced by all sectors of the Industry. Ideally, it should form an umbrella that accommodates, complements and builds on existing activities.**
- 2. The Sugar Industry must make sure that those stakeholders outside the industry understand the framework of the Sugar FMS and endorse its content.**
- 3. There needs to be collaboration between major industry players to roll out a successful industry FMS**
- 4. The risk assessment component of the FMS should ensure linkages to regional NRM targets**
- 5. A “baby step” or staged approach to adoption, utilise existing planning requirements, will lessen the record keeping burden on growers and allow their FMS to “grow” as they learn more information**
- 6. For a Sugar Industry FMS to be successful it needs a supporting framework including; R&D, incentives, promotion and support of participating landholders, stakeholder endorsement, training of extension and support staff to assist growers and education campaigns**
- 7. To ensure the on-going sustainability of the industry FMS, thought must be put into developing effective and useful monitoring and auditing systems.**
- 8. The Sugar Industry FMS needs to be marketed. Drivers for adoption need to be identified so that the FMS provides a demonstrable benefit to growers.**

An exciting outcome of the FMS project has been the development of a policy on FMS by the Canegrowers organisation (briefly described in Appendix 1). Canegrowers is uniquely place to bring together various industry players to develop an industry-wide FMS.

Final observations about the project, drawn from the information gathered in this report, are;

- The specific objectives specified for each other the sub-programs were not drawn together into an overarching framework along the lines of point 6 above. It is the opinion of this author that a more holistic approach to the objectives of the whole program and the various sub-programs would have increased the likelihood of success of the project.

- Limited consultation with industry throughout the project – particularly in respect to complimenting existing programs, left the program “out in the cold” so to speak. More regional interaction and cooperation may have brought the FMS concept greater acceptance.
- Many FMS type programs take many years to become widely accepted and adopted within different industries. For example, the cotton BMP program has been in development for around 10 years. The short timeframe for this project made it difficult to accomplish the interaction, raising awareness, product development and industry involvement that needs to happen to make an industry FMS work.

Background to FMS project and Commonwealth objectives

The Sugar industry FMS program emerged out of the Commonwealth Government's Pathways to EMS program. A number of agricultural industries within Australia have used the program as a boost to introducing EMS and FMS type systems into their industries. The aim of the Pathways to Industry Environmental Management Systems (EMS) Programme (Pathways Programme) to develop and implement EMS and other environmental assurance approaches to achieve:

- adoption of profitable and sustainable farming practices
- improved natural resource management and environmental outcomes, and
- an ability to demonstrate environmental stewardship to domestic and international markets.

The Sugar Industry chose the term Farm Management Systems when the project was conceived because it emphasizes a holistic approach to risk in farm management and aim to achieve protection of the natural environment and the resource base in addition to improving a farming business's bottom line.

An FMS is a voluntary, systematic approach that can be used by producers to identify and manage risks, in particular environmental risks that may occur as a result of their farming operation. FMS aims to achieve continuous improvement by focusing attention on implementing best practices then reviewing progress made against set targets e.g. regional natural resource management targets. FMS can help draw a number of on farm management issues together under a common flexible 'systems' approach.

The objectives of the Sugar industry FMS project were to;

Combine responsible environmental management with the demands of increasing agricultural productivity. In addition, to link on-farm management with identified environmental outcomes at a range of scales including catchment, landscape, regional, state and national is becoming increasingly important.

Under this project, the Sugar Industry Farm Management System framework will provide:

1. for the adoption across the industry of farm management systems at a farm level which address identified risks to the local environment and maintain or enhance profitability;
2. a coordinated, rigorous and consistent approach which assists the industry to demonstrate achievement of natural resource management outcomes through non-regulatory mechanisms as much as possible; and
3. formal recognition and use of the framework by all tiers of government and key stakeholders in government policies and programs at all levels, including regional arrangements.

In addition, the project specifically aims to

1. compile an interactive web-based database on legislation and current best management practices and develop web-based regional natural resource management risk assessment tools and generic sugar FMS templates and guides;
2. develop and monitor environmental and economic (eco-efficiency) performance indicators, including establishing baseline performance indicators for Plan Creek and Burdekin (Stage 1) and Bundaberg, Mackay-Proserpine, Herbert, far north Queensland, NSW and Ord sugar producing regions (Stage 2), recognising regional NRM targets;
3. develop an FMS training course, including production of materials and delivery of the training course around all major Australian sugar producing regions;
4. develop certification / auditing options based on the EMS framework developed by NSW Agriculture as well as FMS policy work undertaken by Canegrowers and Queensland Farmers Federation with Queensland Government support, and implementation of agreed auditing process in two pilot regions; and
5. develop and implement an evaluation framework for the sugar FMS.

The specific aims of subprogram 5 of the Sugar Industry FMS program are to;

- collect and analyse data on the levels of awareness, understanding, knowledge, attitudes, skills and aspirations of sugar-cane farmers in relation to FMS.
- Data collection will occur and be documented at the beginning of the program, midway through the program and at the end of the three-year program.
- Changes in practices as a result of the FMS program will be measured as well as impacts on economic and environmental parameters from participating farmers.
- The learnings from these evaluations will be used to refine communication and training activities. Targets for the FMS program are set at 100% awareness of FMS by cane growers within three years and 10% participation in FMS training after three years.

Methodology

Grower Surveys

The current awareness, understanding, knowledge, attitudes, skills, aspirations and practices of Australian sugarcane growers throughout the duration of the Sugar Industry FMS project was assessed in 3 surveys. The surveys took place in March 2005, April 2006 and March 2007. Copies of the questionnaires used are included in attachment 1. Although there were questions common to all 3 surveys, each questionnaire was slightly different. The largest changes were between 2005 and 2006, when the survey was streamlined to make it easier to give and cut out some information not considered necessary to the overall evaluation

Approximately 10% of growers from mills in each major region; Burdekin, Wet tropics (Herbert), central region (Plane Creek), Bundaberg and NSW were contacted by phone to do the survey. Growers from the Ord were included in the first survey,

however all of the growers contacted were already part of BMP programs with WA department of Agriculture and the decision was made to leave them out of subsequent surveys.

Respondents were surveyed over the phone. If someone was unable to participate, the interviewer arranged to call back at a convenient time. Before asked to do the survey, all growers were informed on the following;

- Who was doing the survey (CSR on behalf of SRDC)
- The purpose of the survey (baseline evaluation for the sugar industry FMS project)
- That their confidentiality would be protected
- That the information would only be used for the purposes of project evaluation
- That at the end of the project Canegrowers would retain the data
- That they could receive a copy of the survey if they wished

If someone refused to do the survey, the interviewers recorded their reasons why. Most surveys took between 20 and 30 minutes each. The survey covered general demographics, awareness, knowledge and beliefs on environmental issues and FMS, farm management practices in areas that may have environmental impact, farm planning and record keeping, their attitudes towards farming with regard to the environment and wider environmental issues and aspirations. Table 1 shows the numbers of growers per region covered by each survey

Table 1: Number of respondents in surveys conducted in 2005-2007

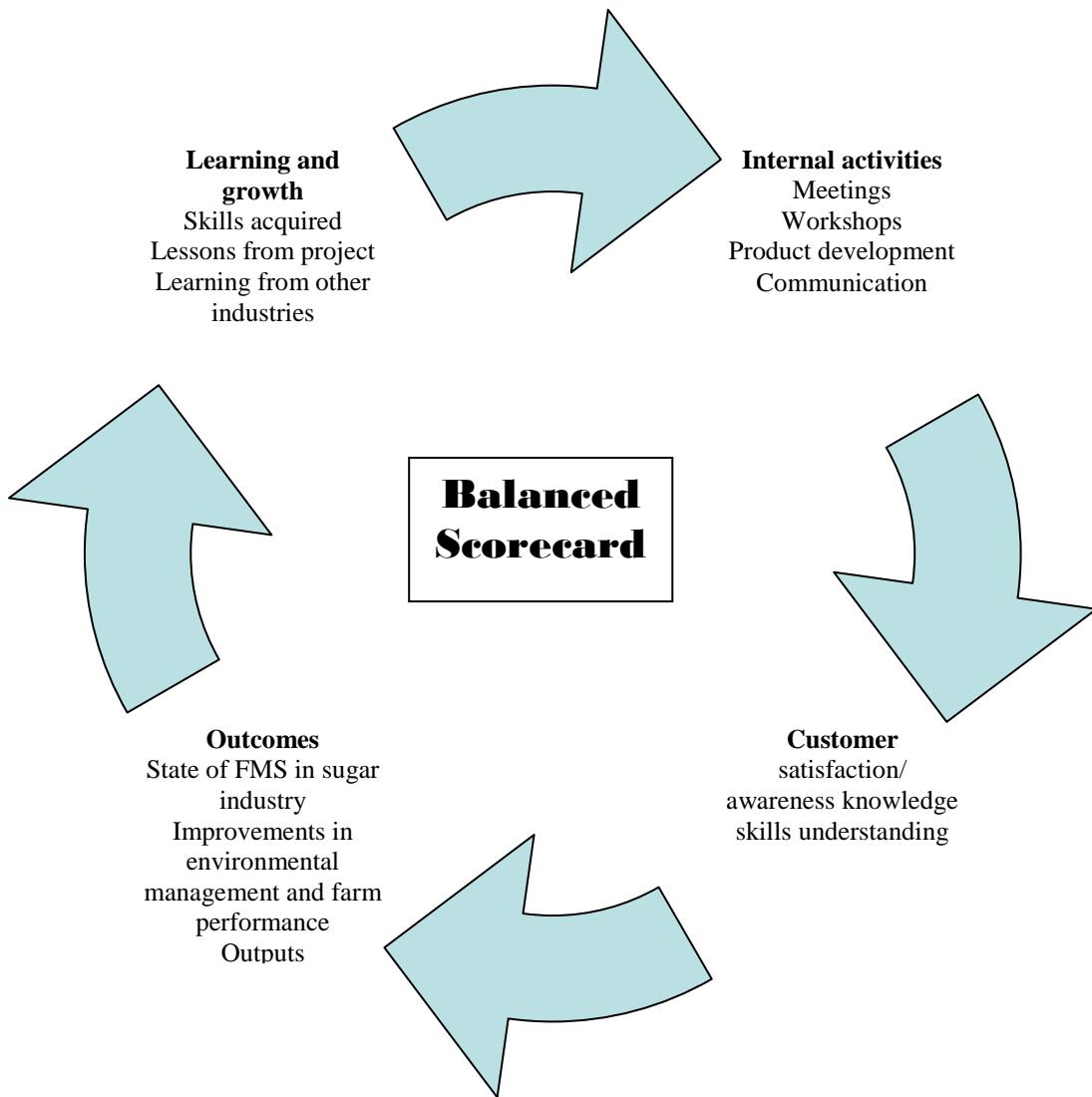
Region	2005	2006	2007
Burdekin	52	70	59
Wet tropics (Herbert)	40	55	50
Bundaberg	20	20	15
Ord River	4		
Central (Plane Creek)	19	26	22
NSW (Condong)	21	30	24

Table 2: Average and total area under cane represented in surveys conducted in 2005-2007

Region	Average area under cane 2005	Total area under cane in survey 2005	Average area under cane 2006	Total area under cane in survey 2006	Average area under cane 2007	Total area under cane in survey 2007
Bundaberg	145.55	1446.99	88.7	1,774	109	1,631
Burdekin	154.95	7209.54	176.4	11,993	122	7,199
Herbert	111.47	3979.01	161.6	8,888	176	8,780
NSW	83.38	1616.48	72.8	2,184	98	2,362
Ord	460.00	1380.00				
Plane creek	177.81	3235.57	169.4	3,728	182	4,002

Use of the balance scorecard framework for project evaluation

The Balanced Scorecard (BSC) concept, made famous by Robert Kaplan and David Norton in their book The Balanced Scorecard has been modified to use for evaluating the Sugar industry FMS project. The figure below outlines the conceptual framework behind this evaluation.



Data was collected from the grower surveys, milestone reports for the other sub-programs, overseas trips to BMP programs, conferences and other reports such as the mid-term evaluation of the Pathways project by DAFF. These data were sorted into the various scorecard components. Grower survey data was considered a “Customer” measure. Milestone reports, notes from FMS steering committee meetings and workshop were counted as data for the “Internal activities” section of the scorecard. Information from overseas examples of BMP programs, conference presentations and other reports on FMS programs was counted as part of the data for the “Knowledge and Learning” component of the scorecard. Finally the outcomes section lists a policy paper under development by Canegrowers which I see as one of the more successful outcomes of the project.

Outputs from FMS005

Three surveys (with individual reports) of growers in five regions in the Australian sugar industry were conducted between 2005 and 2007. See Appendix 1 for final report which summarises the survey results between 2005 and 2007 and Appendix 2 for 2007 survey report.

Outcomes

Surveys of growers during the project have produced outcomes of an increased level of awareness and knowledge of FMS and related concepts such as environmental risk assessments. The number of growers with farm plans also increased during the project and may have been prompted by growers' increased awareness and knowledge of FMS and related concepts. The policy developed by Canegrowers for a future Industry FMS if enacted will be a terrific outcome for the industry.

The balanced scorecard for the project has shown a definite outcome through raised awareness and understanding of FMS due to the communication activities undertaken throughout the project.

IP

The results of the 3 grower surveys will be placed in the care of the Canegrowers organisation

Expected outcomes

The evaluation of the Sugar Industry FMS Project has brought forth several lessons. Recent policy work by the Canegrowers organisation and the current range FMS related activities across all sugar regions indicate that there is still a future for an industry FMS. An expected outcome of this subprogram is that many of the learning's and recommendations documented in the reports supplied to SRDC and communicated to the wider industry are adopted and result in improvements in the success of a true industry FMS.

In a wider sense, grower's increased understanding of the concepts of environmental risk assessment, combined with an already good level of awareness of environmental risk in their management practices, will lead to improved environmental outcomes for our sugar producing regions.

Future research needs

A continued commitment to refining best practice recommendations that combine environmental as well as profit and productivity outcomes is required if the industry is to have a sustainable FMS program

In addition the industry should consider developing a framework approach – providing the supporting services such as R&D, facilitator training, grower reward or champions program – if it believes an industry FMS is necessary.

Recommendations

Whilst this current program is completed, the foundations for an industry FMS are in place. Should the industry decide to embrace the concept, there are a number of recommendations that would increase the success of the program. These recommendations are common themes drawn from a range of sources included in the knowledge and learning sector of Balanced Scorecard Report in Appendix 1.

1. Industry developed owned and embraced

An Industry FMS should be just that – industry developed, owned and embraced. The industry must work together to come up with an overarching FMS package which will allow coordination of funding and activities whilst maintaining a regional focus and honouring existing achievements and activities.

2. Stakeholder involvement

Part of the impetus for a Sugar Industry FMS is to ensure and demonstrate to the community that the sugar industry operates in an environmentally sustainable way. The industry must make sure that those stakeholders outside the industry understand the framework of the Sugar FMS and endorse its content.

3. Collaboration between industry players

One of the successes of the Florida BMP programs was that all relevant agencies worked as one to support the program. This enabled the creation of synergies between organisations, avoided duplication and enabled the program to leverage and more effectively utilise funding sources to achieve the program aims.

4. Linkages to regional NRM targets

An essential component of an FMS is an environmental risk assessment. The grower surveys showed that growers are aware of significant environmental risks in their region, the task for those promoting an Industry FMS is helping growers to link environmental risks are local to a farm to the wider catchment.

5. Baby step approach to adoption, utilise existing planning requirements, enable a staged adoption pathway

An FMS should be designed so it can be done in stages so growers are not overwhelmed by the magnitude of the task of assessing all risks (production, profit and environmental) and then creating plans and monitoring programs to address those risks. It should also be designed so previous related activities – such as COMPASS can be integrated into it.

6. Supporting frameworks; R&D, incentives, promotion and support of participating landholders, stakeholder endorsement, training of extension and support staff to assist growers, education campaigns

An FMS must be more than a template directing growers how to assess risk or a set of best management practices. As originally envisaged by Canegrowers prior to the Sugar Industry FMS project, an industry based FMS must encompass a range of related activities that support the core business of helping growers to plan through the FMS process.

7. Ensuring sustainability; monitoring systems

Part of an FMS involves on-going monitoring. A service to assist growers with their monitoring should be considered as part of the wider question of developing a supporting framework for an industry FMS

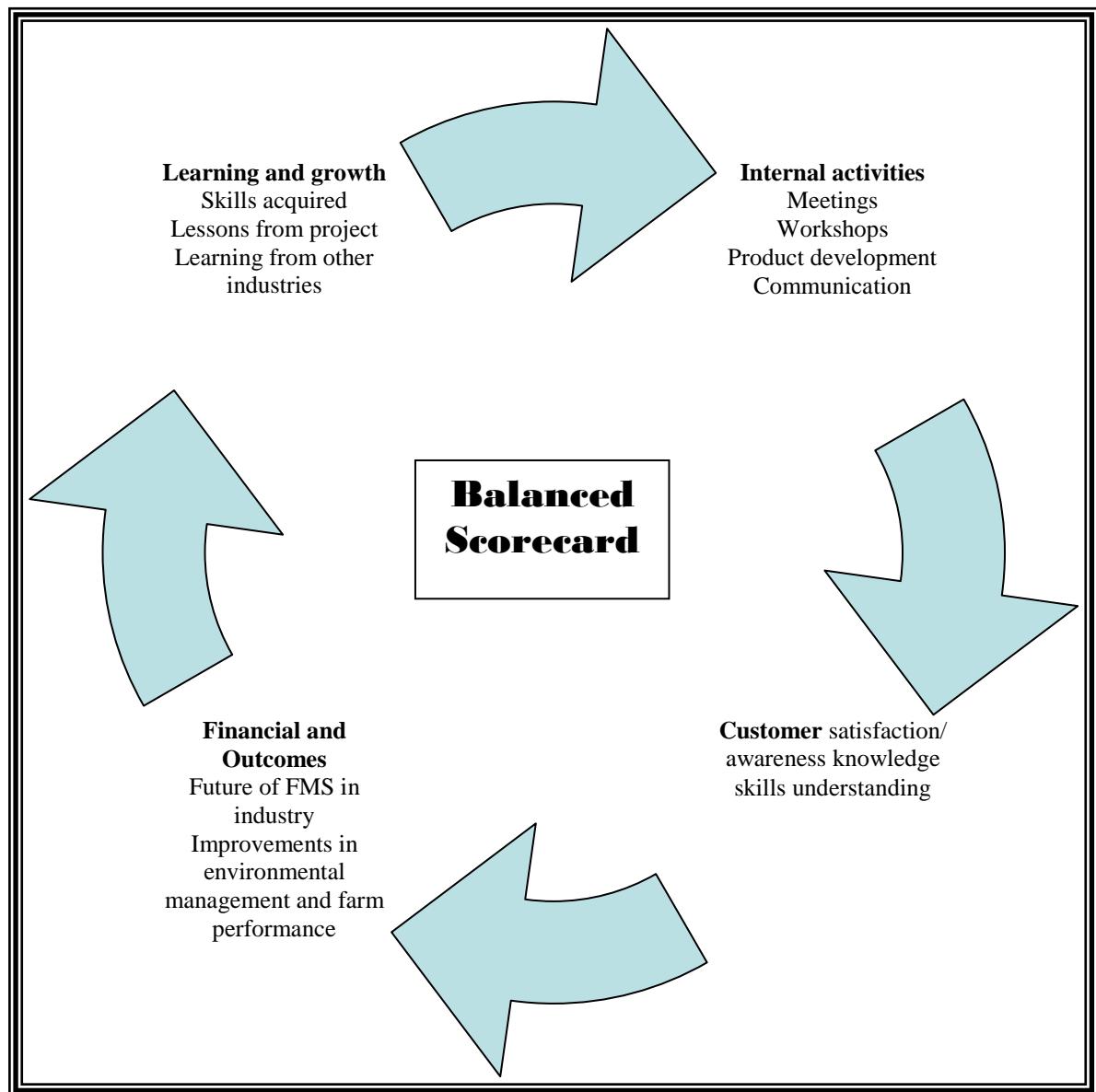
8. marketing, adding benefits for growers

Growers need to see benefits from doing an FMS. The industry should invest in market research to determine what components of an FMS could be added to or modified to deliver more concrete benefits to growers. This would include examining the drivers for adoption of FMS and how FMS programs should be promoted. The grower surveys consistently showed that growers don't see an FMS in terms of them improving their image with the wider community; they see it as a means to possibly going through a more farmer-friendly planning process before they are forced by government or as a means of improving what they do.

Attachment 1

Balanced scorecard evaluation of the FMS project

Final report for FMS005
March 2007



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Introduction

The balanced scorecard is used by business and government organisations worldwide to plan and implement strategy and to evaluate the impact of their performance.

The approach considers four aspects of performance which reflect the implementation process. Once strategy is developed – in this case the various project proposals for the Sugar Industry FMS program - the first task is to carry out the activities planned to achieve the organisations aims and objectives.

Then it is necessary to assess whether those activities are successful in achieving the organisations by evaluating the response of the organisation's customers. In the case of this evaluation of the sugar industry FMS the customers are defined as Australian sugarcane growers.

Customer satisfaction is one aspect of assessing the success of the plan, the other is of course outcomes – the impacts of the project on the adoption of FMS type farm planning across the industry with the broader outcome of achieving social, economic and environmental sustainability of farming enterprises across the industry.

Finally, no evaluation would be complete if there were not lessons derived from the process. This aspect of the balanced scorecard mirrors the review part of the action learning cycle (plan-do-check-act-review) and allows subsequent industry projects to benefit from the experiences of this project.

This report is divided into the four components of the scorecard, starting with the Internal Activities section and finishing with the Learning and Knowledge section.

1. Internal – program activities across the entire FMS project

Activities and outputs from FMS programs

FMS001

The main activity within this sub-program was the development of an interactive web-based toolset was developed to support the Australian sugar industry's Farm Management System (FMS) program. This toolset was made available on the SRDC and AGRECON websites. The toolset of the AGRECON website linked to their extensive range of geographical information. It is interesting to note that the two versions also raised questions as to whether it was necessary to have spatial data to allow growers to do an FMS.

FMS002

This project was to develop key performance indicators within a Farm Management System (FMS) to assess changes in environmental and economic circumstances attributable to exposure to key risk factors.

The final list incorporated business related as well as environmental indicators drawn from the Landholder's Monitoring Guide developed by NR&W, the ABARE NRM survey of farm family households and health and safety material developed by CANEGROWERS Burdekin and Bundaberg.

The following listing represents a summary of outputs generated from this phase of the FMS project:

- A standard list of environmental and economic performance indicators relevant to the sugar industry
- A fact sheet for each indicator including region specific information and implications
- Current baseline conditions for each region where available from regional NRM plans
- Relevant regional targets as specified in regional NRM plans to assist sugar growers and other industry stakeholders to target environmental performance standards and assess outcomes
- Indicator list and fact sheets added into the online Sugar FMS Tools database for easy access and maintenance
- Indicators and associated risks incorporated within the FMS Tools risk assessment component of the FMS training sub-program, to help growers identify and continuously improve on outcomes relevant to their farm

A major finding of this project was that there was little agreement over the nature and practical value of a common set of regionally relevant environmental indicators for individual growers.

FMS003

The FMS003 project initially was aimed at “training” 600 growers in the use of the FMS tools developed under FMS001, FMS002 and FMS004.

Following the Independent Review delivered by Hassall and Associates in the project was altered to provide demonstrable grower value to encourage uptake, utilisation and broad industry support for the tools.

The existing website was restructured under this project, enhancing project specific tools and, in collaboration with the industry, a grower self-assessment resource that identifies management practices and directs users to relevant local services within each region.

The Grower Self Assessment component, currently referred to as “FMS Check”, allows growers to quickly clarify, compare and measure their management practices, receive recommendations, and directs them towards participation in relevant regional and extension services to remedy any identified issues of concern.

The final phase incorporated a series of case studies involving 10 growers drawn from 3 main regions to identify the industry wide values, grower specific benefits, and service sector relevance. The grower case studies conducted as part of the project support this expectation with most growers stating that they would support the industry adopting FMS Check.

FMS004

This project reviewed approaches, systems and implementation options for certification, accreditation and auditing across a range of other industries.

Outputs from this sub-project include:

- A Sugar FMS auditing and accreditation proposal built around a conventional though flexible system-based approach
- A set of guidelines regarding accreditation and compliance options that appear to favour a “Champion”, mentoring or peer group assessment mode of an individual grower’s performance since this will focus on the value proposition of FMS at the individual enterprise scale
- A regionally focused approach to training using restructured FMS materials supplemented by selected case studies that is highly compatible with these accreditation proposals, the regional emphasis and circumstances of the industry at this juncture

- A mechanism to facilitate ongoing feedback regarding these issues through broad based industry wide consultation, FMS forums and subsequent training activities
- A mechanism to facilitate expression of preferences by various industry sectors and stakeholders, to harness that expression and provide direction through industry based leadership along the path of stewardship to sustainability of natural resources through a broadly based and well integrated data acquisition, reporting and assessment system
- A discussion paper that raises a long term alternative and more innovative approach for the industry at the appropriate time.

Media and communication activities

CANEgrowERS communication message was that farm management systems were part of the overall good farm practice concept. The main vehicle for communication was the Canegrowers magazine with FMS also mentioned in the 2006 Sugar Industry Public Environment report.

The content of articles associated with FMS did not always specify the term FMS but rather focussed on good farming practice.

