

# SRDC Research Project Final Report

Title of the Project: **Farm Management Systems for the Sugar Cane Industry, Sub-program 2: Environmental and economic performance indicators**

Project Reference Number: **FMS002**

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## **Executive Summary:**

This project examines the use of key performance indicators within a Farm Management System (FMS) to assess changes in environmental and economic circumstances attributable to exposure to key risk factors. Such indicators should be standardised across an industry but be sufficiently flexible to reflect regional conditions and preferences of stakeholders from the sugar value chain, government and wider community to ensure local ownership of outcomes.

A standard list of indicators that would encompass all major risk factors across all sugar regions was developed. Several approaches were trialled to achieve this. General disinterest amongst industry representatives fuelled by lack of incentives to stimulate indicator based monitoring represented a major impediment to this endeavour during a period when low sugar prices and industry restructuring, reorganisation and re-alignment at the regional and local scale assumed greater importance for the survival of the industry in general and individual businesses in particular.

We progressively added entries to the list of indicators to accommodate the perceptions of an increasing number of growers and other stakeholders during the progress of this project. The final list incorporated business related as well as environmental indicators drawn from the Landholder's Monitoring Guide developed by NRMW, the ABARE NRM survey of farm family households and health and safety material developed by CANEGROWERS Burdekin and Bundaberg.

For each indicator (and associated risk) a fact sheet was developed in a format that is compatible with the online Sugar FMS database (see [www.srdc.gov.au](http://www.srdc.gov.au)). This material was further embellished by adding regionally relevant material to fact sheets from government programs involving broad stakeholder consultation in the development of regional NRM plans. Although the plan targets and benchmarks (where available) were developed at regional scale they provide a useful guide for enterprise level management by individual landholders. Additional fact sheets from the Landholder's Monitoring Guide, originally scheduled for release by DNRM in early 2005, when released around the middle of 2006 will be incorporated into the FMS materials as an additional source of practical farm-level information for individual growers. Other sources of NRM related indicators and performance standards that were used include the ANZECC water quality threshold value guidelines for tropical Australian rivers.

As more information becomes available key indicators will be prioritised for each region and associated fact sheets refined and further developed. We have commenced an ongoing dialogue with stakeholders in each region to ensure that locally relevant material supplemented by feedback from growers is incorporated into Sugar FMS training materials.

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 commitment from regional trainers to seek feedback on indicators during the FMS regional forums and subsequent training program to supplement and refine the regional indicator information

A major finding of this project was that there is little agreement over the nature and practical value of a common set of regionally relevant environmental indicators for individual growers. This situation is likely to improve in response to an upsurge in regional, catchment and sub-catchment based planning and monitoring activity. In this regard, there is still a long way to go. We initially planned to establish benchmarks of environmental performance using practices and standards adopted by leading growers. Although this could not be achieved, largely because of the diversity of risks, indicators and regional circumstances, we are confident that regional forums and the subsequent training program will increase the level of consensus regarding these matters.

The Sugar FMS training program will make many more growers aware of risks and indicators relevant to their farm and region and should promote a significant increase in awareness and implementation of improved management practices. The benefits of these improvements for local communities and regions will be realised through improved environmental outcomes, increased productivity, profitability, economic stability and community sustainability. The best way for the sugar industry to demonstrate its commitment to improving the sustainability of cane farming is to achieve consensus over key indicators, better coordination in the collection, storage and access to information by growers and improved industry wide accountability over management practices.

### **Background:**

While there is a range of existing knowledge regarding sugar production environmental and economic indicators, this information is often region-specific and held by a variety of sources. Projects in several regions are currently being undertaken to collate and formalise this knowledge. The development in recent years of regional NRM groups who have produced regional plans is an

important source of information, however they are aimed at a broad audience and include a lot of information of little relevance to cane growers. The NRMW program to develop the Landholders Monitoring Guide should help provide practical information on NRM indicators for growers, however the approach taken to produce large amounts of material for each indicator (rather than starting with a couple of pages for each, which is all that most landholders will read anyway) has meant significant delays in this information becoming available.