The following is a list of articles related to the good farm practice concept, from the Australian Cane Grower magazine

Date	Article Title and Summary
03-07-06	Top level group probes Burdekin water problem – report on Burdekin groundwater problems and SRDC research project p9
03-07-06	Young growers ignore knockers, look for positives – young growers and new farming systems
03-07-06	Buffer zones create multiple on-farm gains – DPIF article on buffer zones along waterways and fish species.
17-07-06	New farming systems improve N management – soil nutrient management p15
17-07-06	Innovative brothers look to the future – grower case study Michael and Shane Smith adopting new farming systems
17-07-06	Project to spread precision ag in the Burdekin – p20
17-07-06	Compass workshop photo with RWUE project officer p20
31-07-06	Future forged in liquid gold (cover page)
31-07-06	Industry gears up for RWUE3 p3
31-07-06	Spotlight – Industry Success Story – highlights stage 3 of RWUE p7
31-07-06	Using less water to boost cane and sugar yield – CSIRO reports on irrigation planning, timing and sugar yield p12
31-07-06	Burdekin irrigation results to trickle down – CSIRO research in Burdekin and South Queensland p14-15
31-07-06	We're talking positive, for a change – Isis Target 100 p15
31-07-06	Growers' group brings new hope to Rocky Pt – new farming practices in the Rocky Point region p16-17

31-07-06	Partnership forged in liquid gold – report on RWUE 3 target areas p18/19
31-07-06	Big Wet makes a big splash with Bundaberg grower – grower case study Mark Heidke travelling boom irrigator p19
31-07-06	Pivot system worth its weight in good water use – grower case study Andrew Capello of Mackay p20
31-07-06	Optimising Irrigation – article on irrigation timing p20
14-08-06	Spotlight – Sugarcane a vital partner in RWUE
14-08-06	New farming systems pay off at Plane Creek – report on new cane planting systems in Central Queensland p18-19
28-08-06	The myth surrounding stalk density and yield – CSIRO report on crop density p16
28-08-06	Good cane breathes life into Gin Gin hills – grower case study for a small farm in Bundaberg p 18-19
28-08-06	Dual row takes edge off Cyclone Larry – grower case study on dual row in North Queensland p20
11-09-06	Proserpine makes the most of a precious resource p13
11-09-06	Workshop to focus on good farming – report on upcoming Farm Management Systems industry workshop p 14-15
11-09-06	Planter the missing part of farming system equation – GPS grower case study in Rocky Point region p16
11-09-06	Yields bloom when growers take a peanut break – crop rotations in south Queensland p21
25-09-06	Spotlight – Act quickly for water cash p7
25-09-06	Clever irrigation can help roots go deep – CSIRO report on irrigation and plant root depth p 12

25-09-06	Water quality the focus of grower driven research – Monitoring nutrient runoff from irrigation events p13
25-09-06	CTF – you'd be MAD not to give it a go – GPS in NSW p15
25-09-06	Pioneers heading down the same track – grower case study Gerry Deguara on GPS, guidance and soybean crop rotations p16-17
25-09-06	Falling costs, rising returns have growers reaching for the sky – report on GPS in central Queensland p17
25-09-06	The eyes in the sky whose time has arrived – report on GPS in central Queensland p18-19
25-09-06	Modifications boost productivity, without the need for more power – GPS in Childers region p19
09-10-06	Front cover Irrigation – Pivots deliver benefits front and centre
09-10-06	Irrigation – Pivots deliver benefits front and centre (grower case study – Peter Russo) p16
23-10-06	PER: valuable, positive, constructive – General Manager's comment on the Public Environment Report p8
23-10-06	Growers snap up water efficiency incentives p9
23-10-06	Project allows operators to benchmark performance – Burdekin Cane Productivity Initiative using technology such as GPS p19
06-11-06	A clean, green industry spreads the good news – report on launch of Public Environment Report p9
06-11-06	Right product, right place, right time – Incitec Pivot Ltd reports on nutrient management

20-11-06	Survey shows good practice uptake – report on part of RWUE survey p6
20-11-06	Harvest monitoring units reap massive benefits – GPS in Herbert River p16
20-11-06	Perseverance pays off in irrigation study – Science and Innovation Award for Your People winner researching irrigation and deep drainage p20
20-11-06	Managing yield loss from water stress – CSIRO reports on water stress and timing of irrigation p21
04-12-06	Bundaberg battles dry with water –efficient farming p6
04-12-06	Growers build aquatic habitats – growers construct or rehabilitate wetlands resulting in improved fish species p7
04-12-06	Water brings a sparkle to life on Rita Island – grower case study on sustainable farm irrigation practices p14-15
18-12-06	New system a cash saver – GPS guided double disc opener planter p14-15
18-12-06	Raised beds prove worth in downpour – dual rows on permanent raised beds p15
18-12-06	Councils waste water a boon to local sugar industry – Maryborough-Hervey Bay waste water for irrigation
18-12-06	Mackay plant to ease growers' water worries – Mackay waste water treatment plant for irrigation p19
18-12-06	Irrigator makes the most of meagre supply – grower case study Stacey Hadlow and low pressure overhead centre pivot p20

Meetings

A FMS steering group comprised of growers, mill representatives, service providers and SRDC was convened to guide the FMS project. The steering group was disbanded in late 2006.

The role and function of the steering group was somewhat unclear during the first phase of the project and was eventually clarified to one of providing advice to SRDC, BSES and Agrecon.

Meetings were generally held every three months with Agrecon in attendance.

The meetings covered a wide range of topics such as;

- The role of mills and mill information in FMS rollout
- Media and communication strategies
- Definition of FMS
- Activities such as attendance at EMS conferences and overseas travel
- Updates on the progress of each sub-program
- Regional arrangements and how they align with the Sugar Industry FMS program
- FMS in other industries
- Related projects such as WUE2

Alongside these steering group meetings an executive group also met to consider the strategy for rollout of FMS

November 2006 workshop: Sugar Industry Farm Management Systems Workshop. Draft Notes and Report on the Workshop Summary

This workshop was considered necessary because of the difficulty of developing an agreed Industry FMS. This difficulty and the low level of communication and agreement between industry players was outlined in a report by Hassals and Associates.

The meeting invited participants from all over the industry, and from all sectors. A range of criteria for an Industry FMS was developed out of the material gathered at the meeting. The criteria specified were;

1. Focus on benefits to the grower as an individual person
 - Acknowledge and recognise that each grower already has their own farm management system
2. Focus on profitability, productivity and sustainability
 - Improve farm business income and production
 - Maintain resource base
 - Minimise impact on ecosystems
3. Use and refer to current tools and services wherever possible
4. Keep it simple initially – start small and build up.

Content:

- Include an initial risk assessment
 - this can identify gaps from a grower perspective
 - this can identify gaps from an industry perspective
- Include an Action Plan
- Include a Review Process

2. Customer – Surveying changes in growers' awareness, understanding, knowledge, attitudes, skills, aspirations and practices

Three surveys were undertaken as part of FMS005. The results of the 2007 survey are contained in Attachment 2 and the other two surveys are included in Milestone reports 3 and 5 for this project. This section discusses the changes in growers' knowledge, skills, practices awareness understanding attitudes since the inception of the project.

Awareness and knowledge of FMS

There was a high level of awareness of the term “FMS” throughout the project

Table 1: Percentage of growers who had heard of FMS 2005

Growers increased their knowledge of what FMS was during the project

Region	% heard of FMS 2005	% heard of FMS 2006	% heard of FMS 2007
Bundaberg	70%	80.00%	100%
Burdekin	88.46%	91.43%	89%
Herbert	77.5%	90.91%	78%
NSW	90.48%	76.67%	100%
Plane Creek	78.95%	92.31%	81%

As the project progressed, the Canegrowers organisation emerged as the main source of information on FMS. This coupled with the increase in understanding of what FMS was highlights the success of the Canegrowers communication strategy.

In 2005 survey, while most growers has heard of FMS, a significant proportion of growers in each region (46% Burdekin to 20% in Plane Creek) didn't know what an FMS was. Of those who did nominate a definition, most growers described an FMS as a farm plan. Very few mentioned anything about environment except in the Herbert where 20 % of growers described it as a form of environmental accreditation.

In 2006 most growers described FMS as a farm plan, a system for record keeping and a management system, again, only a small percentage of growers linked an FMS to environment and sustainability.

In 2007 growers understanding of FMS had increased in sophistication. The most common description of a FMS was “it incorporates planning for profitability and sustainability”, the second most common description was “good farming practice” followed by “a system for record keeping” and “a farm plan”.

Prior to the commencement of the FMS project, growers had gleaned their information on FMS from a diverse range of sources. In 2006 those growers who had heard about the sugar industry FMS heard through magazines and from Canegrowers and BSES. In 2007 over 50% of respondents had heard about the Sugar Industry’s FMS Project through the Canegrowers Organisation.

Awareness and Knowledge of environmental risk

Understanding of environmental risk assessment

There was a significant increase in understanding the concept of environmental risk assessment

In 2006 over three quarters of growers in each region said they knew what an environmental risk assessment was, generally describing it in terms of their specific environmental threats in their area. For example, in the Burdekin one third of growers nominated managing runoff as

their definition of ERA. Most definitions mentioned being aware of potential impacts of farming practices on the adjacent environment.

In 2007 when asked whether they knew what an environmental risk assessment was 88% of respondents indicated they had an understanding of what it entails. Once again, most growers described ERA in terms of their specific environmental risks and the management practices they undertook to control that risk such as minimising runoff and spray drift. Quite a large number of growers described ERA in terms of a broader awareness of their farm in the wider environment. The third most common response was that ERA was a type of plan where environmental risks were gauged and actions were planned to address them.

Knowledge of regional environmental threats

Growers are strongly aware of major environmental issues in their regions

In 2005 growers demonstrated understanding of the main environmental issues affecting their region, nominating issues such as salinity, erosion, acid sulphate soils and runoff as significant threats. A similar response occurred in 2006 with water quality emerging as a commonly identified issue across the regions.

In 2007 the most common problems highlighted by respondents included the use of chemicals and fertilizers; their runoff and ability to affect water tables and water quality. Runoff and flooding were also noted as important issues, with flooding causing increased runoff and soil erosion. Other highly ranked problems included weeds, drought and rising ground water levels and the quality of water.

Knowledge of impact of farming practices on adjacent natural areas

In the 2006 survey, between 62 and 74% of growers believed that they wouldn't impact on adjacent natural areas.

In every survey over the period of the FMS project, generally two thirds of growers stated they believed management practices prevented any impact from their farms on adjacent natural areas

Of those who thought there could be an impact, their answers showed there was a strong awareness that runoff and leaching posed risk to the adjacent environment, particularly in the Burdekin.

Of those who thought their farming had no impact on adjacent areas the main reasons given were; they exercised proper care and management to avoid impact, or there was no risk to the environment from their farm.

In 2007, when asked whether they thought their farming practices could ever impact on these natural/native areas of their property, two thirds of the respondents were adamant that this was not the case. The

remaining third qualified their statements by saying there would be no impact if they were careful in their farm management but there would always be factors outside their control such as heavy flooding

Farm management and farm planning practices used by growers

Farming practices

In 2005 around 80% of growers outlined a range of best practices they used in managing run off, fertiliser and pesticide use and maintaining soil health. The main practices growers were using to control runoff included recycling irrigation water, green cane trash blanketing (GCTB), drainage works, grassed headlands, laser levelling and drainage systems. Best practices for managing crop nutrition included reducing rates of fertiliser, proper placement of fertiliser and using different types of fertiliser.

The main best practices for chemical application cited included using the least amount of chemical possible and obtaining Chemcert accreditation. Management practices for managing soil health mentioned by growers were use of ameliorants (lime, gypsum, mill mud, dunder), minimum tillage and crop rotation.

In 2006 Respondents where asked what practices of measures they had taken to minimise any potential impacts from their farm. Adoption of best management practices for managing fertiliser and chemical as well as controlling runoff were cited as the main actions undertaken by growers to minimise potential impacts.

In 2007, again a large percentage of respondents said they monitor their chemical and fertiliser usage, manage runoff of fertilisers, do not spray on windy days and monitor fertiliser leaching. Other commonly mentioned management practices were maintaining or replanting buffer areas and native strips along creeks and other natural vegetation on their properties, maintaining effective drainage systems including using recycle pits, green cane harvesting and trash blanketing. Less than 10% of respondents said they have done nothing to minimize the impact of their farming practices on natural areas of their properties.

Practices in relation to farm planning and record keeping

Record keeping

Since these surveys commenced, the majority of growers are aware of and appear to be using recommended best practices for controlling off-site impacts from their farm

In 2005, all growers interviewed said they kept records. Commonly kept records include financial, chemical application, fertiliser application, soil tests and productivity. While many growers used computers, they still largely relied on paper and diaries to keep most of their records.

Farm planning

Between 2005 and 2007, the proportion of growers stating they had a farm plan significantly increased in all regions

In 2005, over two thirds of growers in the Burdekin, NSW and Plane Creek had a farm management plan. Only a quarter of growers in Bundaberg and 55% of growers in the Herbert had plans. While most growers had previously stated that it would be useful to have a farm plan to aim for sustainability and profitability, only a small percentage of growers indicated interest in going through a farm planning process – even with access to help and resources. By 2006 the majority of growers interviewed said they had a farm plan. This was a significant increase in all regions, particularly in Bundaberg, NSW and Plane Creek. In 2007, 95% of growers said they had a farm plan.

The majority of farm plans are still not formally recorded

Surprisingly, the percentage of growers who kept their farm plan on a computer did not increase between 2006 and 2007. In NSW and Plane creek the percentage of plans recorded on computers actually decreased by almost half. However, the number of plans recorded on paper steadily increased between 2005 and 2007, except in the Burdekin and Plane Creek. By far the majority of farm plans throughout the FMS project have been kept in growers head's – a challenge for implementation of an industry FMS.

Table 2: How farm plans are recorded by growers between 2005 and 2007 survey.

Region	year	Bundaberg	Burdekin	Herbert	NSW	Plane Creek
On computer	2007	13.33%	18.64%	14.00%	8.33%	9.09%
	2006	16.67%	20.97%	25.00%	14.81%	16.00%
	2005		5.77%	2.50%	23.81%	36.84%
Paper	2007	60.00%	25.42%	60.00%	41.67%	27.27%
	2006	44.44%	48.39%	60.42%	33.33%	36.00%
	2005	15.00%	15.38%	7.50%	28.57%	10.53%
In head	2007	80.00%	74.58%	60.00%	91.67%	95.45%
	2006	88.89%	77.42%	62.50%	70.37%	64.00%
	2005	5.00%	11.54%	7.50%	42.86%	10.53%

* percentages do not add to 100% because growers may give more than one response

The key components in farm plans are cropping, irrigation (in relevant areas), budgeting and operational plans

In 2006 most farm plans included a cropping plan. Two thirds of farm plans in the Bundaberg and Burdekin regions included an irrigation plan. Budgets and farm layout were included in between one to two thirds of farm plans depending on the region.

In 2007, the most common factors covered in farm plans included cropping planning and paddock layout. Respondents also note irrigation planning and budgeting as being priorities in planning as well as operational plans.

Training programs attended by growers

Between 2006 and 2007 there was a significant increase in the number of growers who had attended (or were intending to attend) a COMPASS course. Training in Workplace Health and Safety increased significantly in Bundaberg, the Herbert and Plane Creek. There was a significant increase in Chemcert training in Plane Creek, but a reduction in NSW.

Most growers continue to undertake a wide range of training

Reductions in the number of growers reporting they undertook financial training, except in Plane Creek, are not easily explained. Possibly growers were thinking of different types of financial training between surveys in 2006 and 2007. The figures for involvement in financial training could have been reduced because growers did not include types of financial training such as MYOB or FEAT (QDPI program) in the category of financial training.

The number of growers who had undertaken LWMPs increased in each region.

Table 3: Percentage of growers who had completed the following training programs in 2006 and 2007

Region	year	Bundaberg	Burdekin	Herbert	NSW	Plane Creek
% COMPASS	2007	100.00%	71.19%	82.00%	66.67%	81.82%
	2006	20.00%	37.14%	56.36%	30.00%	57.69%
% WH&S	2007	86.67%	42.37%	78.00%	45.83%	81.82%
	2006	50.00%	57.14%	63.64%	40.00%	61.54%
% Chemcert	2007	100.00%	71.19%	82.00%	66.67%	81.82%
	2006	95.00%	70.00%	85.45%	83.33%	53.85%
% Financial	2007	6.67%	22.03%	12.00%	8.33%	36.36%
	2006	50.00%	45.71%	18.18%	23.33%	11.54%
% LWMP	2007	40.00%	23.73%	22.00%	12.50%	4.55%
	2006	40.00%	17.14%	7.27%	10.00%	23.08%

Growers' thoughts on the actual and public perception of the environmental performance of the sugarcane industry.

Growers' attitudes towards the sugar industry's environmental image

Growers' were largely happy with the job the sugar industry is to doing to address the community's environmental concerns – they are concerned that the industry is not effectively communicating these achievements to the urban community

Growers' are starting to think the community perceptions of their industry are softening

In all surveys, the majority of growers surveyed believed the sugar industry was working well to address the general community's environmental concerns.

However, growers did not as strongly agree that the industry was doing a good job of communicating information about the industry's initiatives to the urban community. Generally, in 2005, all regions believed the sugar industry communicated its environmental initiatives quite well to the rural community, but not as well to the urban community. Similarly, in 2006 growers largely thought the industry was doing well in communicating its environmental initiatives effectively to the rural community.

In 2007 Well over 60% of growers in each region (except the Burdekin which was only 42%) thought the industry was doing well to very well in communicating their environmental initiatives to rural communities. Fewer growers thought the industry was doing well to very well in communicating to urban communities (between 20 to 55% across the regions).

In 2005 only between 5% (Bundaberg) and 28 % (Herbert) of growers thought that the general community believed sugarcane farming had a positive impact on the environment. Between 37% (Plane Creek) to 75 % (Bundaberg) believed the community thought sugarcane farming had a very negative impact on the environment.

In 2006 Only between 0 (Plane Creek) and 10 % (Burdekin) of growers thought that the general community believed sugarcane farming had a positive impact on the environment. Between 45% (NSW) to 65 % (Burdekin) believed the community thought sugarcane farming had a very negative impact on the environment.

In 2007 between 53-54% in Herbert and Bundaberg and 20% in the Burdekin of growers believed the community, saw sugarcane farming as having a positive impact on the environment. Between 20% (Bundaberg) and 56% (Burdekin) of growers across the five regions thought the general community believed there was negative impact on the environment from sugarcane farming.

Attitudes to FMS

Growers' attitudes to recording and monitoring their activities

Will doing an FMS will demonstrate to the community we are doing the right things

Growers have been sitting on the fence when it comes to believing an industry FMS will improve its environmental credentials to the community

In 2005, growers across all regions showed a high level of agreement that it would be useful for them to record and monitor their activities to show the community they are doing the right thing environmentally. There was less general agreement in 2006, where there were roughly equal amounts of positive and negative responses to the question of whether doing an FMS would reduce community concerns about the impact of sugar farming on the environment. There was a large “undecided” proportion in the Burdekin and the Herbert. Only a small percentage of growers (between 15 – 35 %), except in the Herbert with 45%) believed strongly that doing an FMS would improve their farming enterprise.

The trend of a large “undecided” vote continued in the 2007 survey when slightly under a third considered that an FMS might be effective in reducing community concerns about the environmental impacts of sugarcane farming. A slightly larger proportion of respondents noted this could have some impact, whereas the remaining saw FMS as doing little to reduce community concerns.

Will monitoring the plans to show we are doing the right thing

Growers are more comfortable with auditing their FMS for their own purposes than for industry or government reporting purposes

In 2005, growers were commonly quite positive to the idea of having their recording and monitoring systems open for independent checking. In 2006, 70 to 95% of growers’ across the regions were very comfortable about self-auditing their FMS. However, they were fewer growers who were as comfortable to very comfortable about an industry representative auditing their FMS and them reporting back to the industry, ranging from 70 to 35% across all regions. They were fewer again, between 45 to 25% who were comfortable to very comfortable with a government agency auditing their plan.

In 2007, 60% most growers were again more comfortable with the self auditing and 40% comfortable industry body auditing options. Only 28% of growers said they were comfortable with their audit being reported to government. Only 8% of respondents were uncomfortable with the self auditing option compared to 18% and 28% respondents being uncomfortable with the industry and government auditing options, respectively.

Would growers pay someone to audit their plan?

In 2006 the survey found the majority of growers (between 73 to 98% across all regions) were not willing to pay for an audit. However, more were prepared to pay for an audit (54% to 90% across all regions) if it was for the purpose of reporting back to the government.

The large majority of growers aren’t prepared to pay for someone to audit their FMS plans

It is interesting that while growers had a high level of discomfort with having someone audit their plans for reporting to government, they were more willing to pay for that audit than if the auditing was for their own purposes. Perhaps this level of discomfort about reporting to the government made them more willing to pay for someone to do an audit

of their FMS to report back to government or industry. This is possibly because growers see an increasing level of detail and expertise required to report to both industry and government.

In 2007 a similar proportion of respondents were willing to pay for any audit of their plans for themselves (11%). However there were fewer growers in 2007 that were willing to pay for auditing of their plan to government (4%) or industry (2%).

Does the industry need an FMS?

Growers were asked in 2006 and 2007 whether they thought that growers in the industry needed an FMS. In 2006 between 62% to 77% across all regions said yes. In 2007 the response was higher with an average of 78% of respondents believe that growers in the industry do need to be doing FMS.

In 2006 when those who thought that an FMS was needed were asked why, they gave a range of responses. Surprisingly, only 6 respondents indicated that the FMS was needed to meet public expectations. Most saw positive benefits such as being able to plan and record, learn new things, protect the environment. In 2007 the main response from growers as to why the industry needed an FMS was that it would ensure everyone has the same level of knowledge necessary to sustain the future of the industry

In 2006, those growers who did not think that growers in the industry needed an FMS, believed they were already doing the right thing and using planning effectively in their farm management. There was a smaller percentage that thought the costs and time required to do an FMS was too much of an impost on growers and a smaller percentage again didn't think an FMS would be useful. There was a similar response from growers who thought the industry needed an FMS in 2007 with many believe they already are planning, the only difference was they were not recording everything and filling out pages of paperwork each night.

The large majority of growers believed the industry did need an FMS but not necessarily for the purposes of demonstrating the industry's environmental responsibility to the community

Growers' interest in doing an FMS

A around half the growers surveyed in 2006 and 2007 were interested in doing an FMS

In the first survey in 2005, most growers in all regions except NSW saw having a farm plan useful to help them achieve profitable and sustainable farming. However, only a small percentage of growers (10 to 68% across all regions) indicated interest in going through a farm planning process – even with access to help and resources.

In 2006 there was an overall increase in the percentage of growers (28 to 55% across all regions) interested in doing an FMS. There was slightly interest in 2007 with over half the respondents indicated they would be interested in completing a FMS.

Growers' thoughts about industry FMS being compulsory

Growers' belief that the government will eventually require growers to do an FMS or similar management plan leads them to conclude it would be better to do an FMS voluntarily first

In 2006 a significant percentage of growers (65 to 88% across all regions) believed that they would eventually be forced to complete an FMS. Growers also believed there were a number of management plans (which they saw as separate to an FMS) they believed they would be expected by government to do in the future. For example, 30% of NSW growers who thought they may have to do a drainage plan in the future.

In 2006 there was a general feeling among those respondents who said they thought they would eventually be forced to do an FMS and that it was inevitable, given previous experience. Growers expressed a common opinion that there was a tendency by government to regulate many things. There was some resentment expressed by growers; "The government tells growers exactly what to do with our farms" and some cynicism "Because governments and industry bodies are influenced by perceptions not facts". In contrast, many growers believed an FMS was necessary to protect the environment and make sure all growers were "accountable and (have) responsibility to the land".

Of those growers who believed FMS would eventually become compulsory in 2006, a significant percentage (53 to 92% across all regions) said they would rather do an FMS voluntarily first but most (50 to 87% across all regions) thought it was unfair that they should be forced to do an FMS.

In 2007 three quarters of growers surveyed believed they might eventually be forced through legislation to complete FMS or similar plans. As in 2006, growers either expressed a feeling of inevitability of legislation being part of the natural progression of events. There were however those growers who felt the sugar industry was behind many other industries in their level of responsibility and it was time all growers in the industry were accountable for their farming practices.

Of those growers who thought an FMS or similar plan would likely become compulsory 86% noted it would be better for growers to voluntarily complete FMS before it becomes legislation.

Growers responses to whether doing a FMS might improve their farming enterprise

In 2006, 25 to 55% of growers across all regions saw doing an FMS as a benefit to their farming enterprise, while 25 to 60% saw it as of little benefit at all.

Around 40% of growers think an FMS could benefit their farming enterprise.

2007 Respondents were asked how much they thought doing a FMS might improve their own farming enterprise. 29% of respondents felt it would have little or no benefit, 36% felt there was some possibility that FMS could improve their current practices and 40% believed that a FMS could help to improve their farming enterprise. The following comments highlight some of the attitudes and feelings of respondents regarding FMS.

3. Knowledge and learning

What we have learned from surveys

- Knowledge and understanding of FMS and associated concepts has increased during the project with grower showing increasing sophistication in their understanding and knowledge of what FMS is – moving from “it’s a farm plan” to “it incorporates planning for profitability and sustainability”- during the 3 years of the project.
- As the project progressed, the Canegrowers organisation emerged as the main source of information on FMS. This coupled with the increase in understanding of what FMS was highlights the success of the Canegrowers communication strategy.
- There was a significant increase in understanding the concept of environmental risk assessment over the life of the project and growers are aware of some of the environmental risks associated with farming. The majority appear to be using appropriate management practices to take that risk into account
- During the course of the project the number of growers with farm plans increased, however the majority of these plans are not recorded formally. The period also saw an increase in the number of growers who completed COMPASS training
- Growers believe industry bodies are doing well in addressing community environmental concerns over sugar, although many feel this is not being communicated effectively to the urban community which they believe has a negative impression of the industry as a result.
- Growers largely agree the industry needs an FMS – the main reasons being that eventually the government will require it and that the industry could improve its performance through an FMS program. Growers were interested in doing an FMS but they didn’t feel strongly that an industry FMS would improve their image with the wider community or have any significant benefits for their farming enterprises.
- Growers would prefer to audit their own plans for their own benefit. They are not interested in paying anyone to help them do an audit and they have very little interest in taking their audit reports to industry or government

Lessons from other industries/countries

2006 EMS conference Beechworth Victoria

Several agricultural industries were represented at the conference. The following is a list of learnings that have been synthesised into recommendations for the Sugar Industry FMS program.

1. It is critical for the success of FMS that there be substantial stakeholder engagement, both in the design and roll out of the program.

The industry FMS should be designed to meet the expectations of the community and government that land managers be environmentally responsible and the needs of land managers to be financially sustainable.

- The cotton industry has used their promotion and support for farmers to do BMP plans to gain a ‘social licence to farm’. They have publicised their BMP program and worked closely with environmental organisations to develop practices acceptable to all parties. This would be a useful approach for the sugar industry.
- The rice and seafood industries had taken a similar approach – the main focus of the industry organisations was promoting self regulation to meet the environmental targets for the industry and the wider community.
- The above industries emphasised the fact that a FMS or BMP system also allowed farmers to document what they were doing so they could demonstrate they ‘were doing the right thing’
- NRM bodies in the regions should be engaged so the Sugar FMS can link to regional targets for surface water quality, groundwater quality and height, biodiversity and land condition.
- Partnerships with regional NRM boards could provide support services and resources to the industry FMS. Resources are required after the completion of the current Sugar Industry FMS project to continue to provide expert advice on sustainable solutions for individual farms and to assist with monitoring of action plans. Also the regional NRM boards can provide financial incentives to link to the completion of action plans.
- If benefits of farmers completing an FMS are substantially for environment and community, then this needs to be taken into consideration and growers need to be assisted or compensated for their efforts (i.e. look at the contributions from NRM funding)

2. FMS must be a relevant environmental management strategy as well as a farm management planning framework.

The Sugar Industry FMS must focus on the win-win outcome of sustainable environmental improvements with associated farm business improvement.

- The FMS program must promote the benefits to growers from doing an FMS; the experience in other industries is that FMS programs don’t interest people when advertised principally as an environmental management tool
- Market research would help to identify what should be included in an FMS to add value to what growers do. Farmers generally won’t want to do a

- FMS for environmental reasons alone. Clever marketing should focus on the drivers for adoption.
- There is the potential to use industry wide use of FMS as a marketing angle

3. FMS planning should be an action learning process.

For investment in FMS to be effective, the Sugar Industry FMS project needs to have a long term goal of creating a sustainable process. The FMS designed will have to have flexibility to evolve with the needs of farmers over time. It will need to be a living document.

- Considerable thought and planning is needed to ensure the sustainability of the FMS concept. How do we keep it a living document, used by growers to create long term plans for managing their farms? SRDC needs to consider the costs involved and the incentives and disincentives for farmers to maintain the FMS.
- The whole question of auditing needs to be well thought through, particularly in relation to the sustainability of the FMS concept. Decisions need to be made on what the best process is, who should do it, how will the results be used and the potential for accreditation, rewards and recognition.
- Similarly, the monitoring component of an effective FMS also needs to be clearly articulated when an FMS is developed. Ideally monitoring should be planned from a thorough risk assessment followed by sound action planning to address risks. Expert advice will be required on what should be monitored, how and how often. In the relevant cases, monitoring programs should take into account the appropriate environmental indicators (water quality etc) so the results can be linked to resource condition targets.
- The industry needs to consider a system of recognising and celebrating the efforts of farmers who do their FMS. This would include peer recognition as well as informing other stakeholders of farmers' successes.
- The Sugar Industry FMS should be flexible, offering different levels of involvement in FMS development. Its design needs to encompass a "baby step" approach. Initially, some farmers may only be comfortable to use the record keeping component of the program. The opportunity should exist for those farmers to undertake other parts of the planning and risk assessment process later when they are more comfortable with the process.
- A key factor in ensuring the use of FMS/EMS in other industries and regions was the availability of expert advice and support for farmers to do and enact their FMS plans
- Information required to develop relevant and effective action plans needs to be continually updated by continuing R&D into better farming practices.

Best practice programs in Florida's Water Management Districts (WMDs)

Florida's BMP programs are producing results to ensure water in that state does not become "dirty, scarce or costly". The key factors behind their success were;

- ❖ Interagency and stakeholder cooperation on BMP initiatives
- ❖ Multi-organisational teams working together to develop BMP options for farms promotes widespread acceptance of BMP practices among all stakeholders
- ❖ a shared vision and greater understanding of the issues faced by various sectors – everyone owns the problem and must contribute to the solution
- ❖ an ability to pool funding sources and leverage additional resources from different organisations into the programs
- ❖ a pool of skilled technical staff to support landholders to identify and develop solutions to their water quality and or quantity issues
- ❖ Development of action plans within a whole farm planning process developed by the farmers with the assistance of agency staff.
- ❖ Commitment to partnerships in BMP programs was be enshrined by legal agreements (e.g. Shell, Prairie and Joshua Creek Watershed Management Plan Stakeholders Agreement)
- ❖ Excellent knowledge management and communication between partners
- ❖ Cost-sharing arrangements between government agencies and landholders to fund on-farm implementation of BMPs.
- ❖ BMPs developed through sound science and technology
- ❖ extensive monitoring with effective and clear feedback to farmers
- ❖ participants in the BMP programs were required to retain a Quality Assurance status through follow-up visits from BMP program staff
- ❖ Environmental problems addressed by BMP programs, targets and desired outcomes were clearly defined
- ❖ promotion of success, recognition of the positive actions of farmers involved in BMP programs
- ❖ All BMP programs in Florida focussed on benefits to farmers as well as promoting the concept of self-regulation to meet environmental targets as a means to avoid the imposition of regulations
- ❖ investment in education programs to underpin other program activities.
- ❖ Regional approaches – such as major infrastructure projects to manage water quality and quantity issues not able to be addressed at a farm scale.
- ❖ Where regulation was behind BMP programs (e.g South Florida Water Board) it was combined with technical assistance and cost-sharing. There was also recognition that staff involved in enforcing regulation needed to have understanding of agricultural practices and respect for farmers.

Early concepts of a Sugar Industry FMS

A discussion Paper prepared by Diana Dawson for the Industry-wide RWUEI committee, March 2004 suggested framework to locate FMS within existing industry and regional structures. Many of the features represented in this diagram have commonality with other recommendations to implement an Industry FMS.

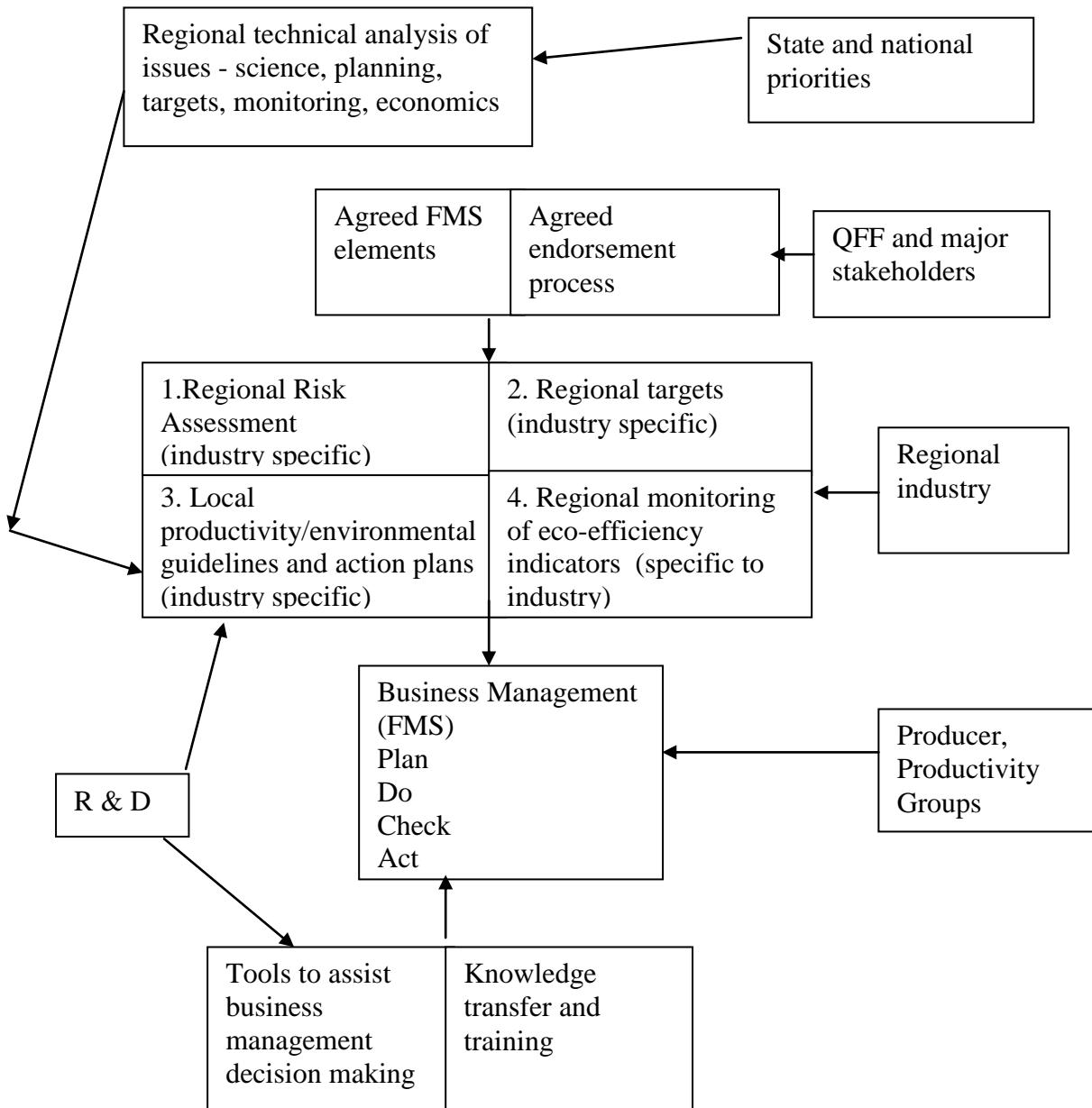


Figure 1: Structures to assist on-farm implementation of FMS

This early work by Canegrowers on establishing a framework reflective of industry structures and arrangements at the time was not truly reflected in the Objectives stated by the Natural Heritage Trust in the Sugar Industry FMS program which were to;

1. compile an interactive web-based database on legislation and current best management practices and develop web-based regional natural resource management risk assessment tools and generic sugar FMS templates and guides.
2. develop and monitor environmental and economic (eco-efficiency) performance indicators, including establishing baseline performance indicators for Plan Creek and Burdekin (Stage 1) and Bundaberg, Mackay-

- Proserpine, Herbert, far north Queensland, NSW and Ord sugar producing regions (Stage 2), recognising regional NRM targets;
3. develop an FMS training course, including production of materials and delivery of the training course around all major Australian sugar producing regions;
 4. develop certification / auditing options based on the EMS framework developed by NSW Agriculture as well as FMS policy work undertaken by Canegrowers and Queensland Farmers Federation with Queensland Government support, and implementation of agreed auditing process in two pilot regions; and
 5. Develop and implement an evaluation framework for the sugar FMS.

It appears that there was an uncoupling of these specific program objectives with the wider aims of the NHT FMS programs to develop a Farm Management System framework which provides:

1. for the adoption across the industry of farm management systems at a farm level which address identified risks to the local environment and maintain or enhance profitability;
2. a coordinated, rigorous and consistent approach which assists the industry to demonstrate achievement of natural resource management outcomes through non-regulatory mechanisms as much as possible; and
3. Formal recognition and use of the framework by all tiers of government and key stakeholders in government policies and programs at all levels, including regional arrangements.

Lessons from other Pathways to EMS programs

The mid-term review of the Pathways to Industry EMS Program by Hassall and Associates identified some common elements that improved the adoption of EMS/FMS in different agricultural industries. General findings that are of interest to the Sugar Industry FMS Program include;

- Any material developed has to be visual, practical, tactical and quick to complete, be industry specific, and use farmer friendly language and format.
- Adoption of FMS increases when industry organisations and producers contribute to the content development process.
- Where linkages between farming practices and regional NRM outcomes are a high priority, it has been important that the content defines clearly the links between profitable and sustainable practices and environmental outcomes on a catchment scale.
- A considerable amount of time and effort in establishing useful linkages within their industry is required if a sense of involvement and ownership is to be created.
- It is important to engage with external stakeholders and to do this effectively. Projects must establish effective mechanisms for improved coordination between the large number of stakeholders involved (e.g. different levels of government, NRM bodies, regulators and supply chains).

- Some industries are approaching adoption in a stepwise manner starting with current best practice leading through a series of steps to new practices and higher goals. The advantage of such an approach is that it allows EMS to be trialled and improved while providing time for industries to understand and refine the drivers/incentives.
- Industry and farmer organisations are well equipped to take the lead in supporting and expanding the adoption of EMS amongst landholders and across industries and regions by identifying and promoting industry champions and developing support networks for landholders (mentoring or cluster groups).

4. Financial and Outcomes

The future for a Sugar Industry FMS

While a “branded” FMS program has not yet been introduced to the Sugar Industry as an outcome of this project, CANEGROWERS is developing policy to introduce an industry wide FMS approach. The CANEGROWERS Farm Management Policy outlines their response the major challenge of linking the demands of agricultural productivity and profitability with responsible environmental management.

The backbone of the policy is open communication by the industry with stakeholders to build public confidence in how farms are managed. As new issues emerge, the ability of the industry to ensure public confidence will become critical to maintaining a positive political environment that endorses cane farming.

CANEGROWERS sees Farm Management Systems (FMS) as a voluntary approach that can be used by growers to identify and manage risks, including environmental risks that may occur as a result of their farming operation.

The focus of the CANEGROWERS approach to FMS is growers recording what they currently do on farm and what they need to put in place for good farm management. FMS aims to benefit growers by focusing attention on implementing good farm management practices and then reviewing progress made against set targets e.g. regional natural resource management targets.

The objectives of the policy is to develop a voluntary approach to sustainable farm management including adoption of key practices which lead to increased profit and improved environmental performance while ensuring growers maintain economic, environmental and socially sustainable access to resources within the context of changing government legislation.

An industry-led FMS program

CANEGROWERS suggests the Sugar Industry FMS program will have the following characteristics;

- build on existing industry programs,
- be simple to implement,
- minimise the cost to individual enterprises,
- improve efficiencies of record keeping,
- contain a self-assessment component,
- adoption by growers should be on a voluntary basis,
- support acceptable standards promoting good farm practice agreed to by the industry groups, and
- accommodate regional differences and regional risks.

Attachment 2

**Farm Management Systems
in the Sugarcane Industry
Benchmark Evaluation
March 2007**

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Purpose

The purpose of this survey was to monitor the changing understanding and attitudes in relation to Farm Management Systems in the sugar industry. The survey follows on from a very similar one undertaken early in 2006 and provides an opportunity to compare benchmarks.

Acknowledgements

The survey was designed by Lisa McDonald CSR with the assistance of Jeff Coutts, Coutts J&R. Coutts J&R undertook the evaluation with Liesel Rennie managing the survey and the initial analysis. The survey was only possible because of the willingness of producers to give of their time and experience and this was much appreciated.

Methodology

A phone survey was used based on stratified sampling. A total of 170 respondents from 5 regions were surveyed. The regions were proportionally represented based on the number of farmers/numbers available in each region and 59 respondents from Burdekin, 50 respondents from Herbert, 24 respondents from NSW, 22 from Plain Creek and 15 from Bundaberg were surveyed. A total of 119 respondents who were contacted did not want to participate for a variety of reasons. Information about the survey was included in newsletters prior to phoning – although few recalled the notification.

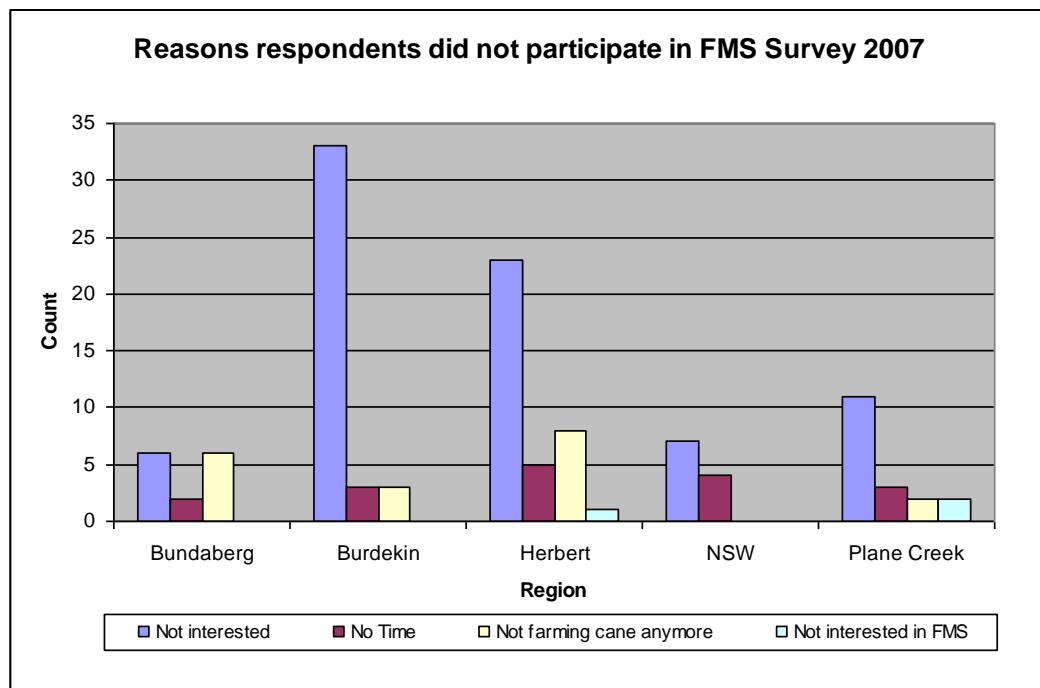
Results

The results are presented in line with the questions asked in the survey. Graphs are used where they are useful in presenting the data and qualitative data has been analysed and included in table form where appropriate.

Non Responses

Reasons respondents did not want to participate in FMS Survey 2007

A total of 119 respondents did not wish to participate in the FMS Survey 2007. The reasons for not participating are highlighted in the chart below. It can be seen the main reason was respondents were "not interested". Of these 119 respondents, 89 were male and only 10 noted that they had completed a similar survey last year.

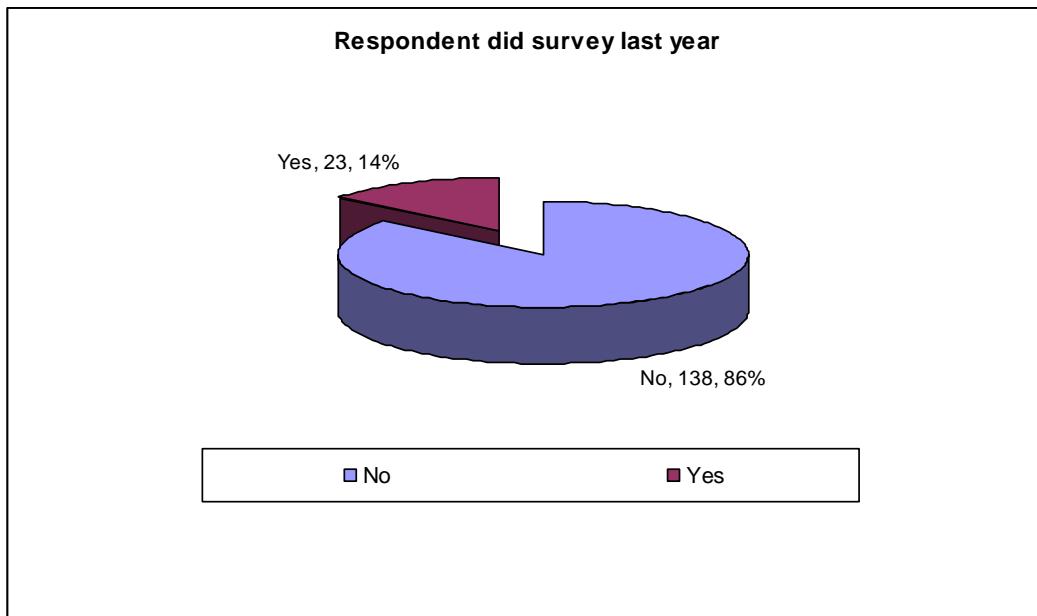


Demographics

Respondents that participated in the FMS Survey 2007

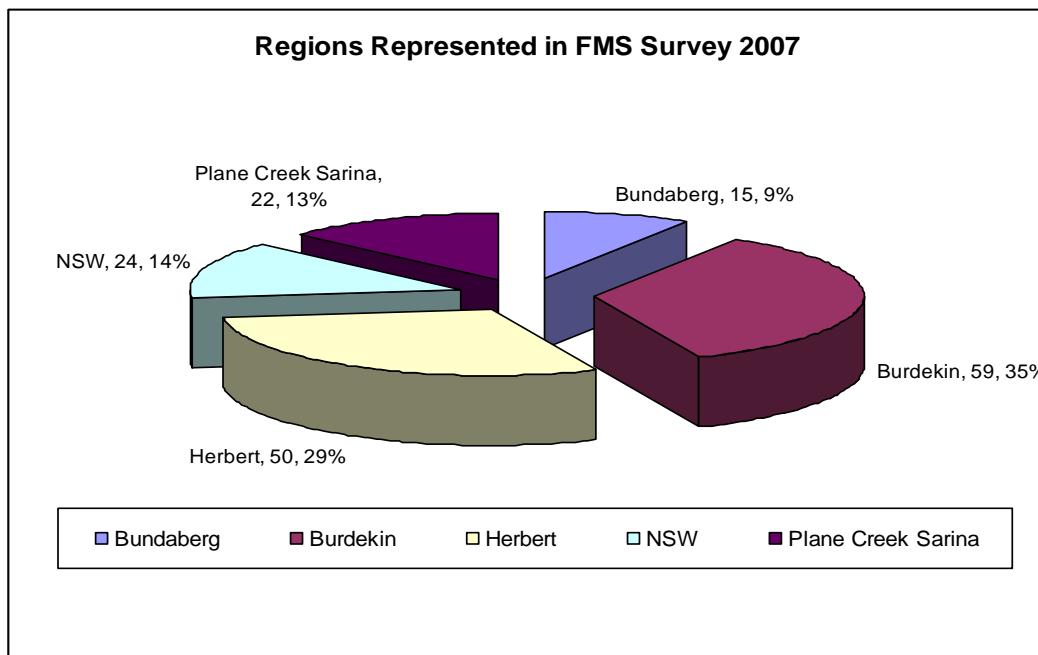
Respondent did survey last year

This same survey was conducted within the industry 12 months ago. This follow up benchmarking evaluation serves to determine and understand any changes that have occurred in the industry since then. Of the 170 respondents surveyed this year, only 14% (23 respondents) recalled participating in the same survey last year.



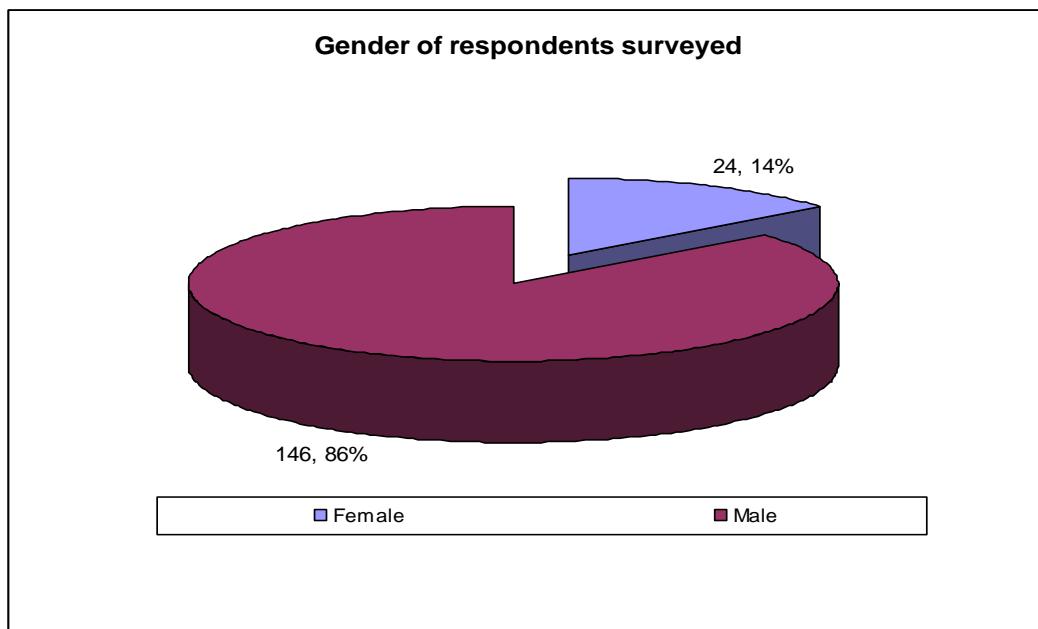
Region

Respondents from 5 regions were represented in this survey. The regions were proportionally represented based on the number of farmers/numbers available in each region. 59 respondents from Burdekin, 50 respondents from Herbert, 24 respondents from NSW, 22 from Plain Creek and 15 from Bundaberg were surveyed.



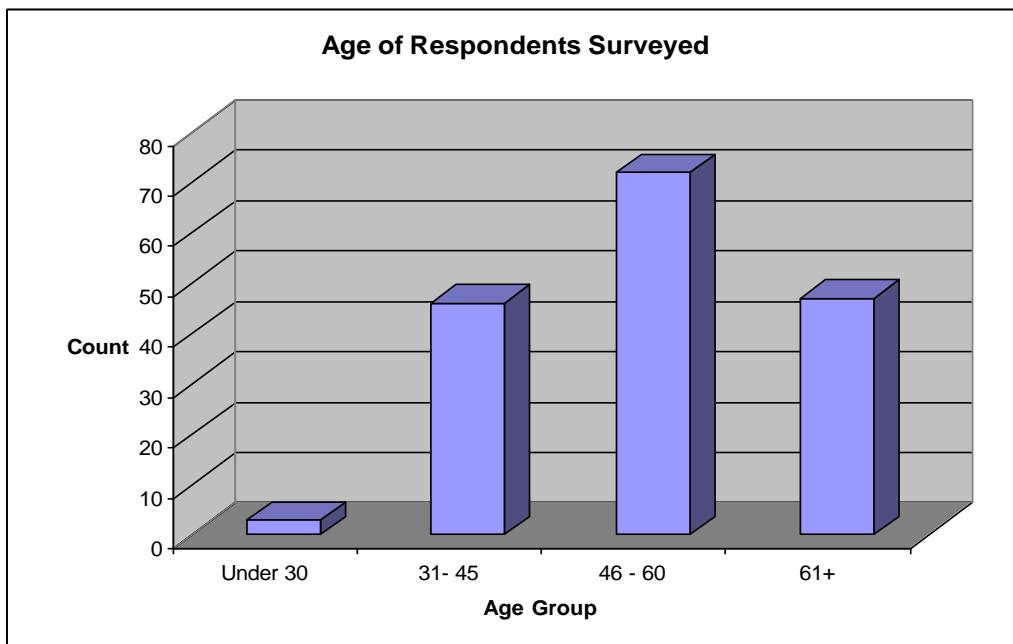
Gender

170 Sugarcane farmers participated in this survey. 146 of the total respondents were male and 24 were female.



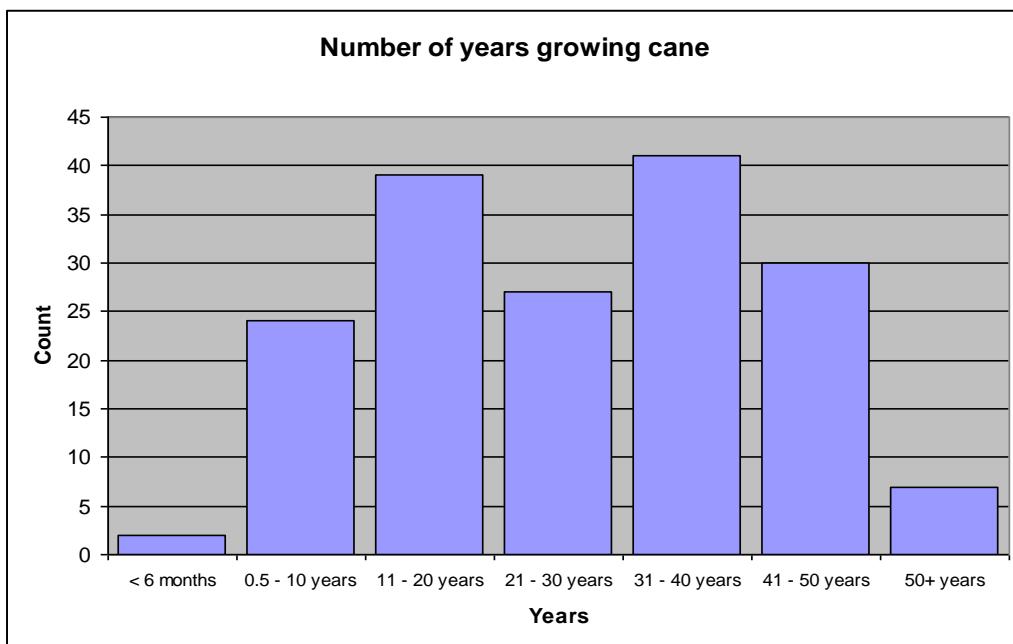
Age Group

The most represented age group in this survey was 46-60 (72 respondents), followed by 61+ and 31-45 (47 and 46 respondents respectively). The least represented age group was the under 30s, with only 3 respondents in this category. 2 respondents did not provide their age.