The regional NRM group reports also often have slightly different formats and terminology which make them more difficult to consider at the industry level. Again, the Landholders Monitoring Guide has not been able to deliver on promises of Queensland-wide standards that will be adopted nationally.

### **Objectives:**

The original objective of the project was to “determine key performance indicators for each cane production district to assess changes in economic and environmental criteria arising from the application of FMS risk assessment methodology”.

Overall the project has achieved this objective. A list of key performance indicators can be obtained for each region. The fact sheet for each indicator describes in general terms whether the measure should be increasing or decreasing, which is the most important aspect of the risk assessment process. In addition, where relevant information has been found, threshold values and targets have been provided, which are in most cases already being used to assess changes by regional NRM groups.

### **Methodology:**

The initial focus of the project was based around pilot projects in the Central and Burdekin regions. In collaboration with the Central Region FMS pilot the issues and indicators relevant to cane growers in that region were highlighted from their regional NRM plan. The Central pilot group provided a great deal of useful feedback and input to the eventual approach taken with this project. The Burdekin project had only a limited focus on this issue to start with, but we also had difficulties collaborating with them during the political upheaval in their local industry. Both projects progressed much more slowly than anticipated, delaying this project to some degree. Agrecon had extensive consultation within the industry and relevant government agencies from an early stage to help determine the most effective ways to achieve the practical outcomes required of the FMS program.

A standard list of indicators that would encompass the major issues across all sugar regions was developed. Several approaches were trialled to achieve this, with the final list being based on the

best available standard lists of indicators. The following sources of indicators have generally involved and/or are involving broad industry, government and community consultation in their development:

1. The Landholder's Monitoring Guide developed by NRMW (the first attempt to develop state and national guidelines for monitoring key NRM issues at the farm scale)
2. The ABARE NRM survey of farm family households (the best available standard list of Australian socio-economic benchmarks at farm scale)
3. Regional NRM plans covering all sugar production areas (used to supplement the national sources where issues of particular importance, such as acid sulfate soils, were previously neglected)
4. Health and safety material developed by CANEGROWERS Burdekin and Bundaberg from state and national guidelines (developed as part of a supplementary project to broaden the scope of the FMS project)

The indicators were also linked to a standard list of risks, derived largely from NRMW Land and Water Management Plan and health and safety requirements, to help place them in context.

An initial sample list of risks was added to the prototype Sugar FMS Tools very early in the project to help demonstrate to the industry how these may contribute to the overall FMS and encourage feedback. The progressively-developed list of risks and indicators was presented to a range of growers and other industry representatives across the sugar industry through extensive discussions with regional pilot groups, numerous industry stakeholder meetings and presentations. More recently they have been examined more closely by regional industry representatives and grower reference groups involved in the FMS training program as part of an ongoing program of feedback.

For each indicator (and risk) a fact sheet has been developed in a format suitable for the Sugar FMS database and added online. The delayed release of the landholder's Monitoring Guide, originally promoted for early 2005 but still not officially available for use, has meant that little practical information applicable at the farm scale has been added so far. That ambitious project is the first real attempt to develop nationally-consistent indicators that can be readily measured on-farm by farmers and their support personnel.

The extensive work undertaken to develop regional NRM plans, which included broad stakeholder consultation, was utilised to add regional-specific information to the fact sheets wherever possible. Although the plan targets and benchmarks (where available) were developed at regional scale they still provide useful information to landholders as to what is being expected at the farm scale. Other sources of NRM target information, such as ANZECC water quality threshold value guidelines for tropical Australian rivers, were also utilised. These fact sheets are now available online for all regions and will be refined through feedback as part of the FMS regional training program.

Spatial datasets were evaluated for their ability to provide benchmark values, however little value was derived from this exercise beyond what had already been determined by regional NRM groups.

Several issues have constrained the progress of this project from the start. The following list summarises issues raised by Agrecon in the first FMS project progress report in March 2005, and whilst Agrecon tried to work around these within the parameters of the project brief many of them were still identified as similar problems by the FMS Review one year later:

- confusion both within and outside the industry regarding FMS
- the intent, content and parameters of FMS have not been clearly articulated to the industry
- the need for increased emphasis on communication, awareness and mutual respect between stakeholders
- the lack of reference to Custodianship, Stewardship and Sustainability and hence a perceived lack of commitment by the industry
- a focus on growers and no integration with the other industry sectors or any previous or even subsequent initiatives related to the environment.