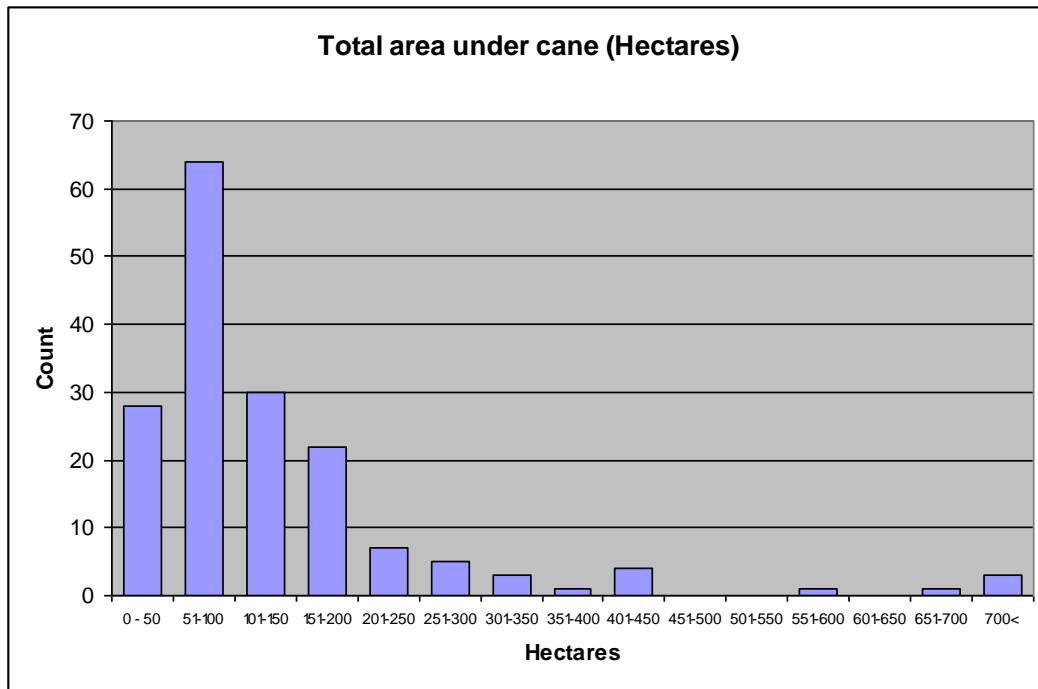
Number of years growing cane

Of the 170 respondents, 78 have been growing cane for more than 30 years. 90 respondents have been growing cane for 30 years or less and only 2 respondents are newcomers to the industry, having only been growing cane for 6 months or less.



Area under cane (hectares)

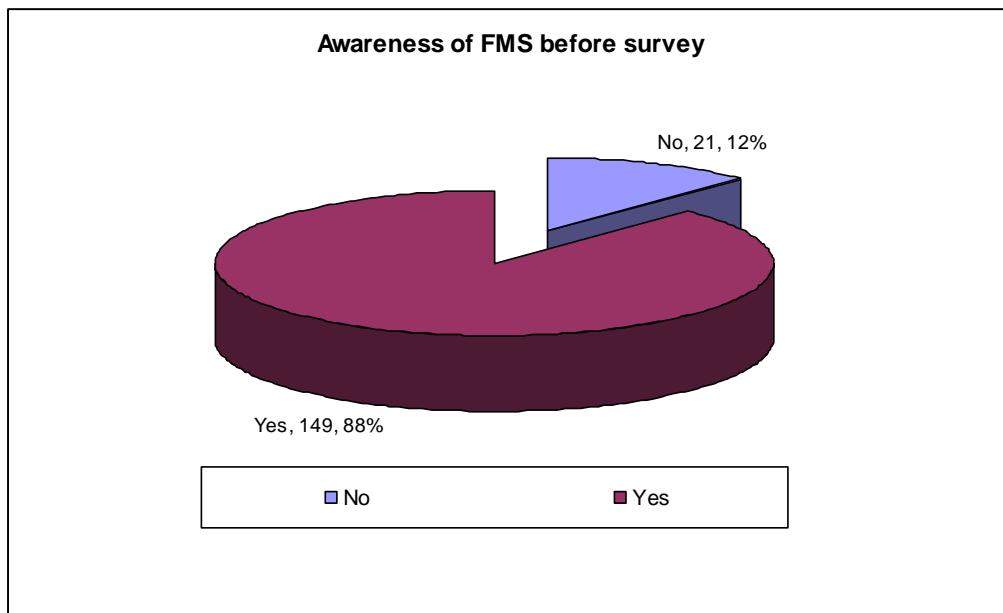
More than half the respondents (92 respondents) currently have less than 100 hectares under cane. 52 respondents have between 100 and 200 hectares under cane and 25 respondents have more than 200 hectares under cane.



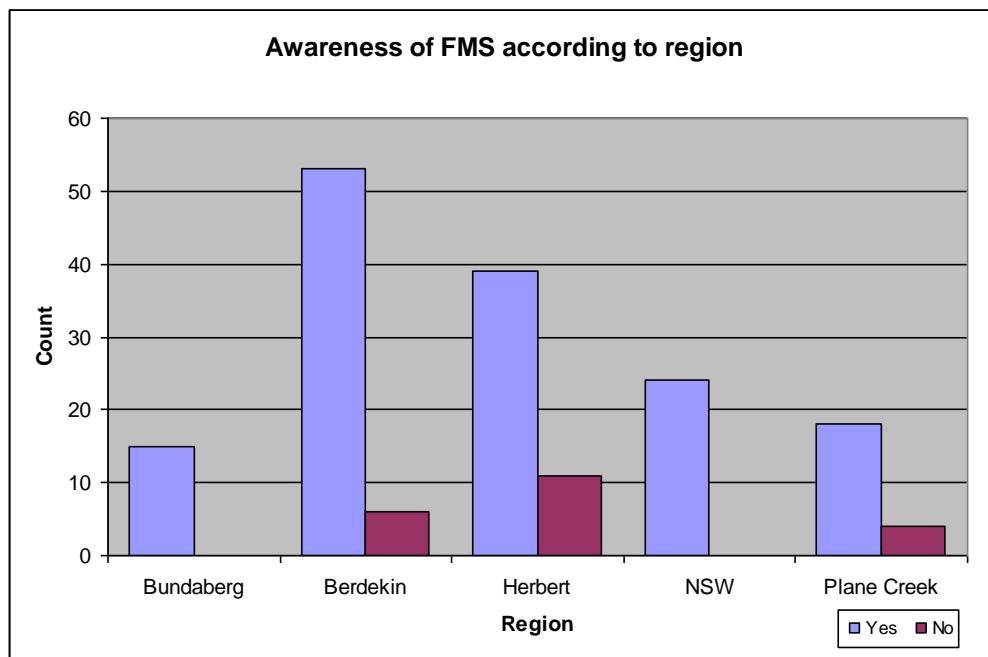
Context: Awareness of Farm Management Systems

Awareness of FMS before this survey

Of the 170 respondents surveyed, only 12% (21 respondents) had not heard the term FMS before this survey.

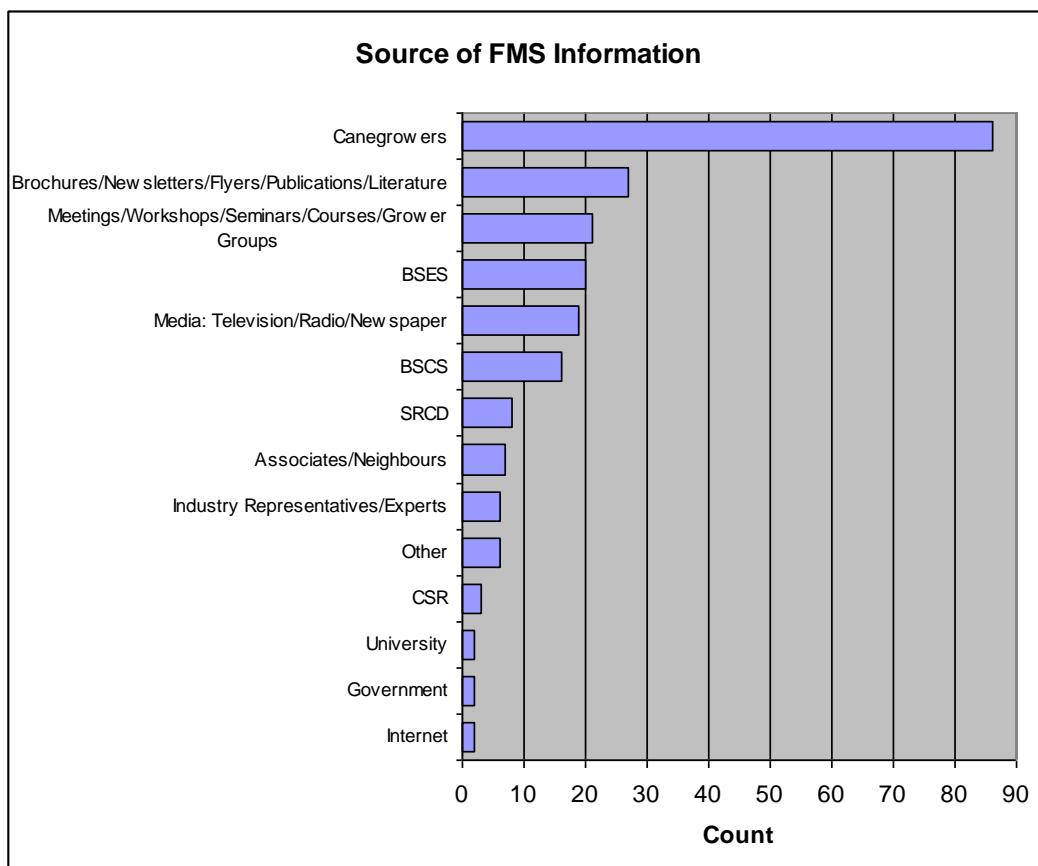


The chart below shows that proportionally fewer respondents in Herbert were aware of FMS (78% or 39 of the 50 respondents), followed by Plain Creek (81% or 18 of the 22 respondents) and Burdekin (89% or 53 of the 59 respondents). All the respondents surveyed in Bundaberg and NSW were aware of FMS.



Source of Information about FMS

The chart below highlights those sources from which respondents heard about FMS. The most common source is the Canegrowers organisation with 86 respondents noting them. This was followed by various publications/newsletters/flyers/literature (27 respondents), meetings/workshops/seminars/courses/meetings (21 respondents), The BSES (20 respondents) and the media (19 respondents). Other sources mentioned included BSCS, SRDC, neighbors, industry representatives, the CSR, University, the Government and the internet.



Within each source, the following specific information sources were mentioned:

Canegrowers

- Cane Grower Publication
- On the board
- Magazine
- Meetings
- Newsletter
- Chairman of the Plain Creek and also on the MacKay Canegrowers
- Media
- Articles
- Producer reviews

Media: Television/Radio

- ABC Reports
- Country hour
- Rural reports

BSCS

- Laboratory
- Ex-employee of BSCS
- Meetings
- Magazines

Meetings/Workshops/Seminars/Courses**/Grower Groups**

- COMPASS course
- at a meeting about 2 to 3 years ago
- At a Soya bean seminar
- Grower group initiatives,
- Productivity and mill meetings
- Shed Meetings

BSES

- BSES bulletins
- Consultants
- Magazine
- Meetings

SRDC

- SRDC staff (Andrew Lasmar)
- Women in cane

Other

- Involved in a FMS group in Mackay
- Minister for Primary Industries
- Peter McGuire - last year
- Productivity board
- Accountants

New Information about FMS in the last 12 months

Of the 149 respondents who knew about FMS, 39 respondents indicated they had heard new information about FMS over the last 12 months. The new information is summarised in the following table.

	New Information	Number of Mentions
Farming Practices and Farm Management	<ul style="list-style-type: none"> ▪ Dual row planting and laser leveling ▪ Irrigation control ▪ Minimum tillage, cut down costs with planning ▪ Mounted beds, soya beans, double row planting ▪ Pre formed beds before planting ▪ Planting and varieties ▪ Smut control, new varieties and soil samples ▪ Fallow crops and less cultivation ▪ Encouraging different watering ▪ Keeping records for everything - to show future changes ▪ Constant changes - the environment, BMP, chemicals ▪ Things are progressing all the time especially where water is concerned ▪ It is all about productivity and increasing it 	14
New Technologies	<ul style="list-style-type: none"> ▪ More computer programs available now. GPS to help with row layouts ▪ New systems - GPS and Row spacing ▪ Information about laser leveling, row planting and recording productivity ▪ They are constantly updating us with new technologies through Canegrowers ▪ Using GPS to align cane when planting 	6
General Updates	<ul style="list-style-type: none"> ▪ Just about the program developing ▪ Land and Water management ▪ Something new is always happening in this industry ▪ They are learning new things all the time- as well as reinforcing things ▪ I am the president of the local Cane Growers - there is always talk about it ▪ I keep in touch with BSCS, SRDC and a new group we have called HCL which is a semi coop group 	6

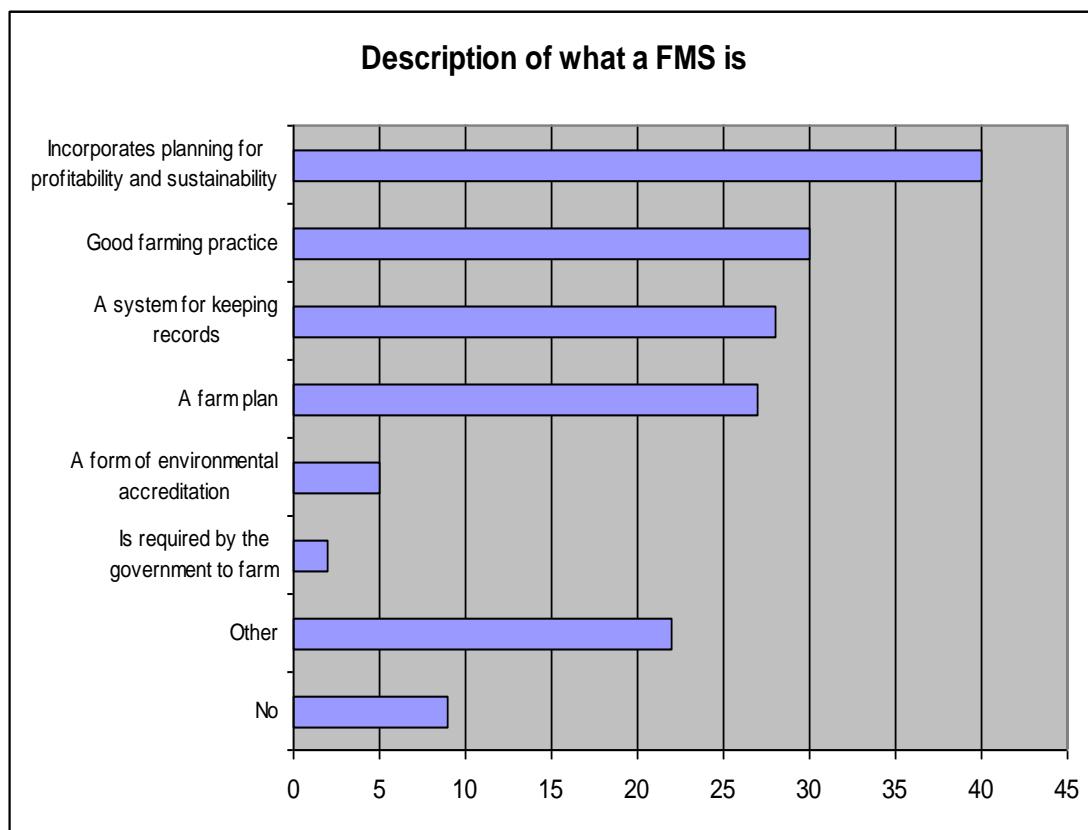
New Information		Number of Mentions
Other	<ul style="list-style-type: none"> ▪ They bring out all these new ideas, but they do not realise that we have been doing them for years ▪ Have only heard about them within the last 12 months ▪ I didn't know about them 12 months ago. Now there is reference to them everywhere ▪ So much information we are confused ▪ Can't remember specifics 	5
Total Comments		31

The limited comments made by the 95 respondents who noted they had not heard anything new about FMS in the last 12 months, can be summarised by the following:

- *There may have been, but I would not know if it was new information*
- *Just the same things about the environment and production (things my father has been doing 50 years ago)*
- *They are just things that we always do anyway - it is nothing new - they are just rehashing old ways*
- *Have not heard anymore since the workshop*
- *Not in along time, has not been on the agenda*

Description of what a FMS is

Respondents were asked to briefly describe their understanding of what a FMS is. The most common description of a FMS was "it incorporates planning for profitability and sustainability", with 44 respondents making this description. 30 respondents described it as "good farming practice" followed by "a system for record keeping" and "a farm plan" (30 and 29 respondents respectively). 7 respondents described it as having to do with the environment and 'environmental accreditation' and 3 that it was required by government to farm. 11 respondents provided a different description (detailed below) and 9 did not respond.

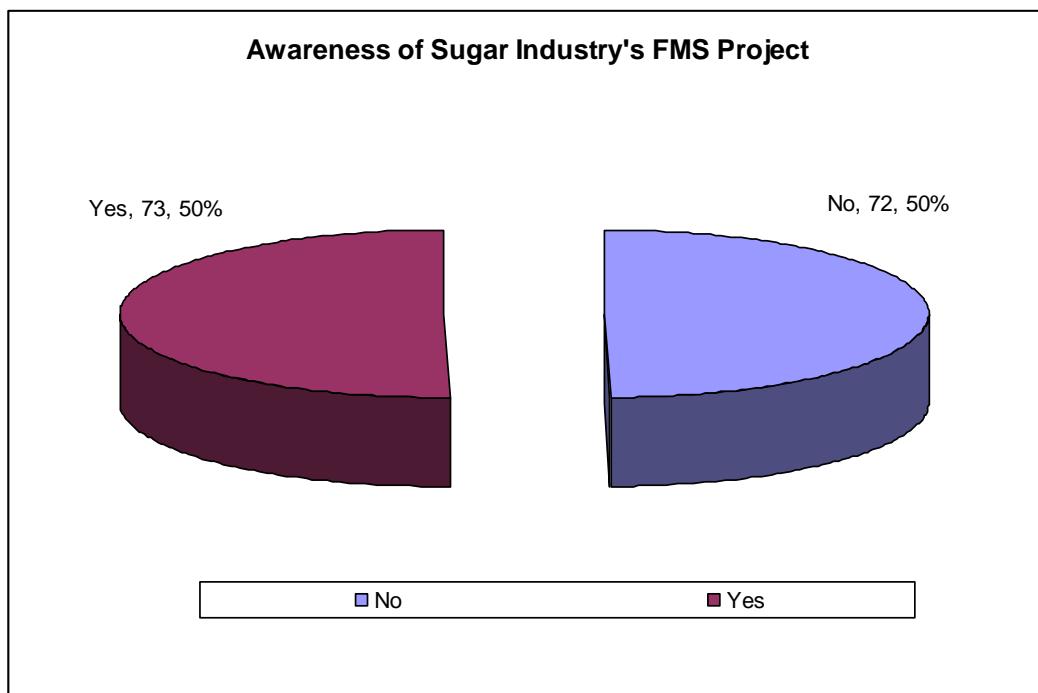


Other descriptions of a farm management system included:

- *A handy tool*
- *A process from start to finish that has steps to follow year after year*
- *A tool for managing*
- *Different types of farming*
- *I have been kind of sitting on the sidelines with it and not looked at it much*
- *It is a bit like reinventing the wheel*
- *It is a new system to grow crops*
- *It is an integrated system of accounting for inputs and outputs and general management*
- *Minimum cultivation and tillage*
- *Mostly common knowledge*
- *New management systems and new innovations*

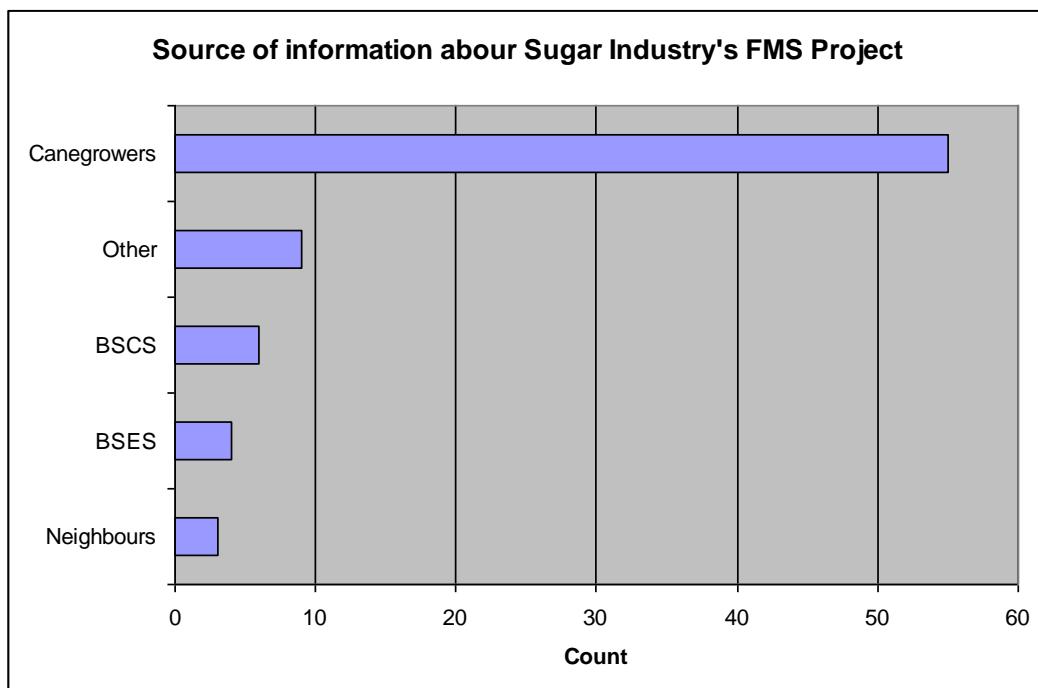
Awareness of Sugar Industry's FMS Project

Of the 149 respondents who noted they were aware of FMS, 50% (73 respondents) were aware of the Sugar Industry's FMS project.



Source of information about Sugar Industry's FMS Project

As above, most respondents had heard about the Sugar Industry's FMS Project through the Canegrowers Organisation.



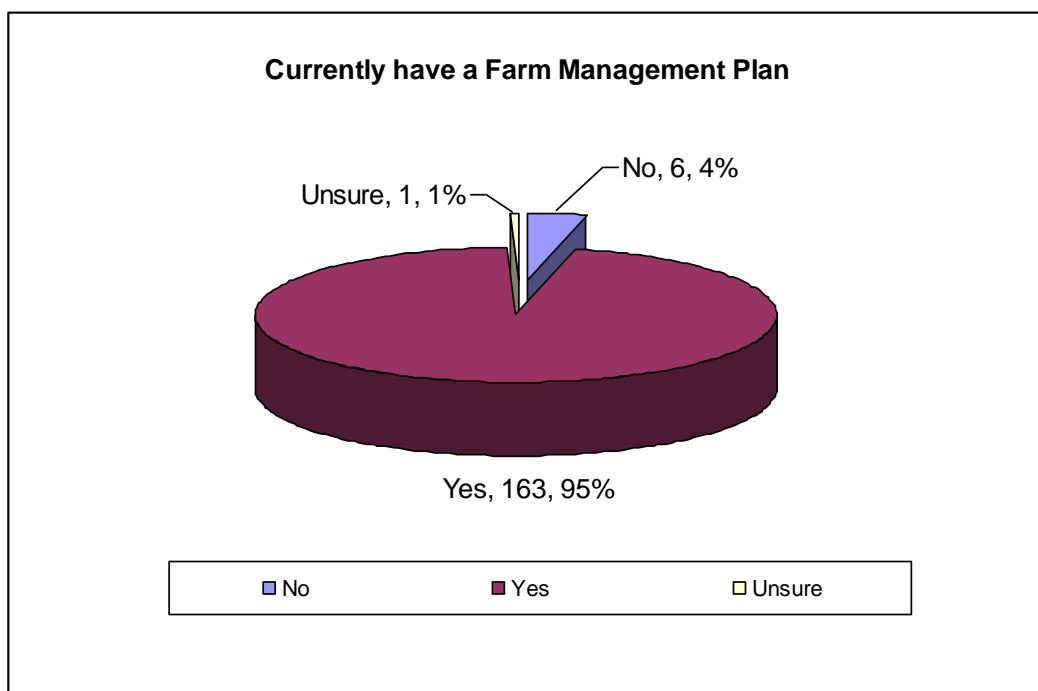
Other Sources of information mentioned included:

- Accountant
- From a workshop
- Industry experts
- Irrigation Plans
- Meetings
- Publications
- SRDC
- Women in Sugar

Farm Planning Practices

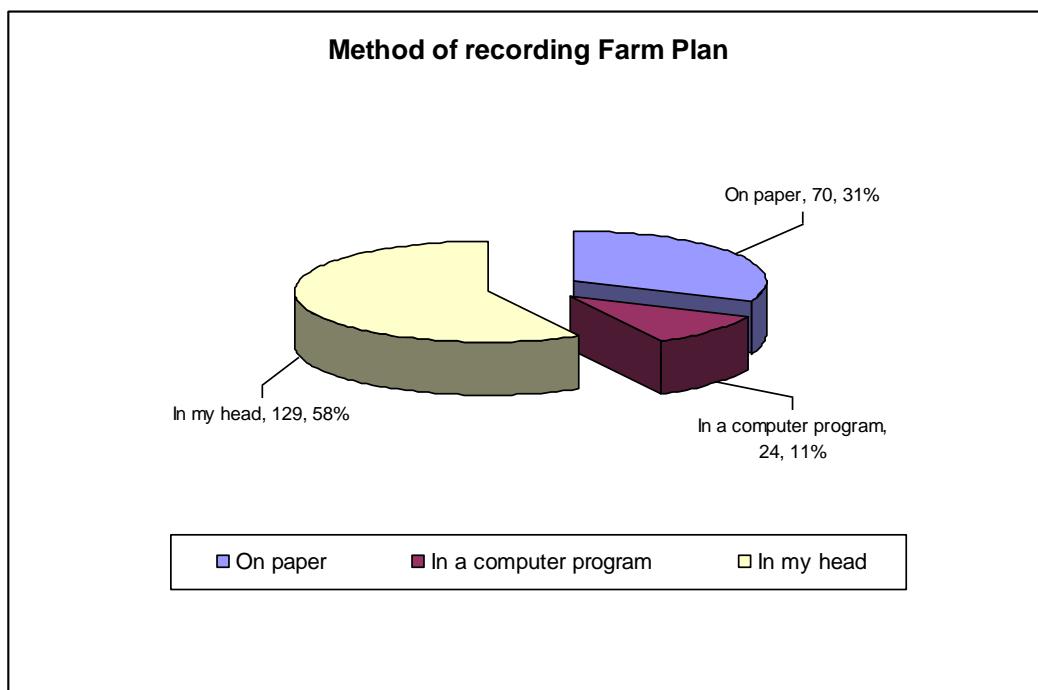
Currently have a Farm Management Plan

Of the 170 respondents, 163 (95% of the respondents) noted they do have a farm management plan in place.



Method of recording Farm Management Plan

The chart below shows that the most common form of recording their farm plan, is in the farmers head, 129 respondents mentioned this method, followed by paper and computer programs (70 and 24 mentions respectively).

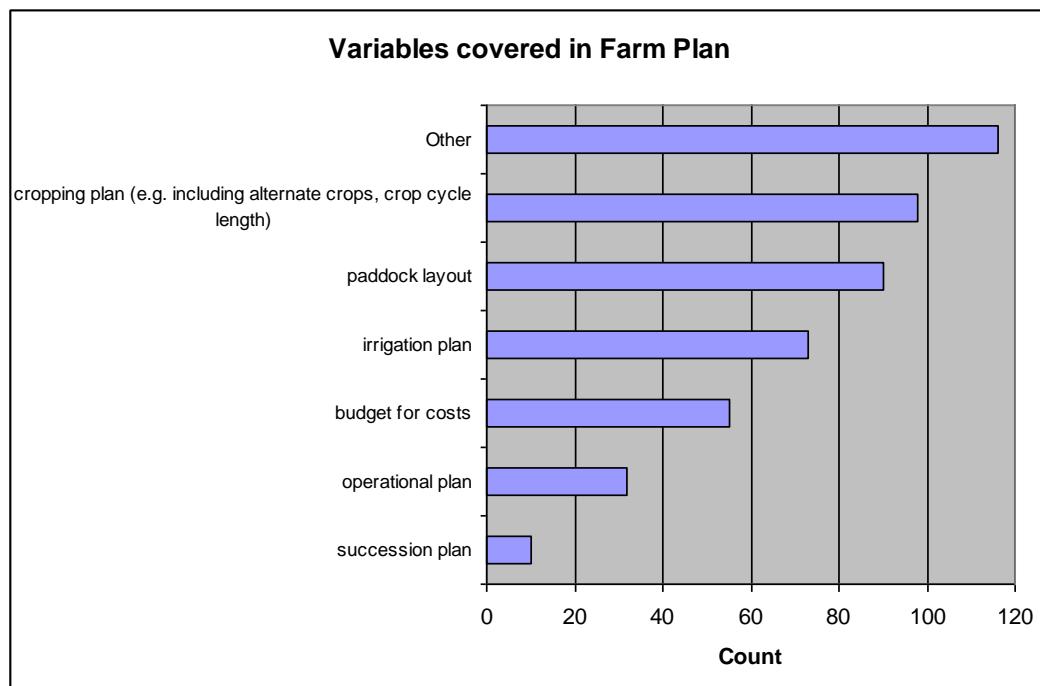


With regards the methods of recording farm plans, respondents made the following comments:

- *A bit of all of the above*
- *Changing it all the time*
- *Every year is different - need common sense*
- *Just starting out*
- *Slowly moving onto the computer*
- *Still working it out*

Variables covered in farm plan

The most common factors covered in farm plans included cropping planning and paddock layout (98 and 90 mentions respectively). Respondents also note irrigation planning and budgeting as being priorities in planning (73 and 55 responses respectively). 32 respondents mentioned operational plans and 10 mentioned succession planning. The 116 other responses, provided in the table below, include in depth details about what respondents cover in their farm planning.

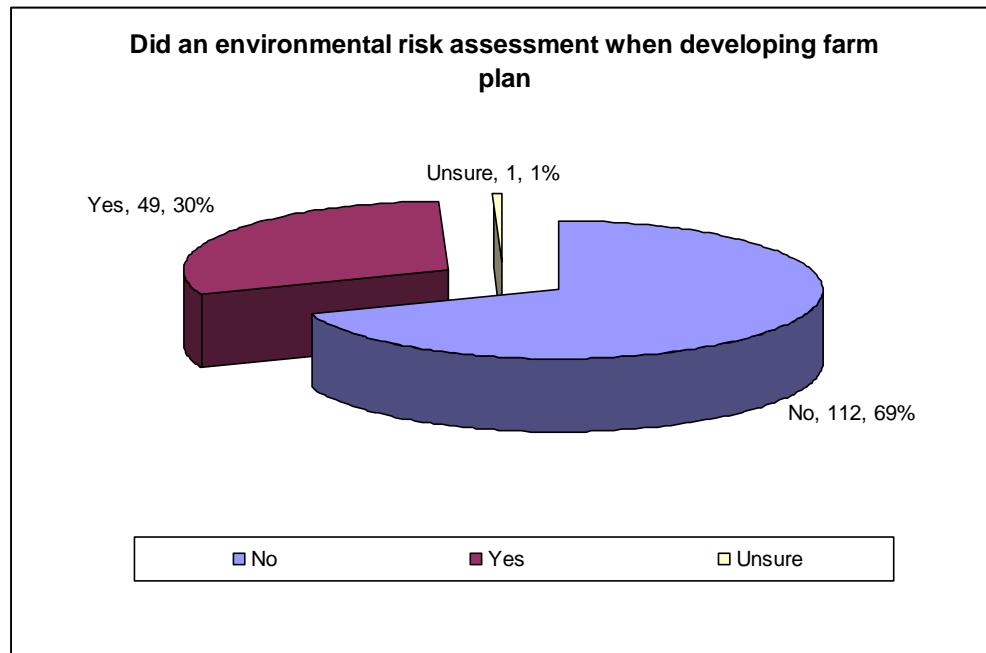


	Comments	Number of Mentions
Affordability/ Profitability	<ul style="list-style-type: none"> ▪ Best tonnage acre ▪ Cheaper harvesting ▪ Competition ▪ Reduce irrigation costs ▪ Rental payments ▪ Economics ▪ Effort versus costs - have to be able to achieve everything we plan to ▪ Future viability ▪ Keeping records of income ▪ Profitability balanced with sustainability ▪ Profitability of the industry in 5 years time ▪ Price of sugar, ▪ Producing cash crops on fallow land ▪ Labor and shortage of labor 	34
Chemicals & Fertiliser Use	<ul style="list-style-type: none"> ▪ Chemical and fertiliser use - BSES recommendations ▪ Chemical and fertilizer records and test and monitoring results ▪ Spray and drift calculations 	32
Drainage /Leveling	<ul style="list-style-type: none"> ▪ Ground slope and drainage ▪ Laser leveling ▪ Runoff management 	32

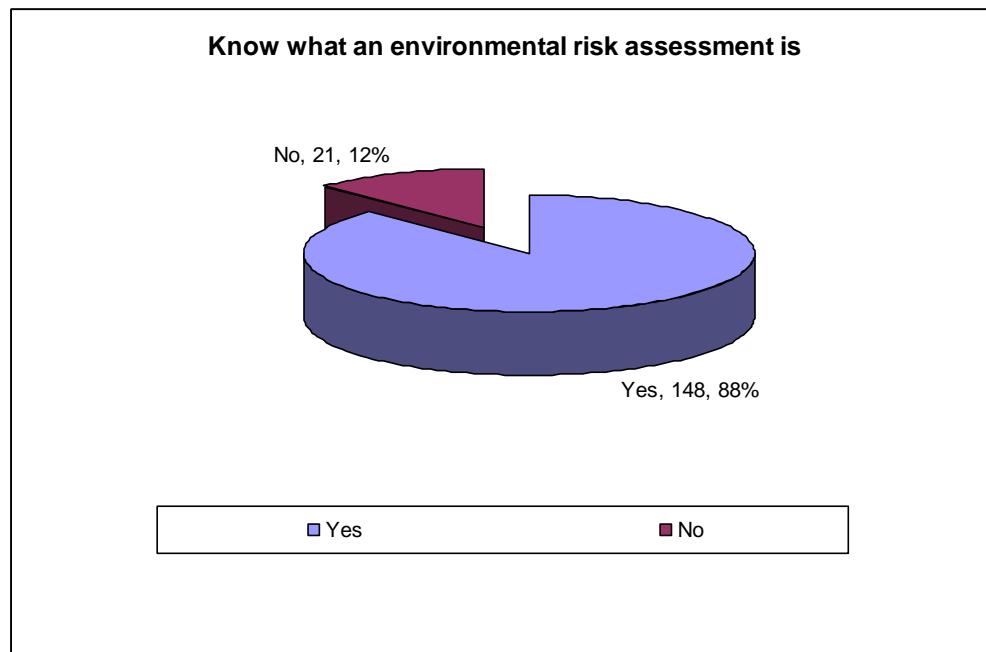
	Comments	Number of Mentions
Ploughing/ Harvesting	<ul style="list-style-type: none"> ▪ Contouring ▪ Cutting green ▪ Harvesting regime ▪ Hectares ploughed ▪ Fallow 20% of the gross/replanting ▪ Rows basing ▪ Minimum tillage ▪ Hazards, Slope percentage, infrastructure layout ▪ Rotating ▪ Row alignment and drainage 	30
Varieties	<ul style="list-style-type: none"> ▪ Different crops ▪ Seed types and fertilisers ▪ varieties (have to be changed because of smut) ▪ variety to avoid new cane disease 	20
Environmental Issues	<ul style="list-style-type: none"> ▪ Environmental impacts ▪ Weather ▪ Weed and pest management ▪ Tree planting ▪ Tail water recycling and ecology ▪ Water quality 	19
Soil Management	<ul style="list-style-type: none"> ▪ Testing of soils ▪ Soil structure ▪ Soil types ▪ Nutrient problems ▪ Erosion control 	17
Change Management	<ul style="list-style-type: none"> ▪ New Ventures ▪ Changing farm practices, ▪ Diversification - i.e. we are going to start harvesting green ▪ Expansion v get out of industry, change management, ▪ Planning for sustainability ▪ The future of the land (increase and grow or sell out), Water issues (flash flood protection, waterways and contours). 	15
Infrastructure	<ul style="list-style-type: none"> ▪ Equipment replacement and maintenance ▪ Machinery, ▪ Topography, hazards, pipelines 	5
Total Comments		204

Did an environmental risk assessment when developing farm plan

Of the 163 respondents who have a farm management plan in place, only 30% (48 respondents), have done an environmental risk assessment. Generally it was a requirement of another plan they were implanting such as the LWMP.



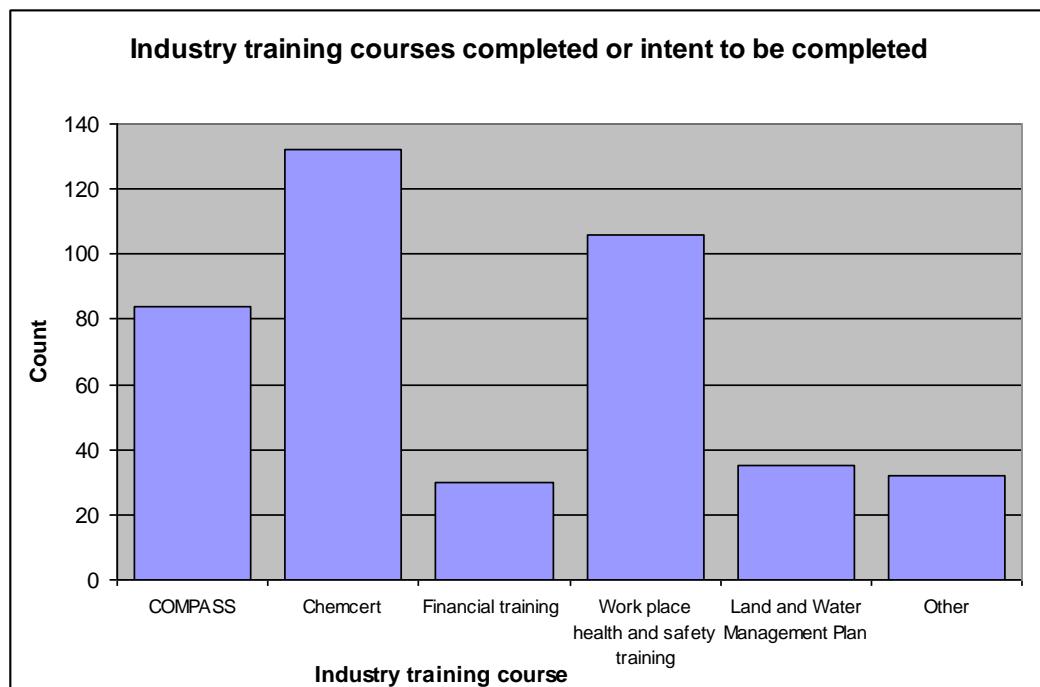
When asked whether they knew what an environmental risk assessment is 88% of respondents (148 respondents) indicated they have some understanding of what it entails. Responses are highlighted in the table below. These responses summarise the main descriptions and understandings of what an environmental risk assessment is.



Description/Understanding of what an Environmental Risk Assessment is		Number of mentions
Widely incorporates General Farming Practices	<ul style="list-style-type: none"> ▪ Controlled fertilizer usage, contouring, runoff, treatments for pests - all have to be environmentally friendly ▪ Cutting green and not burning ▪ Developed a sedimentation tank to take the water flow from the farm ▪ Fellow Management and Water management ▪ Being aware of soils - bringing them to neutral - raising the ph to correct level ▪ Lime and nitrogen in the soil ▪ Looking at best practices i.e. - trash blanketing, Leg in crops (crop rotation) I am new to the cane industry and I find that the cane farmers run the soil till it is lifeless ▪ Make sure what is used on the farm is kept on the farm and not adversely effect the surrounds ▪ Assessing the slope of the property to manage drainage better. They are building the farm up again ▪ Putting fertiliser into the ground to avoid contaminating waterways ▪ Not spraying chemicals in winds, looking after trees, controlled trafficking (lees impact compaction). We have to look after our land for the future. 	53
To do with the environment as a whole	<ul style="list-style-type: none"> ▪ Condition of the natural areas on and around your farm ▪ Don't go purposely harming the environment and don't chop trees down - we all have to live together ▪ How your farm impacts on the eco system - including your neighbors land ▪ In the new semi coop group the focus is on precision farming - the idea is to use only what we have to precisely. This helps control the environmental impact ▪ Look after the farm i.e. you grow green beans in order to put goodness back in the soil ▪ Making sure nothing is done against the environment - taking care of the water- i.e. we water at night ▪ Remaining sustainable - looking after the biodiversity systems ▪ Resting the environment and the soils. Awareness of sulphates, fertilisers and lime ▪ Sustaining the environment for future generations ▪ You have to show how you are not affecting the environment and if you are how you are replenishing it. 	38
It is a plan	<ul style="list-style-type: none"> ▪ Land and water restructuring project - had to do environmental analysis on our ecosystem and it affects the environment around us ▪ Assessment of brochiline, negative - run off, water quality ▪ Explaining how the run off and residues are being contained and how risks can be prevented ▪ I am ex horticulture and we had to assess and document all the risks on the practice and analyse it ▪ I had a company come in a do one for me - It is the assessing of risks of what I do on my farm that affects the underground and my neighbors ▪ We have just put in a dam (funding from DPI) as a tail water dam catchment 	28
Always careful about the environment	<ul style="list-style-type: none"> ▪ Any problems with the environment - we think about this all the time ▪ Cautious about runoff into Tweed River and chemical disposals ▪ Very aware of the environment and do not need a report to prove this. This is something you think about on an ongoing basis. Stool splitting - was first in industry to introduce this - putting their fertiliser in the middle of the hill - reduces nitrogen levels 	6
Nothing Important	<ul style="list-style-type: none"> ▪ I have never gone into it as it generates too much paperwork 	1
Total Comments		126

Industry training courses completed or intended to be completed

All respondents had completed at least one of the nominated industry training courses. 132 respondents have completed or intent to complete Chemcert, followed by 106 respondents completed or intending to complete Work Place Health and Safety training. 84 Respondents had done the COMPASS course, 35 the Land and Water Management Plan and 30 had done some form of financial training. 32 respondents noted other training courses they had completed.



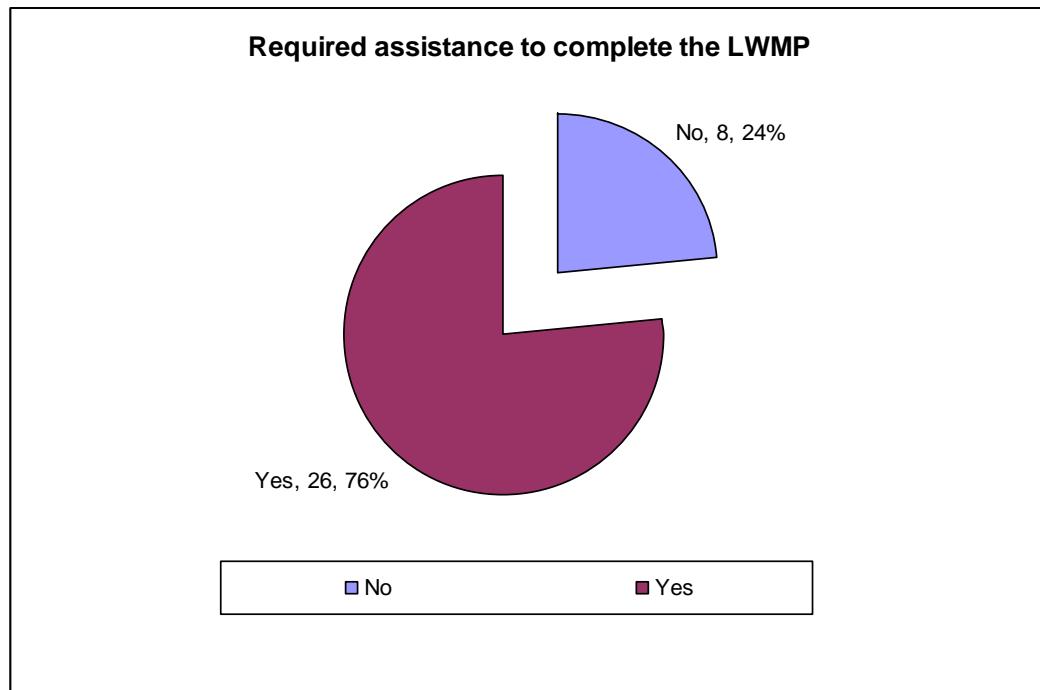
Other courses and training completed:

- Future Profits 4 Respondents
- MYOB 3 Respondents
- Quickbooks, 3 Respondents
- Nutrient and soil management 3 Respondents
- Chemicals management course 2 Respondents
- Irrigation course 2 Respondents
- Drainage management 2 Respondents
- Accounting courses
- Financial course FEAT
- Succession course
- Degree in Agriculture
- Advanced diploma in rural business management
- Certificate 111 in workplace health and training - qualified trainer
- Experiments in fertiliser trials and conditions that apply - to make legal sense.
Conducted by SRCD
- Fresh Care Association - this covered more than all these other training put together
- CSR Mills
- Farm health and risk course which is run for families - ongoing.
- Induction Courses, Methods to Ripen Cane

- Siting Induction course
- Trade skill
- Water Management
- I am on the water board - I do keep up on chemical courses through BSCS and get accredited when new ones come out

LWMP

Of the 35 respondents who said they had completed the LWMP, 26 said they did need someone to help them do the plan. 8 respondents said they had completed the plan without any need for assistance.

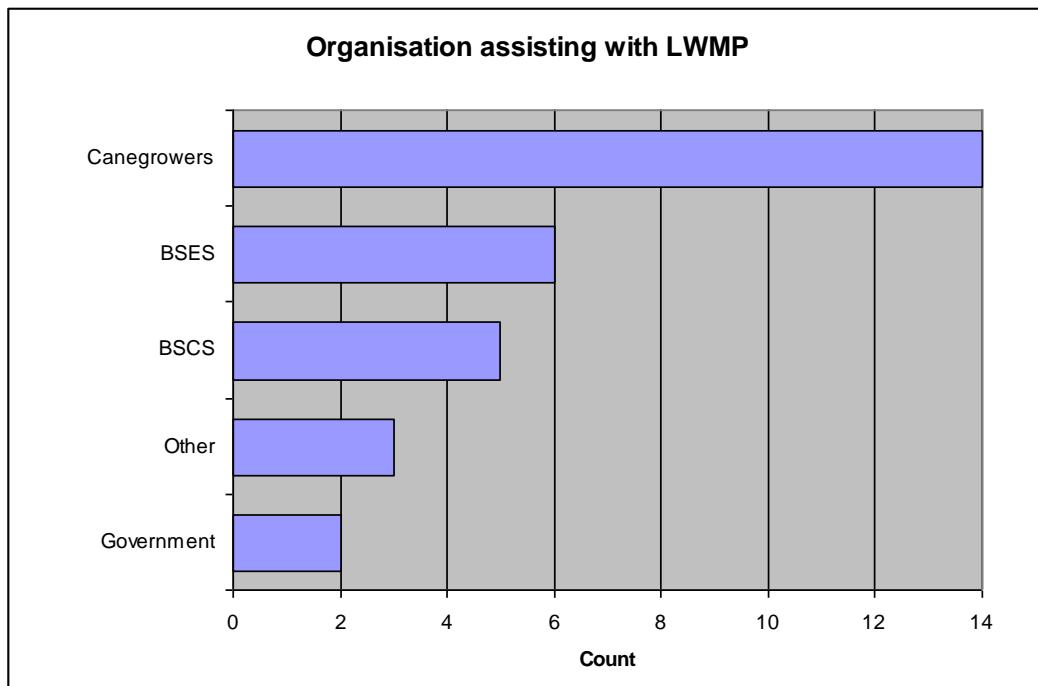


Of those who did require assistance with the LWMP, the following consulting organisations were used:

- | | |
|---------------|----------------|
| ▪ Canegrowers | 14 Respondents |
| ▪ BSES | 6 Respondents |
| ▪ BSCS | 5 Respondents |
| ▪ Other | 3 Respondents |
| ▪ Government | 2 Respondents |

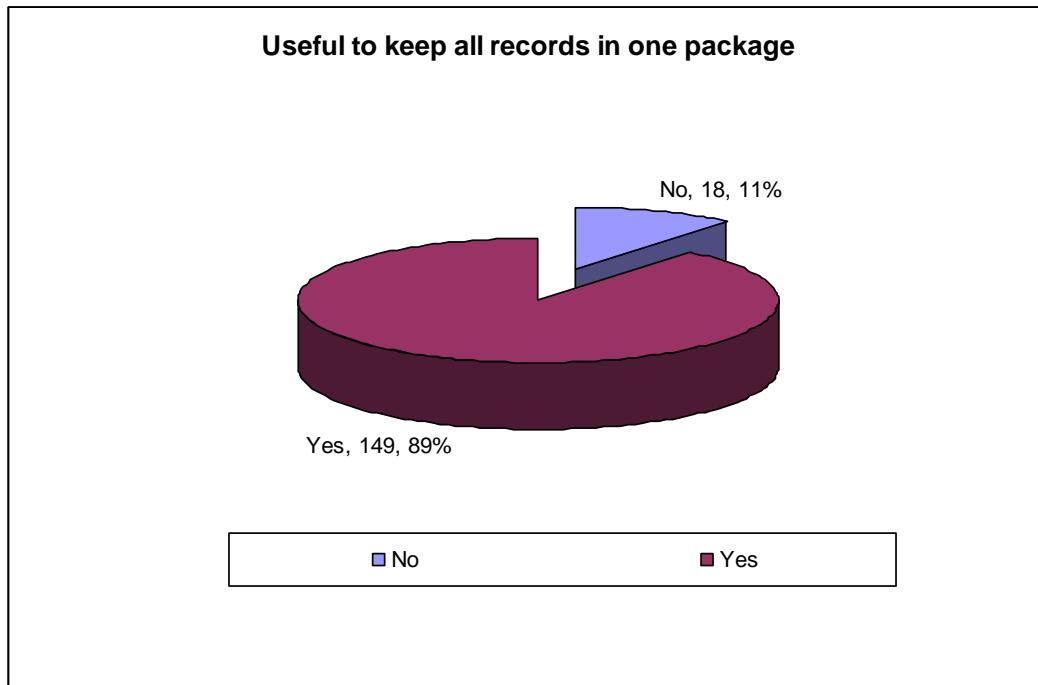
Other organisations providing assistance included:

- Productivity Board
- Consultants and town planners
- Employed an on site consultant



Useful to keep all records in one package

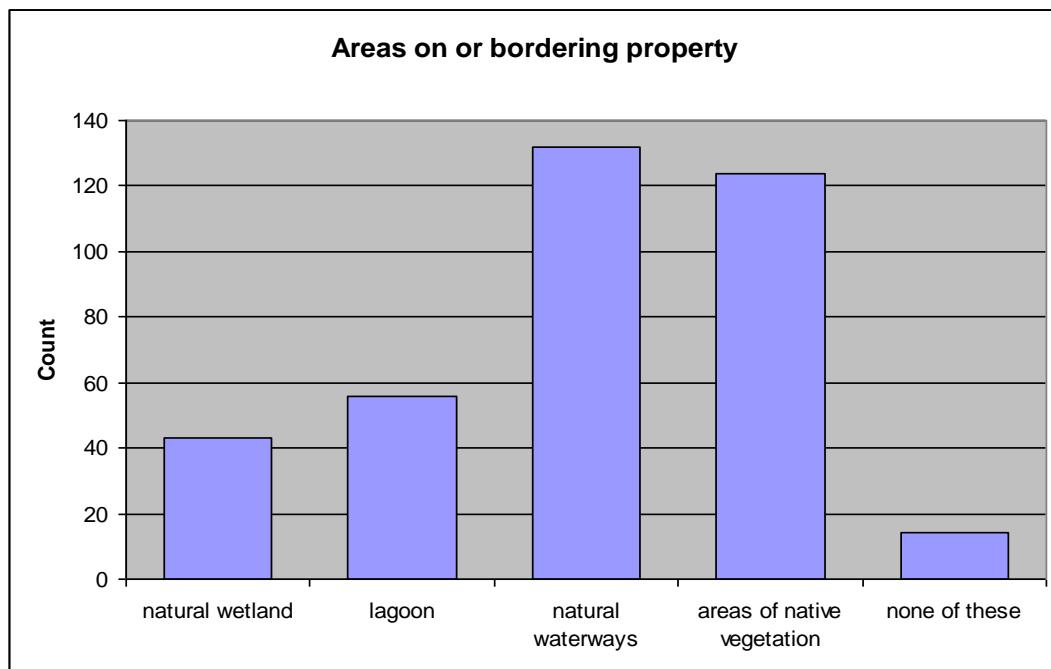
Respondents were asked whether they think it would be useful to be able to keep all their records in one package that they could access to produce different plans when required. Of the 167 respondents that answered this question, 89% (149 respondents) agreed that this would be useful.