The main constraint to the progress of this project has been the general disinterest by many industry representatives. This is probably due, in part at least, to seemingly more important issues of business survival in difficult times, industry and pilot group reorganisation, and sometimes an apparently deliberate undermining of the FMS program by some industry representatives.

## **Outputs:**

The following outputs were produced by this project:

- A standard list of environmental and economic performance indicators relevant to the sugar industry
- A fact sheet for each indicator with most including regional specific information
- Current baseline conditions for each indicator in each region where available from regional NRM plans
- Relevant regional targets as specified in regional NRM plans to guide sugar growers and the industry on what is being expected of them Indicator list and fact sheets added into the online Sugar FMS Tools database for easy access and maintenance
- Indicators and associated risks being incorporated within the FMS Tools risk assessment procedure, as part of the FMS training sub-program, to help growers identify and continuously improve on issues relevant to their farm
- A commitment from regional trainers to seek feedback on indicators during the FMS training program to supplement and refine the regional indicator information
- Advanced growers being used as presenters in some regional FMS awareness/training programs, including to highlight benchmarks being achieved by better performing growers

## **Intellectual Property:**

Whilst some new material was developed by this project, and will continue to be developed as more detailed regional information is added over time, it is mostly an aggregation of previously existing knowledge and published information. SRDC owns copyright of all material developed through this project and included within the Sugar FMS Tools website.

## **Environmental and Social Impacts:**

There has been some useful information and tools produced from this project that has the potential to improve environmental and social outcomes through their implementation. Cane farmers attending the training/awareness program and/or accessing the online Sugar FMS Tools should be exposed to the need to consider these indicators as part of their farm operations, and over time the adoption of corresponding practices and achievement of improvements will flow on to the broader environment and community.

## **Expected Outcomes:**

The expected outcomes from the project include:

- Greater awareness of environmental risks from cane farming, and indicators of how well they are being managed by individual growers and industry representatives
- Information exposure and awareness acting as an incentive for growers to improve current practices in order to reduce their environmental risks
- Increased adoption of best management practices, particularly those most important in each region to address regional risks and indicator recommendations
- Potentially short term costs to growers, for which there are often regional financial incentive programs and other technical support, for generally longer term financial benefits
- Clearly demonstrable process by the sugar industry to inform growers of their obligations and direction for improvement
- Proactive approach to environmental stewardship by the sugar industry with at least some measurable and defensible benchmarks and targets based on the broadly-consultative regional NRM plan process

Whilst little baseline information is available with which to assess the outcomes of the project, the apparent general lack of knowledge about indicators by cane growers means that ongoing promotion through the training/awareness program of the outputs from this project should definitely improve on previous levels.

## **Future Research Needs:**

The regional lists of indicators are based on regional issues identified through the NRM plan process, however there is scope for improvements from the sugar industry perspective that will be started through the Sugar FMS training program. It is hoped that any ongoing support for the Sugar FMS program will include refining of indicators and maintenance of fact sheets that are based on other documents that may become outdated.

The main reason that environmental performance benchmark values have rarely ever been specified for agricultural industries is that they are very difficult to define and achieve agreement on. This is particularly the case when the values need to be relevant to individual growers, who each have a range of different circumstances to consider. Nonetheless, long term there needs to be an improvement in measurement and assessment from regional down to sub-catchment down to individual farms and even sections of farms that have internal variations. This will not be an easy process, and the research needs might first focus on ways to realistically achieve this in pilot catchments.

### **Recommendations:**

The following action is recommended:

- Regional “FMS officers” be funded to support cane farmers in each region, with a brief that includes the ongoing prioritisation, development and refinement of risks and indicators

### **List of Publications:**

Nil. Note that all risks and indicators, and their associated best management practices, along with fact sheets, are published online in the Sugar FMS Tools database within the [www.sugarcane.net.au](http://www.sugarcane.net.au) and SRDC web sites.