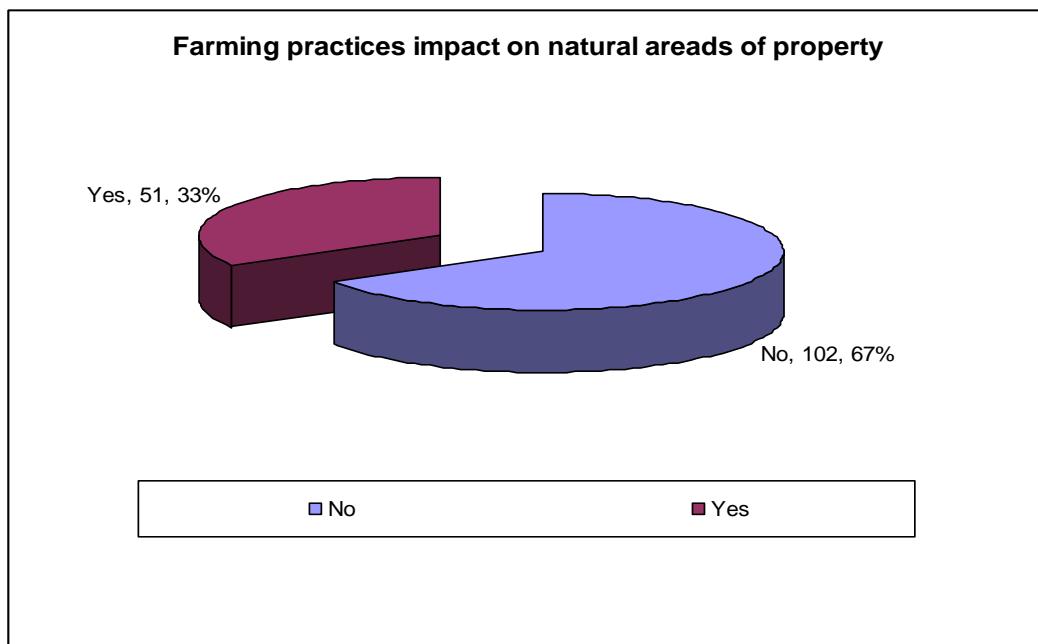
Environmental risks associated with farming

Environmental areas on or bordering property

All of the respondents except for 14 noted they did have one or more natural/native areas on or bordering their property. 132 respondents have natural waterways running through their properties and 124 had areas of native vegetation, in many cases this was the land bordering the natural waterways. 56 respondents had a lagoon on their property and 43 natural wetlands.



When asked whether they thought their farming practices could ever impact on these natural/native areas of their property, two thirds of the respondents were adamant that this was not the case. It should be noted that most of those who said yes, qualified this with the statement that everything in the environment impacts on something else, it is whether you minimize the negative impacts that is important. These are detailed in the table below.

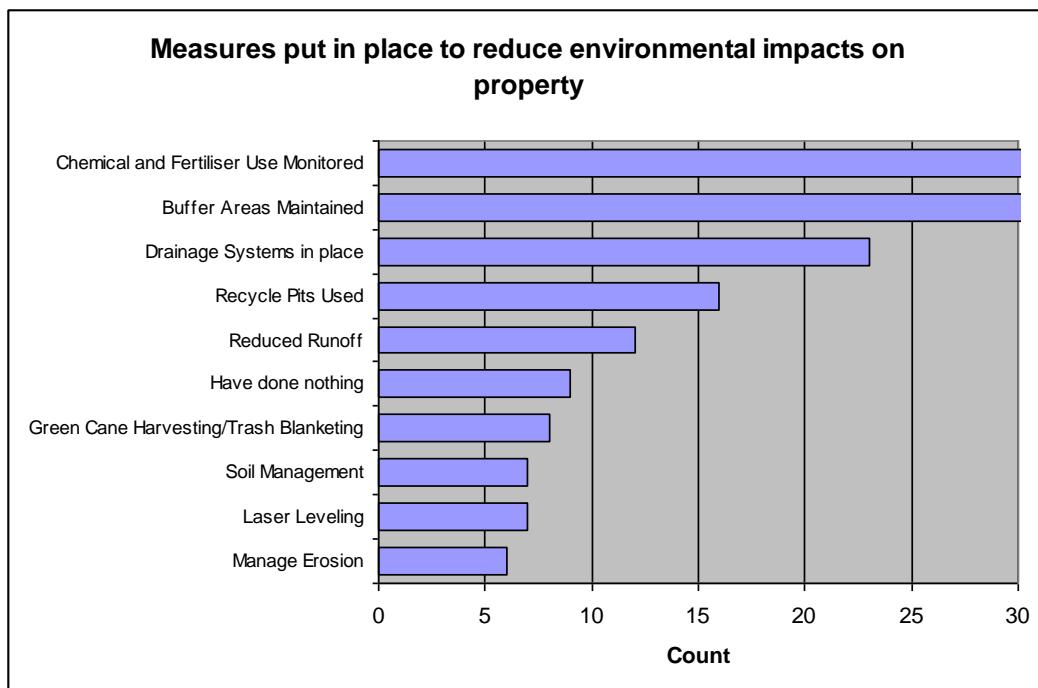


Degree to which farming practices impact on areas bordering or on property	Number of mentions
No Impact	<ul style="list-style-type: none"> ▪ As far as run offs of nutrients and chemicals but the impact can be a positive one sometimes like some of the waterways only exist because of the farm ▪ Doesn't seem to - if anything it enhances these areas - the irrigation on the grass and there is no sediment in the rivers ▪ Haven't really been allowed to - Mahogany Glider Passageway ▪ Not from my farming practices - but from those around me possibly impact on my areas when they are spraying their chemicals ▪ Not now that we are building recycle pits ▪ The Burdekin river is the highest point in the area so water runoff is away from it instead of into it ▪ The lagoon has been there since I have and is getting healthier with bird life and fish and turtles so I must be doing something right ▪ They all have wildlife in them and they are doing ok - possibly have more weeds than normal, but that is all. ▪ Very aware of our natural environment. If anything, irrigation is beneficial to these natural strips ▪ We farm next to a Landcare farm and THEY don't do the right thing - they have rubber vine out of control there

	Degree to which farming practices impact on areas bordering or on property	Number of mentions
Not if we are careful	<ul style="list-style-type: none"> ▪ As long as I don't chop down trees and maintain a buffer zone near the river bed ▪ Banks of the Houghton River run off towards our farm anyway. The only impact would be the Lagoon (a fauna and flora sanctuary) - it is in the path of ours and other farms runoff ▪ Conscious of runoff and drift ▪ Had one near disaster in the 90s when the cyclone hit and the banks over flowed, but not since then and we never touch the scrubland on the mountains ▪ I am aware of the potential damage I could do if I don't look after things ▪ I do not like to spray chemical. Sometimes accidents happen though. I have grown tropical fruit trees on the border ▪ If there is any contamination - from drifts with the wind during spraying ▪ It could, but we are very careful - we have nature channels for the wildlife to move along the creeks ▪ We are very near the coast and this is fragile environment so we have to be very careful not to over pump the underground water 	36
Factors to prevent Impact	<ul style="list-style-type: none"> ▪ Have not burnt cane over 30 years ▪ I follow the guidelines set out by best farming practice ▪ Manage our property for the future ▪ Most areas are fenced back by 20-30 meters ▪ Water course is surrounded by vegetation - nature strips - we allow buffers ▪ We are all on the river and even though the banks are higher we have created a good drainage system ▪ We do not touch the ground as much as we used to, cultivation is only done when necessary. ▪ We have drainage systems that run into a recycling dam ▪ We have had our water tested regularly ▪ we leave all the shrubs and trees along the creek ▪ Do not use chemicals, do regular soil tests 	23
Yes – there could be some impact	<ul style="list-style-type: none"> ▪ Drainage and chemical runoff ▪ Farm borders onto a creek - heavy rain can wash in soil and chemicals ▪ Fertiliser run off could ▪ Nutrient runoff and soil erosion ▪ Run off and we still do burning ▪ There could be but it would be negligible - for example when burning the fire could get out of control. There could be some pesticide drift 	21
Uncontrollable factors	<ul style="list-style-type: none"> ▪ Acid sulphate impacts on the lagoon from drainage and to the native vegetation ▪ Flooding would have an impact ▪ In heavy rain there could be run off to the Tweed ▪ It is a two way street because the native vegetation attracts the introduced species which can be pests as well. ▪ The creek - floods every 100 years - washed all the crops away 	7
Total Comments		136

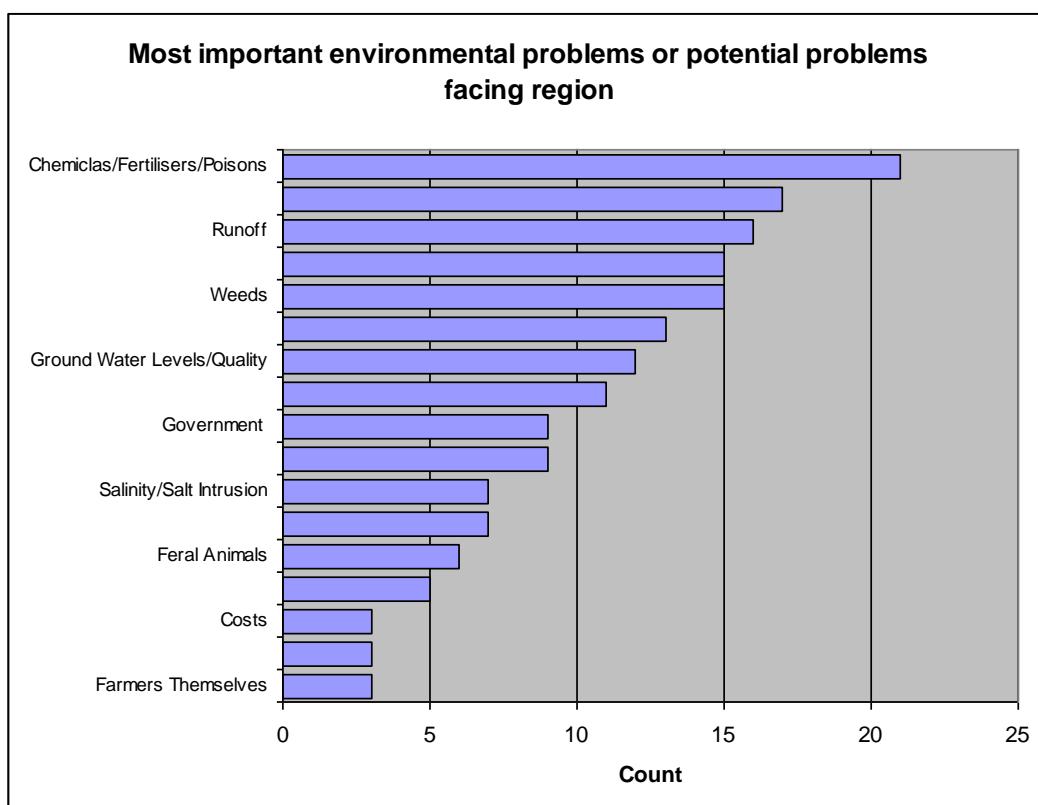
Measures put into place to prevent potential impacts on these natural/native areas on or bordering property

When asked what measures they had implemented on their properties to minimize the impacts of their farming practices on these natural/native areas of their properties, 35 respondents noted that they monitor their chemical and fertiliser usage, manage runoff of fertilisers, do not spray on windy days and monitor fertiliser leaching. 34 respondents mentioned that they have maintained/nurtured or replanted buffer areas and native strips along creeks and other natural vegetation on their properties. 23 respondents note they have spent time and effort in perfecting and maintaining effective drainage systems, which flow into recycle pits to be used for irrigation and prevent water leaving properties. Other measures in place include the use of recycle pits and managing runoff (16 and 12 respondents respectively), green cane harvesting and trash blanketing, (8 respondents), soil management and laser leveling (7 respondents each) as well as the management of erosion (6 respondents). 9 respondents said they have done nothing to minimize the impact of their farming practices on natural areas of their properties.



Most important environmental problems or potential problems facing region

The most common problems highlighted by respondents included the use of chemicals and fertilizers; their runoff and ability to affect water tables and water quality (21 respondents). Runoff and flooding were also noted as important issues (16 and 15 respondents respectively), with flooding causing increased runoff and soil erosion. Other highly ranked problems included weeds, drought and rising ground water levels and the quality of water (15,13,12 respondents each). These problems are discussed further in the following table, with comments included being those that summarise the responses of all respondents.



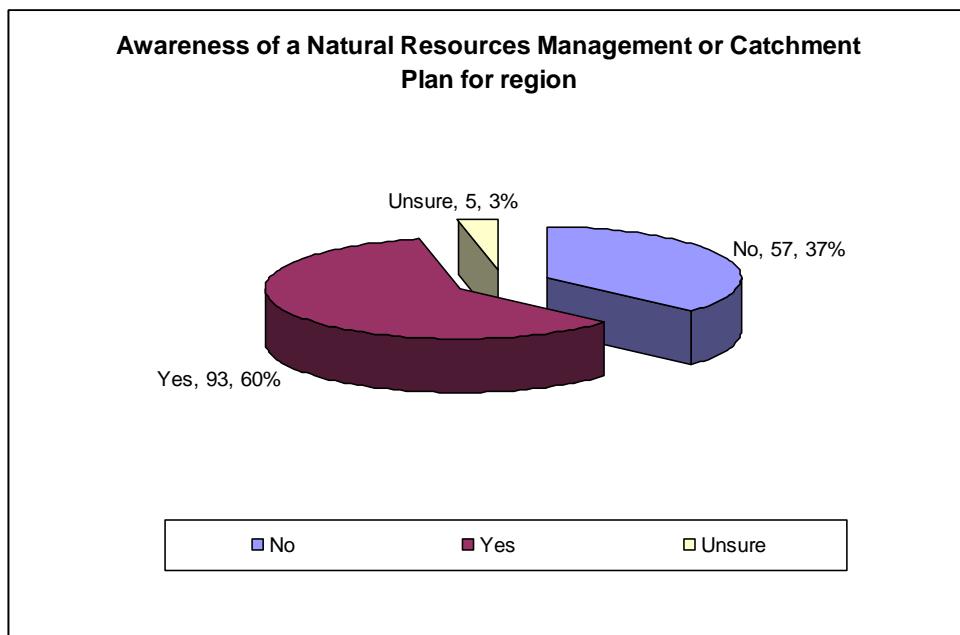
Problems/Issues	Comments	Number of Mentions
Chemicals	<ul style="list-style-type: none"> ▪ Chemicals and spraying by careless farmers ▪ Contamination to underground water ▪ De-Nitrification ▪ Excessive chemical run off back into the waterways ▪ Fertiliser leeching, water tables rising in some regions and the Effects of farming in the Great Barrier Reef ▪ Our forefathers messed up the water and they weren't educated enough to realise what chemical were doing - still we use chemicals here that are banned overseas. Also ▪ Pesticide and Herbicide run off ▪ Pollution of water, fertiliser leaching and in some regions salinity ▪ Pollution - urban encroachment 	21

Problems/Issues	Comments	Number of Mentions
Runoff	<ul style="list-style-type: none"> ▪ Big rainfall - run off into the creeks ▪ Nutrient run off (lose of nutrients), Run off into the reef. But I think that the urban run off is much higher than the rural run off ▪ Run off to Burdekin river ▪ Runoff (we are close to the coast) Runs into creeks and gullies ▪ Siltation of rivers and creeks 	16
Weeds	<ul style="list-style-type: none"> ▪ Invasive weeds ▪ Hymacne and arsenic (weeds) have been introduced ▪ Both natural and the ones DPI have introduced ▪ Exotic plants (flag weeds and Para grass) 	15
Flooding	<ul style="list-style-type: none"> ▪ Flooding - cane rots ▪ Flooding affects our drainage and weeds ▪ Causes rust ▪ Cane is on flats and when it floods they go under and die. Also destroys the ground and creates furrows. 	15
Drought	<ul style="list-style-type: none"> ▪ A lot of drought, now with the rain we have a lot of runoff. 	13
Ground Water Levels/Quality	<ul style="list-style-type: none"> ▪ Excess ground water - Salinity - nutrient leaching ▪ Ground water levels - all use bores, and with being close to the sea, water levels are important. If they get too low, could let the salt water in. ▪ There is a prawn farm in the area and this is contaminating the underground water ▪ High water tables - some on the Delta BRIA irrigation area are bringing the salt to the surface through bad irrigation practices 	12
Erosion	<ul style="list-style-type: none"> ▪ Erosion - to much tree clearing ▪ Erosion, burning by some farmers still ▪ Water Skiing - it is eroding the river banks 	11
Climate	<ul style="list-style-type: none"> ▪ Climate changes that can alternate from drought or rains ▪ Extremes of weather ▪ When there is drought and then rain there is bound to be runoff, wash and erosion. ▪ Weather - too much rain knocks the cane back badly - the ground goes sour ▪ Mangroves are overgrown. Waterways are to be kept clean. 	9
Government	<ul style="list-style-type: none"> ▪ Current government water policies. ▪ Government water policies that is going to take our water to the Sth of QLD ▪ Greens complaining about fertiliser runoff into the reef. But we are doing our best. ▪ Government interference and legislation 	9
Urban Encroachment	<ul style="list-style-type: none"> ▪ Influx of city siders wanting to live on rural properties for the lifestyle ▪ Town Development and their bad practices and there are only more of those to come in the future. ▪ Urban people - they complain every more we make - whether it is using water (which we have licenses for), to burning and spraying (regardless of whether we are using the safest and approved chemicals). 	7
Salinity/Salt Intrusion	<ul style="list-style-type: none"> ▪ Salt water intrusion. Everything else you just have to deal with (disease and weather) 	7

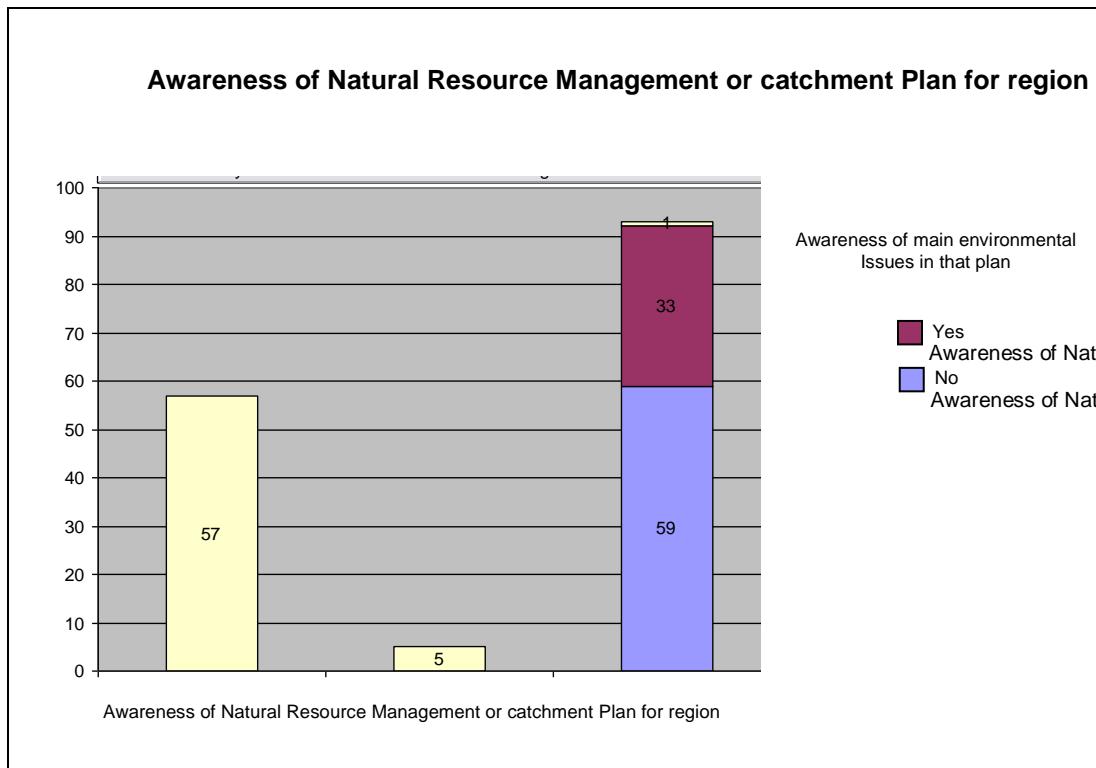
Problems/Issues	Comments	Number of Mentions
Feral Animals	<ul style="list-style-type: none"> ▪ Introduced species - plants and animals ▪ Isolated woodlands and damage from pests all locating there. Blue gums are dying because they are not big enough to sustain the colonies of predators needed to kill off the pests. 	6
Acid Sulphates	<ul style="list-style-type: none"> ▪ Acid Sulphates was a problem but not to bad now - we need more knowledge about chemical residues in the soil and how they move through the soil 	5
Farmers Themselves	<ul style="list-style-type: none"> ▪ Cowboy farmers who do not respect the environment ▪ People who abuse the land cause problems with chemical and soil run off. They do not think about the impact their actions have 	3
Disease	<ul style="list-style-type: none"> ▪ Smut cane disease. Hymacne is blocking creeks. Weeds a problem 	3
Costs	<ul style="list-style-type: none"> ▪ Prices - no profit so how can we do the right thing with no funds - I should have a recycle pit but I can not afford it and there is not grant to put one in ▪ Water costs and licenses 	3
None	<ul style="list-style-type: none"> ▪ Not really many - we have an acid soil management in NSW and we are leading the way in this ▪ From the farming sector point of view, it is looking good - the waterways are clean and green trash blanketing is working well. ▪ In the Dell area, most farmers contain all their water on their properties ▪ It depends on your farming practices and the issues you face on your own farm. 	17
Total Comments		172

Awareness of a Natural Resource management or catchment Plan for region

Of the 155 respondents who answered this question, 60% (93 respondents) were aware of a NRM or catchment plan for their region.



The chart below shows that of the 93 respondents who were aware of a Natural Resource Management or Catchment Plan, only 33 respondents were aware of the main issues covered in that plan and 59 respondents were not aware.



Of the 33 respondents aware of the main issues in these plans, 26 agreed that the issues in these plans are important to them and their farms. Some of the respondents comments regarding these plans and the issues covered in them, included:

- *A draft water plan that is on hold while they consider reviving the one Peter Bettie is trying to make happen - if this happens it will affect my farm - all my land is irrigated*
- *Co-generational plans - trash going through the mills*
- *Do not like to spray too much*
- *Drainage planning*
- *Enticed wildlife to the areas*
- *Farmer took water samples for three years for research company - quality of water in river*
- *In keeping with the way we have been running things - I have seen Satellite pictures to back it all up*
- *It affects us all as it is about protecting the wet lands*
- *It is stopping the weeds from growing and saves us spraying*
- *Landcare and Land for wild life*
- *Nutrient runoff - need to get this right*
- *Scientific research about the Great barrier Reef - not always correct*
- *Siltation*
- *Sometimes. Being on the Berdekin River people perceive everything runs into the sea - it is the actual opposite.*
- *The run off - but it is too little to late*
- *There is a major drainage plan going on, on our other property*

- *There is important information about managing fertiliser runoff, but we are already careful about it.*
- *There was something about the drainage board*
- *Water quality - salt water intrusion from the coast*
- *With regards the GBR*

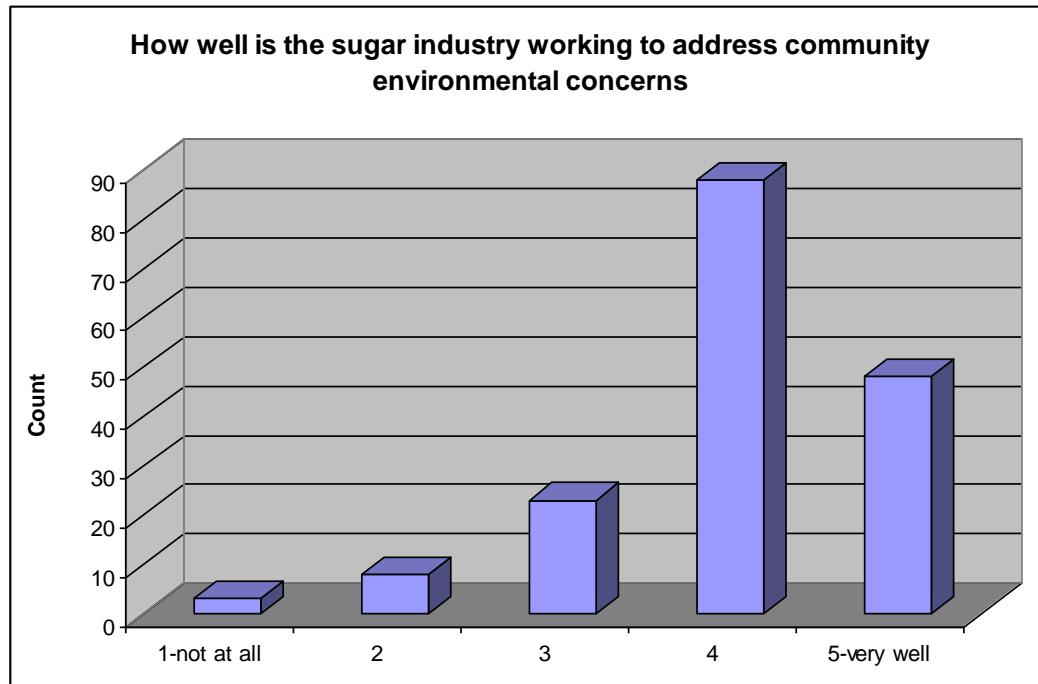
Of the 13 respondents that did not agree the issues were relevant to them, commented:

- *Issues are frivolous - forced onto farmers*
- *It pertains more to higher country*
- *It was mostly about the Burdekin catchment area*
- *More relevant to the lower end of the area where it is wet. We are very dry here.*
- *Not much is done about it all - there are really bad grasses (caused by the DPI farm) but nothing is done about it - the BSCS in our area does not do any good.*
- *Not particularly to my farm as I do not have a salt problem*

Attitudes to FMS and the need for FMS

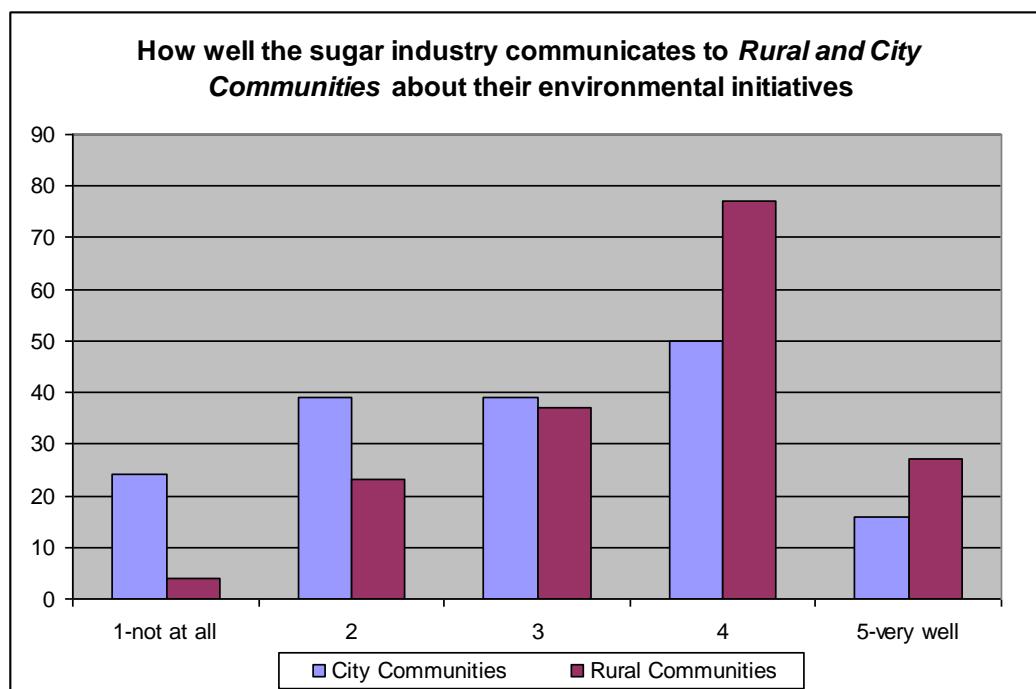
How well is the sugar industry working to address community environmental concerns

When asked to comment on how well they thought the sugar industry is working to address community environmental concerns, 136 respondents thought they were doing well (rating 4 and 5). 23 respondents noted they are doing an average job and 11 respondents believe they are not doing well (rating 1 and 2).



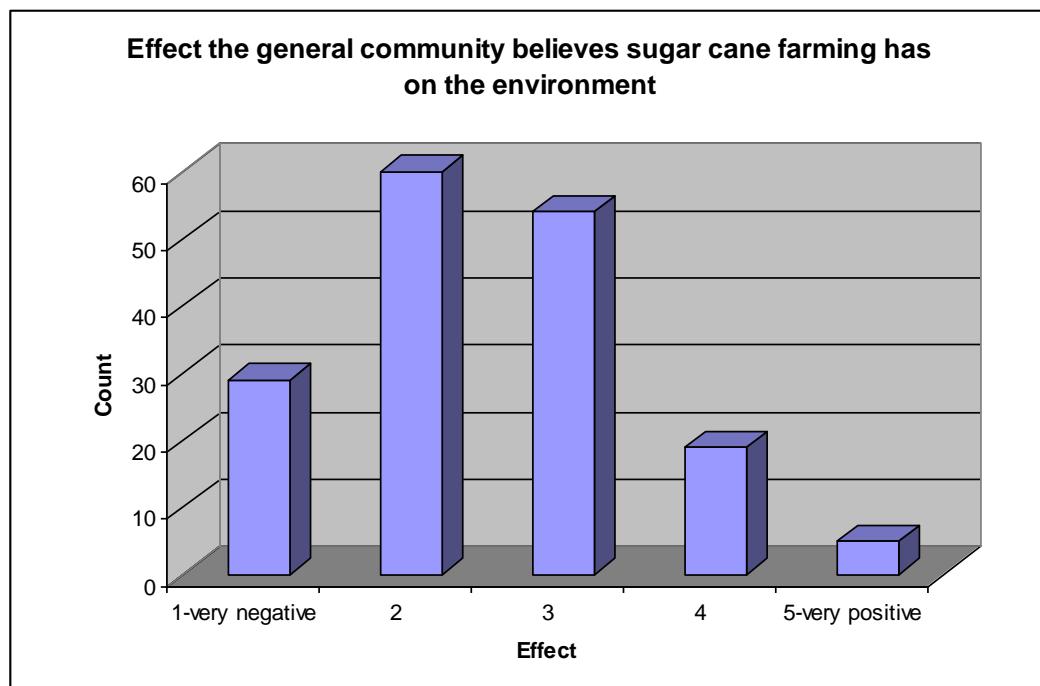
How well the sugar industry communicates to Rural and City Communities about their environmental initiatives

Respondents were asked to rate how well they thought the sugar industry communicates their environmental initiatives to rural and city communities. When comparing these responses it can be seen that respondents feel the industry does communicate well with both these sectors, but marginally better towards the rural communities. 104 respondents noted they are doing well in communicating with rural communities as opposed to 66 who feel they communicate well with city communities (rating 4 and 5).



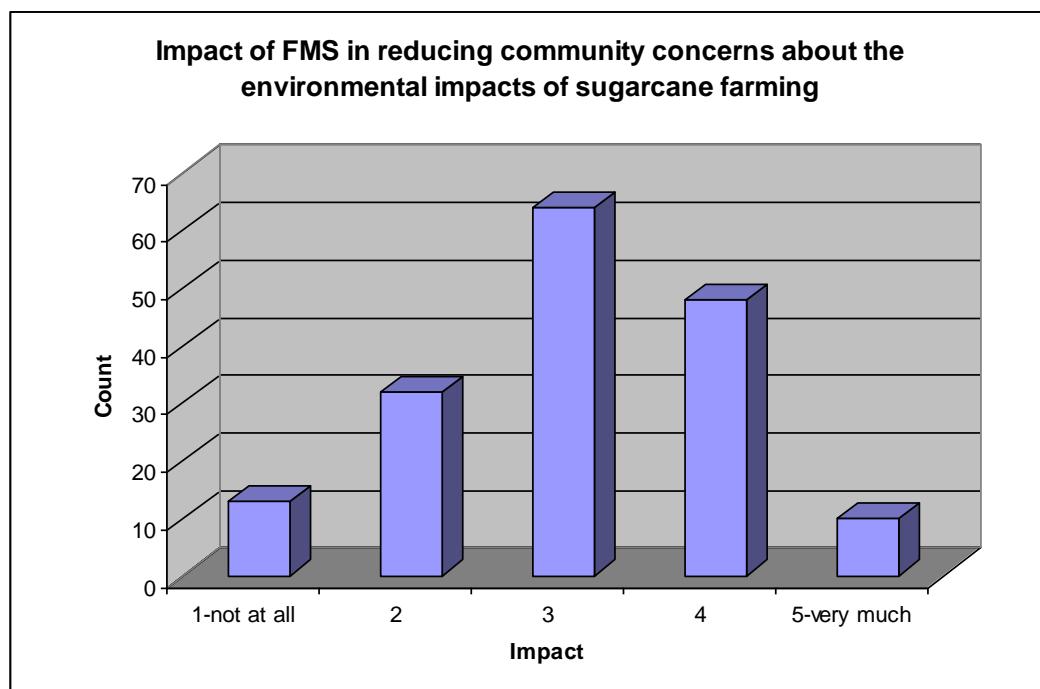
Effect the general community believes sugarcane farming has on the environment

Respondents were asked their opinion regarding the effect they think the general community believes sugarcane farming has on the environment. 91 respondents note the general community believes sugarcane farming has a negative impact on the environment (rating 1 and 2). 54 respondents believe this opinion to be mid-way and 24 believe the community does not see sugarcane farming as having a negative impact on the environment (rating 4 and 5)



Impact of FMS in reducing community concerns about the environmental impacts of sugarcane farming

When considering the impact that FMS might have in reducing community concerns about the environmental impacts of sugarcane farming, 58 respondents agreed that this might assist (rating 4 and 5). 64 respondents noted this could have some impact, whereas 45 respondents believe this will do little to reduce community concerns (rating 1 and 2)



Comments made by respondents regarding the opinions of the general community towards sugarcane farmers:

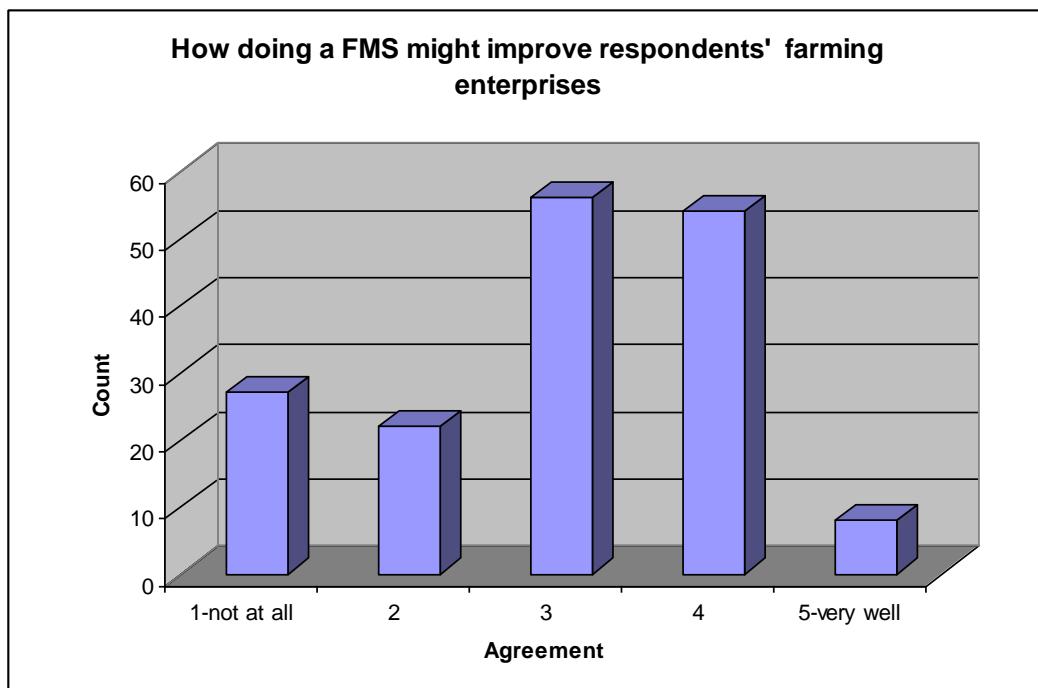
- *City folk don't know what we do anyway - we are doing what we can - we want to look after the land.*
- *It all depends where people live*
- *It all has to do with the media - people believe what they want to*
- *Ours is the only district that burns cane, but they don't understand - our properties are too big to harvest*
- *the city is not ready to listen - farmers are trying*
- *The community is not educated enough and I am not sure who's fault it is but it is a general farming thing - it is not a matter of doing something it is a matter of publicizing it.*
- *The community would not care what the farmer does and the chances of them knowing or taking an interest is slim.*
- *The perception is changing but we are still seen as a threat.*
- *The sugar industry is pretty good in NSW. But whatever we did the public would not see it so why would it change what they think*
- *There is a lot of misunderstanding about all agriculture and there is no attempt by the state government to correct this. For example we are going to stop all cane burning and it will be harvested green with the cane being used to fuel a co-generation electricity scheme - no one hears about it though.*
- *There is no credibility in the sugar industry - there are cowboys in the industry and while I think it is getting better it will take half a generation to turn it around.*

How doing a FMS might improve respondents' farming enterprises

Respondents were asked how much they thought doing a FMS might improve their own farming enterprise. 49 respondents felt it would have no impact in improving their current productivity or profitability (rating 1 and 2), 56 respondents felt there was some possibility that FMS could improve their current practices and 62 respondents believe that a FMS could help to improve their farming enterprise (rating 4 and 5). The following comments highlight some of the attitudes and feelings of respondents regarding FMS.

"We are already very environmentally friendly, however we do have to make money as well - there needs to be a balance. We have to be competitive on a global scale - we are competing with Vietnam and China where they have low labor costs and little regard for the environment. This has impacts on our productivity. Australia is happy to buy imports from countries that are killing their own environments, but will not stand for it in their own back yards - a double standard"

"With the precision farming that we have undertaken there are 7 farmers involved. We have first looked at the spraying and then the fertilizing and will look at the use of equipment - all as a group. The idea is to maintain the same output but reduce the input. We have a good system and I don't think the new generations or those coming up from the south will be able to change it for the better"



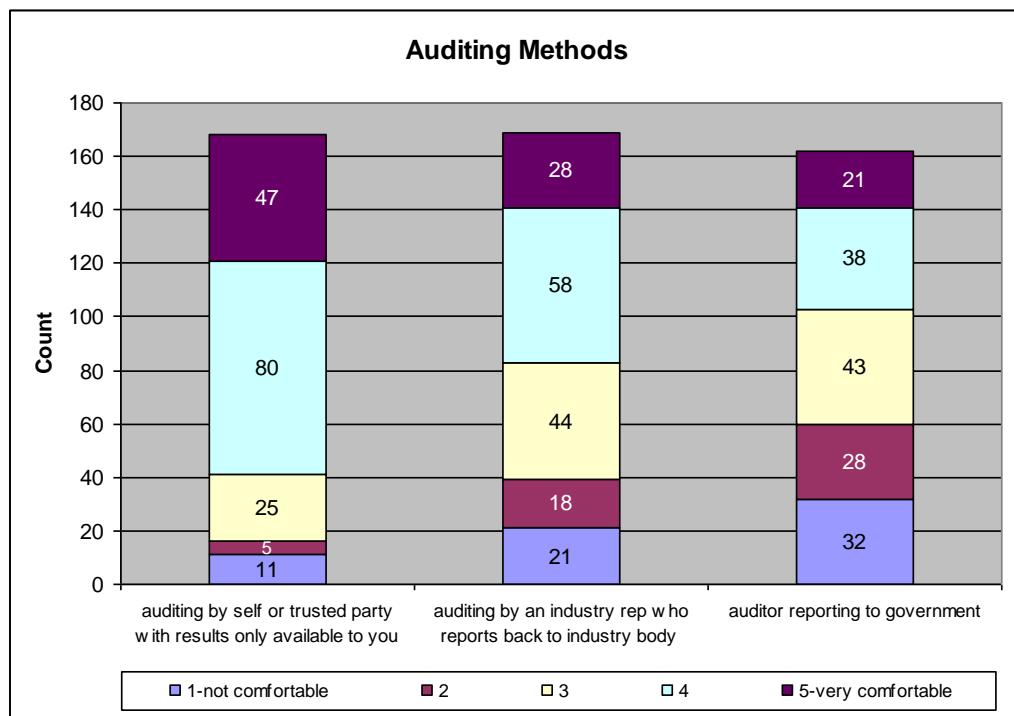
The table below highlights the fact that while there are many farmers willing to learn new technologies and methods, the majority feel that they already have established and productive systems in place and to change these would be costly and risky. There were also several respondents who note they were not able to 'fairly' comment on FMS without a better understanding of what they entail.

	Comments	Number of Mentions
Interested in learning more about FMS	<ul style="list-style-type: none"> ▪ Always willing to learn new things ▪ At this stage I would like to find out what a FMS involves - may help me with working with cane consultants - more info would be good ▪ A lot of information is available that could be new and more effective - layout, fertilisers. We use many chemicals and there may be some out there that are more environmentally friendly ▪ Depends on government policy ▪ If they really are well educated consultants, then they should be able to demonstrate where I can improve my property ▪ Interested in learning new things - just learnt about GPS recently which was very interesting and adaptable to our property in the future ▪ It all depends on how much the farmer is doing already ▪ It all works well but it is not being publicized ▪ It is to no avail unless everyone in the industry does some sort of system, for example harvesters should be planning.... ▪ It may be good to get professional consultants to tell us what the best course of action is - but it depends on how much it costs ▪ It would be good to have the time to manage the property using all the proper systems and record keeping to reference back to at the end of a season, but unless it is easy to do, many just do not have the time ▪ More to learn - may bring things to my attention that I have never thought about. ▪ There is a lot I could still be doing and changing - the only problem is that it all costs money. We can all do with some expanding. ▪ We do very well, but are also interested in learning new things ▪ We have done it already and it has improved our production ▪ You need a bigger picture view sometimes to pick up on the things you normally overlook 	49
Already doing some form of planning	<ul style="list-style-type: none"> ▪ Already doing a lot of things with planning over the last 4 years - we went to low pressure irrigation and we abide by the recommended rates for fertilisers and chemicals ▪ Already doing the Land and Water Plan and have re done our irrigation through the restructuring grant and have plans for many other improvements ▪ Already have plans in place - to change would be expensive and possibly not beneficial ▪ Been environmentally conscious for 25 years of farming ▪ Have a lot of farm planning and systems in place already - could not and would not want to add or change anything at this stage ▪ Have been farming a long time - I keep up to date with most of the new research and advancements in technology - many of which have already helped me a lot. I apply as many of these new ideas as I think are necessary ▪ Have been farming for over 40 years and cannot improve or perfect what already works for us. Have done dual rows and have already changed to trash blanketing to stop the wash. ▪ There are some new ideas aimed at looking after the environment which is good, but much of these things, our fathers and grandfathers were doing years ago. ▪ Up to date with new technologies with spraying etc. We have our own plans in place ▪ Very aware of farm planning and already doing it ▪ We are probably addressing things better than other industries but still it is not good enough - other industries up river to us actually are doing the damage. ▪ We are doing it anyway, but we are just not documenting it. But we probably could redefine some things ▪ We have always followed BSES best practices models 	45

	Comments	Number of Mentions
Negative towards FMS	<ul style="list-style-type: none"> ▪ Been farming for too many years to change it all now ▪ Done BSES plans and also done CSR plans over the years - could not accommodate more changes just yet ▪ A lot of people get big grants in return for opening their mouths to reporters - well a lot of it is just window dressing ▪ Courses tend to take up a lot of time and money which is better spent on farming and improvements. ▪ Experience is better than any education when it comes to the land. When you visit farms you can see they are already doing well. ▪ Farmers are vigilant as to what is happening to land - to protect it for the next generation ▪ I am already doing better and more advanced plans on my property - with greater benefit than FMS ▪ I have a degree so I know about soil and water and chemicals, I have also got several years experience ▪ It would only have a marginal effect - they make farmers do a whole lat of paper work just to appease the community ▪ Not if it is through the SRDC- would do it if it was with the BSES ▪ Not much - we already do the best we can with trash blanketing, waste management and we are not bleeding the soil we are putting nutrients back in (planting legumes) ▪ Our production is satisfactory as it is ▪ The cane industry here is a cooperative and has gone to a lot of trouble to appease the greenies - it has been costly and we have seen no benefit form doing it. ▪ The 'experts' think they can run a farm on paper. - We have three different properties and each is very different - there is no one fixes all solution ▪ Too old for new plans - plan as I go along each day - cannot afford to plan long term into the future ▪ Do not need a paper plan - we are very progressive and already do the right things ▪ Have implemented plans over the years and they are too complicated and time consuming. We have a strategy that is working for us - have worked a lot with BSES consultants 	42
	Total Comments	136

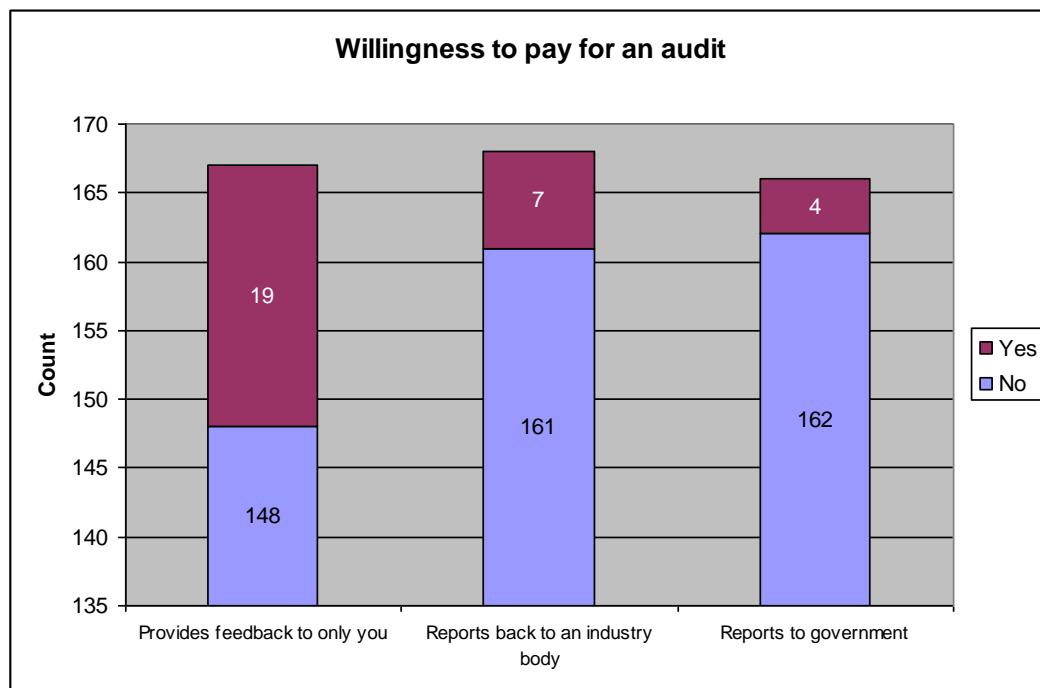
Level of comfort with different auditing methods

The chart below shows respondents levels of comfort with different auditing methods. It can be seen they are more comfortable with the self auditing and industry body auditing options (127 and 86 respondents respectively) as opposed to 59 respondents rating a high level of comfort with the government (rating 4 and 5). Only 16 respondents were uncomfortable with the self auditing option compared to 39 and 60 respondents being uncomfortable with the industry and government auditing options, respectively.



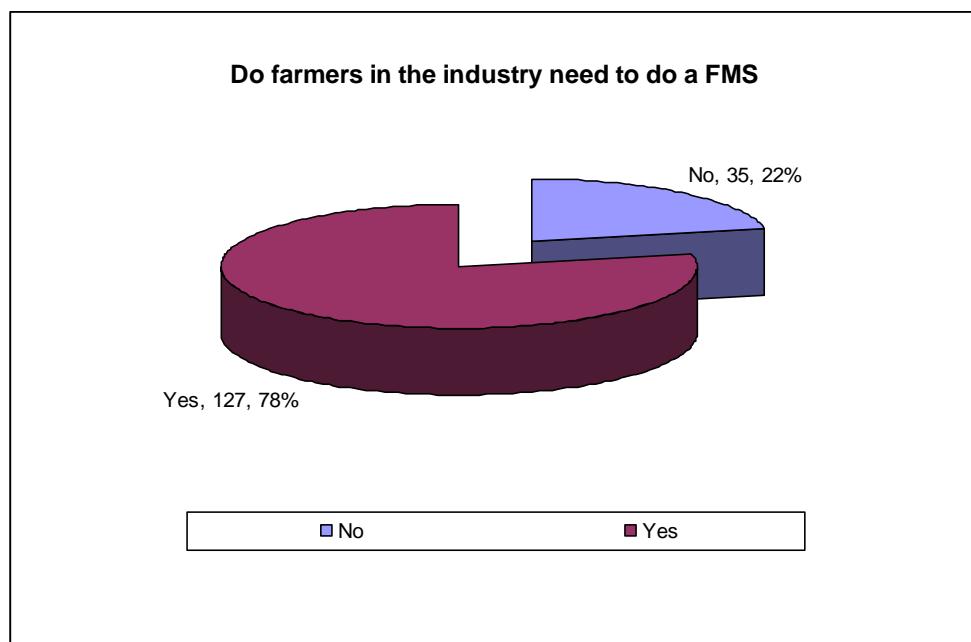
Willingness to pay for an audit

As the chart below shows, there are only a small proportion of respondents who would be willing to pay for any type of auditing of their plans.



Do farmers in the industry need to do a FMS

Of the 162 respondents that responded to this question, 78% (127 respondents) believe that farmers in the industry do need to be doing FMS. The argument against formalized FMS include the fact that many farmers believe they already are planning, they are just not recording everything and filling out pages of paperwork each night. Those who argue for the FMS, note they are needed to ensure everyone has the same level of knowledge necessary to sustain the future of the industry.



Some comments made by those who believe farmers do not need to do FMS

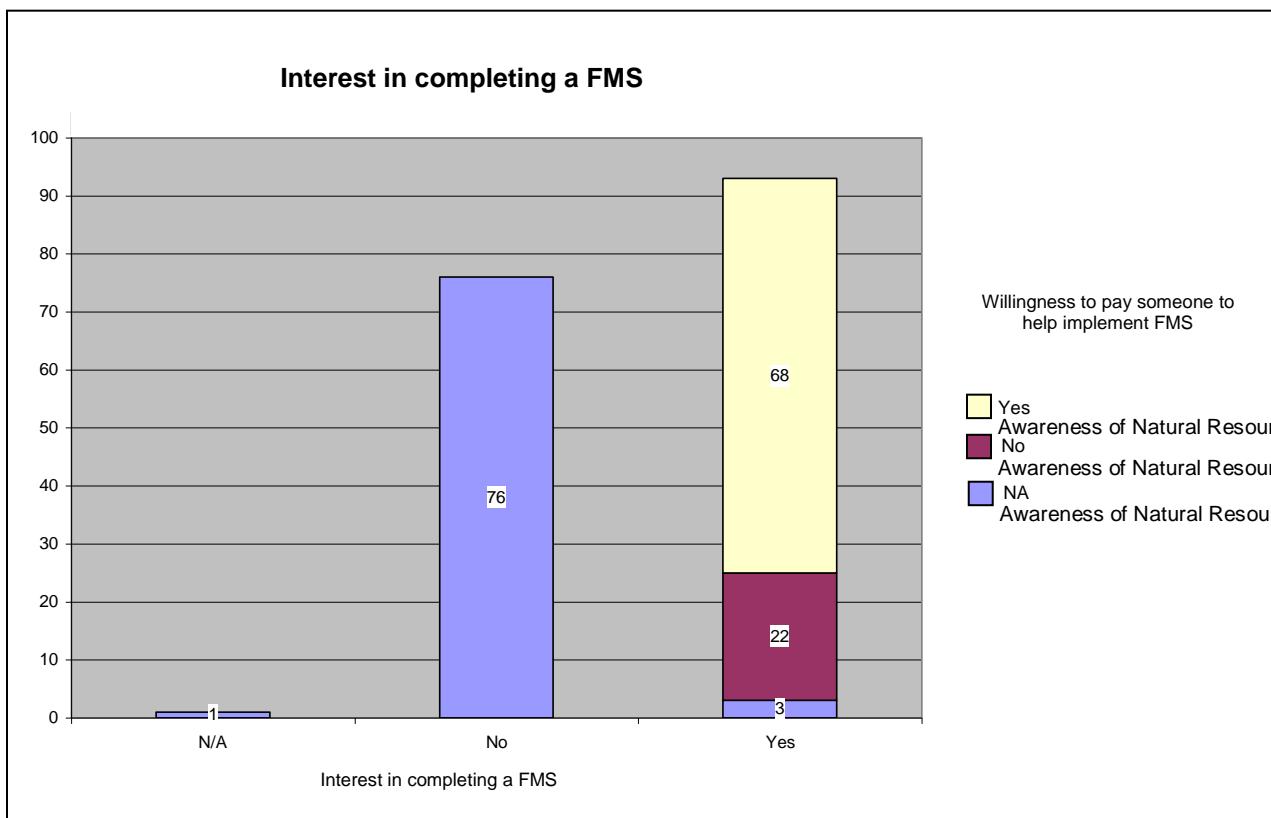
- Because there is no one proven management system that is right or wrong
- Depends on costs - if it were subsidised then we would do it.
- Each farmer is doing a system already - it is our natural taint, we cannot help ourselves - we look towards the future all the time.
- Farmers are people who "love" their own land - they always do the best they can to manage.
- Farmers have been doing it long enough. They are responsible enough not to make things worse; they always try to improve the situation. Farmers have been growing cane for 120 years. We are not vandals trying to wreck things.
- In the future but not now
- It is not cost effective and our industry is driven by costs - recently our rates, water and fertilizers have all gone up.
- Most farmers are fairly capable and have implemented the requirements already. The older farmers will see it as difficult with all the paperwork
- Most farming is common sense anyway.
- Not necessary - general public think we should
- Not unless they have no other strategy in place
- Perhaps only the hobby farmers who do not care about the land. All other farmers are up there looking after their land.
- Feel that FMS are trying to "brainwash" farmers into bureaucratic way of thinking. I resent that. But it is good to have a plan, nonetheless.
- The Government needs to look after its own waterways before farmers need to do an FMS. Department of Industries - Hymenacne is a prolific pest in North Queensland which is blocking waterways. Government needs to sort this out as they introduced it.
- Too much red tape - instead what we need is more workers

Some comments made by those who believe farmers do need to do FMS

- So that they can be efficient and record results and objectives to compare whether they are making improvements.
- We do have to lift the standards (an unfortunately prove to the public perceptions that we are good corporate citizens)
- Depends - the average age of farmers is 70 in this area - they already know what they are doing or they are too old to change now.
- Some farmers cannot work things out/solve problems. We are in a group where we are always discussing different ideas and problems (this is our form of farm planning) Those who do not attend need a different form of education
- You can not manage what you don't measure. Everything needs to be measured and monitored.
- Because all farms have been developed 20 or so years ago and they were appropriate then. But in hindsight, we would do things differently now - have bigger nature corridors. We need to take the most recent research on board
- Some who use too many chemicals - unfortunately there are some environmental vandals out there giving the rest of us a bad name.
- if it were done in house i.e. industry based and government was kept out
- We went from not having a plan then we set everything down on paper - our goals (farm and finance) and we worked towards these and now they are benchmarks and also proof of whether it worked
- If there are visible, bottom line profits
- It is time - there is no point one farmer putting all this effort into nature conservation if the whole area doesn't. We all need to recycle and manage our water and sort out our drainage systems
- yes but there are lots doing it already - it is not written down on paper- farmers would not be successful if they did not have a plan
- By keeping records you highlight the money made -"in the pocket". General return can be camouflaged i.e. by growing your peak - tones of cane does not necessarily mean the best return for money - as higher tonnage has less sugar content - therefore less dollars earned.
- Some farmers are already progressive. It may be good for older generations to get awareness of new ideas and get new ideas out to new farmers

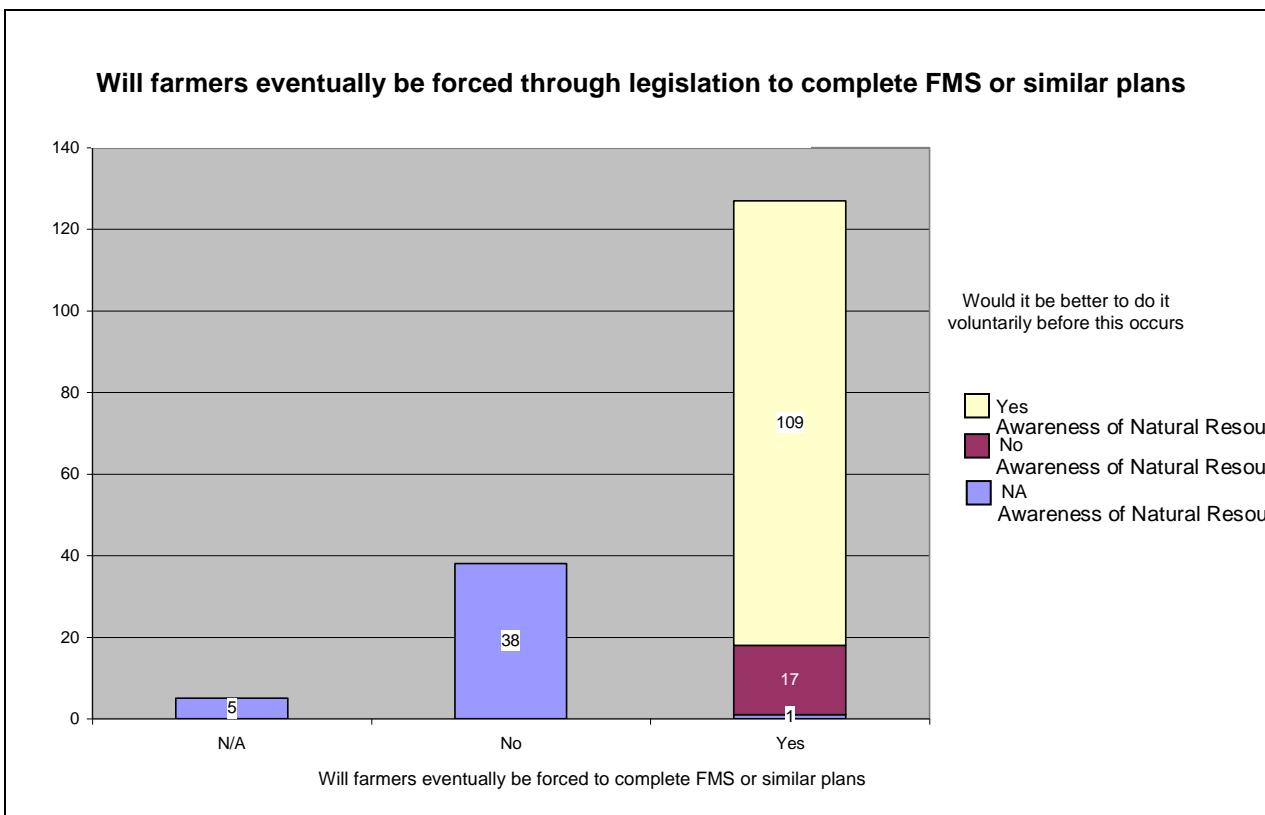
Interest in completing a FMS

93 of the 170 respondents indicated they would be interested in completing a FMS. Of these 93, 68 said they would be prepared to pay someone to do it, and 22 said they would not.



Will farmers eventually be forced through legislation to complete FMS or similar plans

Of the 170 respondents, 127 believe that farmers might eventually be forced through legislation to complete FMS or similar plans. Of the 127 respondents who believe this to be a possibility, 109 respondents noted it would be better for farmers to voluntarily complete FMS before it becomes legislation. Reasons for respondents' responses are highlighted in the following table.

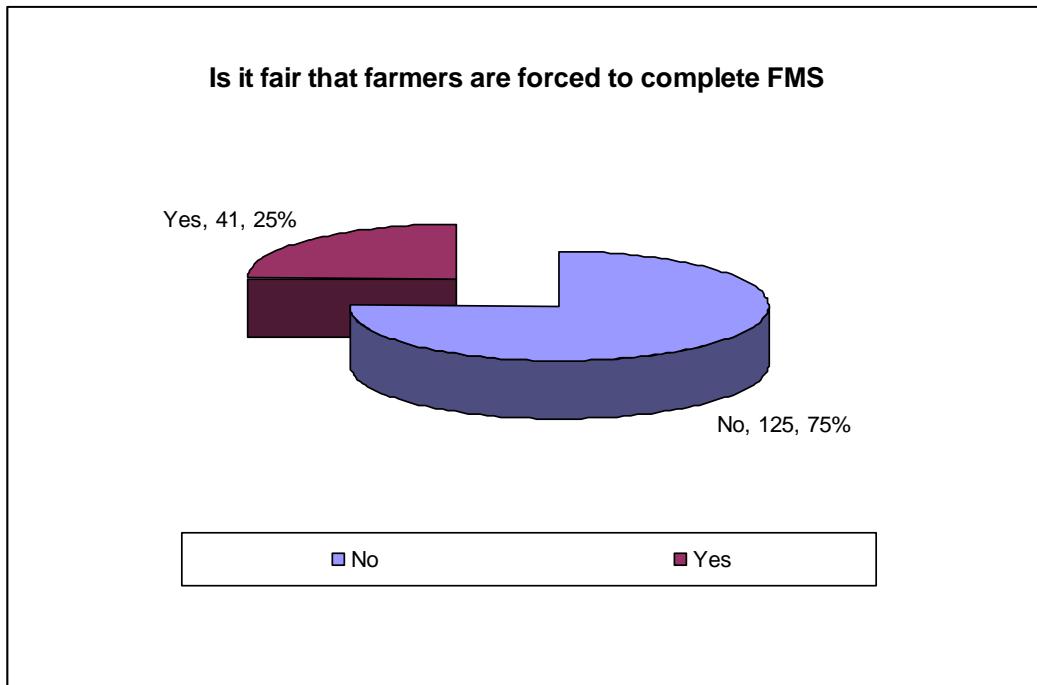


The comments in the following table summarises the opinions and attitudes of all respondents' comments. It can be said that many farmers had a defeatist attitude in that they accept this will probably occur as it is only the natural progression of events. There were however those farmers who felt the sugar industry was behind many other industries in their level of responsibility and it was time all farmers in the industry were accountable for their farming practices.

Comments Regarding the legislation of FMS	
Disagreement with statement	<ul style="list-style-type: none"> ▪ It is the way it always goes, first it is voluntary, then it becomes legislation, so it makes no difference in the long run it will eventually be forced ▪ There is always someone without a job in government - so they will just find them something to do ▪ Has gone this way in many areas of the world - but not always to the benefit of the land ▪ It is the nature of the industry and agriculture - there are new environmental acts ▪ They force everything else eg. Water meters for underground water - we have to do what they want. ▪ Isn't that what this survey is going to lead to...all our information to be passed on to government to use against us? ▪ It won't make much difference unless it is followed up - you can make things look good on paper but it might be a different story on the ground ▪ People at desks have got a lot to say, whereas farmers are never asked ▪ Greens put out information to the public and pressure governments for regulation
Agreement with statement	<ul style="list-style-type: none"> ▪ Leaning towards communist country already ▪ Everything already seems to go that way these days - the government takes things out of our hands. ▪ It depends on how many bad water samples surface - public opinion dictates legislation ▪ The irrigation plan is already getting regulated - have to do the land and water plan to be able to buy water. ▪ More and more legislation and regulation is occurring. ▪ Environmental Impacts (perceived) - we will have to prove our management abilities ▪ Because every other industry has to be accountable. ▪ I am aware of how much abuse and rape of the land there is ▪ I would not agree - government is too heavy handed with the rural industries ▪ In years to come - possibly ▪ possibly - not really sure ▪ It depends on the situation. If too many farmers ignore the impact on the environment - then they may ▪ It is a way of appeasing the public ▪ with what I do in my other business we have to be accountable and sugar does not yet have to ▪ from being in the horticulture industry the sugar industry is getting off lightly ▪ It is possible - interested to see what Peter Beattie does in the near future about water ▪ There are many options available to choose from with doing different plans or programs to do. IT could be legislated that you have to do something - but not all of them ▪ There is increasing pressure on farming and government. They may feel policy is the easiest way to be seen to be managing and responding to public opinion ▪ May be necessary to ensure long term viability of the regions farms ▪ Legislation in place already in other industries i.e. Horticultural. Industry needs quality insurance which will come in the future. ▪ Maybe necessary so everyone is aware of the latest technologies

Is it fair that farmers are forced to complete FMS

75% (125 respondents) of respondents feel that it would not be fair to force farmers to complete FMS. They argue that each farm is different and a FMS would not account for this. There is also the argument that many farmers already have systems in place, even if they are not recorded and often these systems are more effective than any regulated methods.



The following table summarises comments about whether it would be fair to force farmers to complete FMS.

Comments regarding whether it would be fair to force farmers to do FMS	
Agreement with the statement	<ul style="list-style-type: none"> ▪ Some may still need to learn things, but I have done fine with my common sense up until now. ▪ However, it depends if the FMS is going to better than the current practices. ▪ Need to be accountable - there is too much breed (focus on self) and not enough consideration given to neighbors. ▪ If other businesses have to do it then so do farmers ▪ Need to be proactive - then if we assess it ourselves, then people do not need to be employed by government to do it ▪ Up to a point - it all depends on how much it costs. ▪ Although - most already are. But if it can be shown that we are not following best management practices, then this needs to be amended ▪ Some farmers have no regard for the environment or their neighbor's properties. ▪ Yes they do need to be accountable - sugar farmers don't take anything seriously. How do you control 30 inches of rain in 3 weeks? ▪ Everyone is looking for excuses for the climate and the environment but still it is good to know what is going on. Other industries have to comply with out question - the sugar industry is in a time warp of about 30 years and is always reactionary. ▪ All need to work toward an overall plan. Need to adopt new practices and ideas to improve efficiency and thus sharpen up prices to remain viable. ▪ The land is our life and if a few are jeopardizing this then some force is needed for the future
Disagreement with the statement	<ul style="list-style-type: none"> ▪ FMS will not fit for all farmers. Need to take this into account. And everyone has a different soil type - how will this be accounted for. ▪ It will put a lot of pressure onto the older farmers. There will be more paperwork. They already know how to do the right thing ▪ Politicians just always have to interfere. ▪ Not when talking in general - that would not be fair to make every farmer to it. ▪ Some are in their 70s and 80s - you cannot force them to do these FMS, besides they will go under trying to implement the changes. ▪ It is fairly regulated already. ▪ They already do FMS - it may not be on paper, but to run a business you need plan anyway ▪ A lot of older farmers do not do courses as they do not see the point - you cannot force them to change. ▪ They should rather encourage it to happen voluntarily - when people are forced to do things they don't do it well. ▪ Most FMS's that get audited are audited by people who do not know what they are talking about. ▪ If you can show that you have some form of working plan in place where you are respectful of the environment, then you shouldn't need to be forced. Besides, any farmer without a plan is not going to last long in this industry at the moment anyway/ ▪ Cannot make a wide generalization because some may have better systems in place already ▪ Been farming for many years, I do not think I would like to be told I have to change my whole planning thoughts ▪ Not fair to force us - but show us the benefits and we may do it anyway ▪ There is scope to manage better but money and weather is always going to be a problem. Everyday we come up against some new bureaucracy and it is a big burden for farmers for example even just to do a photocopy - we have to drive to town - us small guys don't have fancy offices we work out of our kitchens - it is all very well for the big organisations but it hurts the little one man show. ▪ A lot of it is at a very high cost to the grower and we see no benefit in it ▪ We have a lot of advice we take from BSCS so this seems strange as a lot is already covered. There is room for improvement but you need to account for the different farmers ▪ Farmers would become bogged down in paper work rather than spending this time managing their farms

General Comments

- It is interesting that there are no questions about sustaining our farms. There has to be an outcome in farming. What about the balance between productivity - seems FMS have an environmental slant with little impact on increasing production?
- The questions are a bit general - it all depends on how much it would cost too. Some farmers do a greater job and the one that really need to change would probably be the ones that don't do it properly anyway.

Sugar Industry in General

- A lot of bad publicity - we have been misguided as farmers by the people who sell us our products – mis-education. My levies are paying for you to ask me these questions - government does nothing to help, yet, they will force us to do something we have to pay additional to them...
- A lot of people are not involved in Canegrowers any more - there are a lot of no good people running it - so we do not ready this anymore. Any research and new information needs to be published more - we never know about anything. It needs to get to BSES and the ABC so it reaches everyone. Not Canegrowers not everyone is a part of this fledgling group.
- The industry has reached a crisis point - any more burdens put onto farmers will end it - there is not enough money to implement all these new ideas.
- The industry is heading in a positive direction - even though there are a lot of older farmers who are not prepared to learn more - they do have valuable experience.
- The industry is not viable for me anymore - too many rules and international competition - I am too old to just survive anymore. Farmers need government assistance not the iron fist.
- The SRDC and local areas need to work more closely for the betterment of FMS. BSCS and Cane grower all look out for themselves (their areas).

Environmental Issues

- Farmers have done a lot to conserve environment - planted trees, built lagoons and ponds, sprayed to stop pests. Biggest problem is soil running into Herbert River which in turn runs into ocean. Herbert has a high rate of cancers which is blamed on farmers for using fertilisers and sprays (although not yet proven). A FMS could possibly help in this area. Smut cane disease also entered district recently within 12 months (even with 60 inches of rain) Specialists said would take a couple of years - needs to be looked at why this has occurred
- Biggest impact on farming is flooding. All the planning in the world won't be able to stop flooding and loss of crops - it is hands of "Big Hughie" i.e. God. Everything depends on the weather
- I believe everyone should have a fallow crop - it is essential. I don't believe any one tries harder than we do.
- The concept is that cane farmers are spoilers but we are probably better greenies than others
- The decay of the Great Barrier Reef is always blamed on cane farmers, but what about the tourists coming and touching it or the effects of climate change. We are conscious about burying our fertilisers so there is no runoff.

Current Situation

- I have been growing for a long time - the old type of grower and the new type is not much better than me - I have come 1 and 2 in production lately.

- If you are looking at being in the industry - you need to be serious about doing it right. There is little water available, prices are down - other crops may be a better option
- There are many doing the right thing, but there are also those who are just out to make a profit and these are the farmers that give the industry a bad name.

Farm Planning

- If you don't have a plan you should not be a farmer. I own my farm and run it economically with common sense - it isn't written down and I don't take grants. I would love to have someone come and audit me as long as they came here and did not try and do it from behind a computer. We get paid for the actual sugar and not the cane - if they paid for the cane too there would be more incentive to grow more.
- Most people would have it already just because it is not formal does not mean that are not planning - each day to day activity is planned to maintain the farm. You can't plan for ten years on - no one knows what will happen then
- Our current FMS tool is our irrigation - would not be able to run/implement more than this anyway
- There are irrigation plans, Land and Water Plans, Drainage Plans and now FMS. You cannot expect farmers to do all of these, it is not viable, economically or environmentally. You have to choose what is the best thing to do for your own land.

FMS

Implementation

- All training and knowledge and information should be incorporated into one plan
- Canegrowers should help farmers implement these FMS if it becomes regulation - they should help pay for them.
- Feel there needs to be more on the ground 'proving' in local areas, to be done with regards FMS. If you can prove the changes will work, then people will change without being forced. Do not write about them in articles and websites - get out there and show us how they work and how they will be beneficial.
- If farmers can see the benefits of them they will do it - but Canegrowers needs to be out there selling it.

Benefits

- Different generations will get different benefits out of it. The older will learn new things and new farmer will start off with proven strategies

Adoption

- Everyone is an individual and you can not generalize FMS - you can't have one for all as there are many different aspects. Auditors that work for the industry will be trying to make themselves look positive so it would not have any credibility - it would be done by an impartial auditor - the sugar industry is very intergenerational and therefore the results would be biased.
- If people are allowed to do things voluntarily they usually do it better than if they are forced to it as then they do it begrudgingly.
- It is good to have a basic FMS to follow if we wanted to but not to be forced. Everyone has tried all sorts of different things and there is no one thing that stands out as better than any others. Also it would be nice to know if it is proven before going in to it.
- It would be more beneficial to have better growth through detailed growth management plans
- Possibly demonstrations and field days could get greater awareness of new ideas and farm management systems.

Drawbacks

- I have come from a grain environment and the sugar industry is about 20 yrs behind. But there is such a variance across country it is difficult to generalize. Different circumstances i.e. soils and irrigation. So FMS may not have an impact at all. Also they work well on larger corporate properties but not on owner operated farms.
- We need more information - what happened to the FMS we first heard about last year? I did the course and then nothing came of it.

Not more information about FMS

- I would need to see what is involved to comment more. At this time it is almost non existent here - I only heard about it a few months ago

Costs

- If the price is right- farmers would then automatically do it. 75% would adopt FMS if they had the money to spare.
- If there was a FMS available and the group realised there was a need for it (based on reduced production) then it may be beneficial. But there are many very productive farmers doing their own things.
- If things in the sugar industry were better subsidised as they are in other industries we would be more willing to do the courses. but the sugar industry is often left to fend for itself in the market
- It is a hard question as we do get info from the mills about varieties and trials etc and this is sometime very useful. But I can't see how FMS will help. Farmers make mistakes but you don't make them twice. We must be a very lucky country to be able to afford to pay all these people to do these kinds of things.
- There have always been good and bad farmers. Many lack the finances to make changes but this does not make them bad - they still do their best for the environment.

Government/Public Opinion Issues**Government**

- A lot of issues at the moment (water/global warming), we are 100% irrigation and are going to be caught up in the Murray Darling debate even though we have no real connection. Government legislation will occur and we will have to be included in this which will raise all our costs of production further.
- Hope the time does not return when farmers are in situations where they need to borrow money from the Government to remain viable. We had to do this in the past and paid a lot of interest and were heavy in debt. Hope that it doesn't come to this again.
- Some cane farmers are struggling to survive without extra regulation. There is little government support which means we are left to fend off international markets and large multi national farms

General Public

- City people need to be careful about their own environments. We have wallabies in our streets - do they...? Do they have tail dams to catch all the runoff from their streets - no, but we have to.
- I have been supplying sugar for a lot of years now - public opinion about cane farming is not great. And no much can be done to change this, but they would not be very happy if there was no sugar tomorrow. They are just not aware enough of the initiatives and best practices that we have in place. Much information is available to them, it is just not getting through
- Instead of targeting us cane farmers all the time, what about the prawn farmers or cotton farmers. They are doing a lot more damage. And what about asking people what environmental risk assessment they have done on their city homes and all their possessions (cars, boats, land - many pull down trees in their yards)

- Most of the Burdekin farmers fertilize underground but we don't publicise it - some industries are doing a lot more harm than us. We can do better but in the public's eyes we will never be good enough
- People need to decide if they want farmers or do they want to survive on imported foods because I can see a future with no Australian farmers
- The community only listens to what they are told to. Most farmers are very responsible. You have to a FMS anyway - it is just that we do not write everything down as this is not viable - we do not have the time to.
- The community puts expectations on us so they should meet us half way - this will not be the whole answer and people need to see the value of doing things properly. Most farmers see the land as their livelihood and don't want to mess it up but still there is room for improvement.
- There is a general misunderstanding from the community about what farmers do but the general population will not change how they think of farmers. The farmer just will not get anywhere; people are cynical about us when we say we are doing something good.
- When it comes to public opinion - there is no point in spending resources to try and change it. We are doing the best we can with what we have. Unless government policy changes, we will continue to do what we do best

