FITZROY BASIN ASSOCIATION

Australian Government
Department of Agriculture, Fisheries and Forestry
National Landcare Program

Final Report
for
Improving spray management through the piloting of the Grains BMP

FB NLP08, ID Number 64390

funded under
National Landcare Program (NLP)

1. Introduction

The main aim of this project was to improve spray management within dryland farming systems through engaging landholders in piloting the Grains Best Management Practices (Grains BMP) process. The project trialled the first module (pesticide application) of the Grains BMP and linked it to the Fitzroy Basin Association Inc (FBA) catchment targets and incentive scheme. The process involved facilitating four groups of farmers through a Self Assessment Tool (SAT) to assess the landholders current spray management practices, and Action Planning (AP) to identify ways to improve spray management practices. From the land holders action plans, appropriate training, consultants and incentives for improving spray management practices on farm were accessed or implemented.

This project addressed key management action targets in relation to the improvement of sustainable production systems. Industry within our region had identified spray management as an area for improvement and poses risks to sustainable production, environmental assets and creates social tension in the community when incidents occur. The need to improve spray management has been recognised by the FBA Board and Sub-regional groups. This project has addressed these issues with four groups of farmers and has been a pilot for working with other groups of farmers.

This project piloted the use of the Grains BMP to facilitate practice change with landholders. The pilot process has been successful with the results being incorporated into the delivery process for subsequent modules.

2. Achievements against Objectives

This project had three main objectives,

1. To help develop a Farm Management System (FMS) for the Grains industry.

2. To trial the use of incentives and training linked to a Farm Management System to improve farm practices and contribute to achieving catchment targets.
3. Improve spray management in Sustainable Farming Systems in the Central Queensland grains industry.

Developing a FMS for the Grains industry.
FBA in collaboration with the Department of Primary Industries and Fisheries (DPI&F) and AgForce have worked in partnership to develop a FMS for the Queensland grains industry. This project has played an integral part in initiating and developing the Grains BMP. In the Fitzroy basin the Grains BMP has:

- Developed the first module of the Grains BMP (the Pesticide Application module)
- Piloted the Grains BMP delivery mechanisms with groups of landholders
- Piloted the alignment of an industry FMS with regional body targets
- Piloted the use of training in addition to incentives to bring about rapid practice change in the grains industry

Grains BMP modules consist of a Self Assessment Tool (SAT) and an Action Planning Process (APP). The SAT and APP recognises six key areas of best practice for pesticide application (see appendix 2). The learning's from piloting the pesticide application module have already been used for developing an additional four modules of the Grains BMP. The additional modules are:

1. Farm design and layout
2. Making best use of rainfall
3. Soil fertility management
4. Integrated pest management

Linking training and incentives to the Grains BMP

Linking training and incentives to the Grains BMP was shown to be an appropriate way of increasing the rate of practice change by farmers. Of the 28 businesses who participated in the pilot, 25 businesses were contracted to implement on ground projects, 20 completed the contracted milestones in the time provided, 34 people participated in training events tailored to the groups needs and 8 businesses utilised a consultant for individual on farm advice.

Landholders involved in the pilot were asked to rate the different aspects of the pilot in improving their knowledge and pesticide application practices, the results are shown in table 4, appendix 2. These survey results demonstrate that training and incentives are useful in increasing the rate of practice change by farmers.

Improving spray management practices in the CQ

This project demonstrated that grain growers in Central Queensland are interested in improving their on farm management through involvement with the Grains BMP. 28 businesses in four groups completed the pesticide application module. Collectively they manage 72,600Ha of cropping lands, which represents approximately 10% of the cropping lands of Central Queensland. Considering that

this was a pilot project for one year this level of involvement from farmers is very promising for implementing the Grains BMP in the Queensland grains industry.

The results of the SAT's and changes over the life of the project are summarised in appendix 2

3. Unintended Outcomes

Like almost all projects, this project encountered a number of unplanned challenges and serendipitous outcomes. The most challenging of these were record floods in the region over a two month period and a vacant position which would have managed this project. There were two main unintended outcomes:

1. A high level of interest and support from private sector consultants. We developed a partnership with one consultant, however several others have since expressed interest in the Grains BMP.
2. Four groups instead of the two contracted. From the initial success of engaging landholders we decided to form additional groups. These extra groups also completed the pilot process.
3. After involvement in this pilot, landholders undertaking self assessment in other modules are attending with one or more of their employees to also improve their knowledge and practices.

4. Partnership Formation

The Grains BMP pilot was developed from a strong existing partnership between FBA, DPI&F and AgForce. The strong partnership has been important to the success of this project and has been critical in developing arrangements for future implementation and delivery of the Grains BMP (funded under Caring for our Country).

The Central Highlands Regional Resource Use and Planning Cooperative (CHRRUP) and the Three Rivers sub-regional group (which operates as a sub-committee of FBA) were major partners in delivering this project by engaging landholders, developing and managing incentive scheme projects.

Interest and support from private sector consultants has created partnerships to support on-going activities of Grains BMP. Bill Gordon Consulting Pty Ltd provided training and technical support to the project and landholders. This partnership provided synergies between the Grains BMP and a GRDC funded project aimed at improving spray management practices. Graham Spackman consultants provided valuable input and review of the content of Grains BMP modules. This partnership will also support on-going Grains BMP activities. Other private providers in the grains industry have sought partnerships in future activities and modules based on the success and publicity of this project.

5. Learnings

This project has demonstrated that the Grains BMP is an effective extension tool for facilitating practice change. It provides an over-arching, integrated framework for grains industry service delivery from multiple providers. The learning's from this project demonstrate that for FBA, other service providers and farmers the Grains BMP provides a framework to:

- Focus farmers and extension providers upon the most profitable and sustainable practices and identify areas for improvement specific to a farmers situation.
- Identify practices and skills for improvement specific to a farmers situation. This in turn allows the service providers to target training and regional groups to target incentives.
- Demonstrate good environmental stewardship to the wider community.
- Target the delivery of incentives by focussing on the most important practices for a particular enterprise that also align with desirable NRM outcomes.
- Integrate efforts between service providers to the grains industry.

Other more specific learning's from the project were captured via a focus group discussion with the implementation team and a survey of landholders (see appendix 2 &3). Some general learning's from these two data sources include:

- Flexible delivery of the modules suits different farmers individual needs. For example some farmers preferred a group approach to completing the modules while other preferred one on one support.
- Staff learnt a lot about the technical considerations of pesticide application by being involved. Although a in depth knowledge was not considered essential to facilitate farmers through the SAT, it definitely improved confidence levels. For future modules there will be greater effort in training staff before delivering the modules.
- "Growers don't necessarily know what they don't know". After being involved with the program several farmers acknowledged that their practices were not as good as they had first thought.
- Fitting in with cropping cycles and the impact of large floods (January – February 2008) makes engaging grain growers difficult. Although we can try to time landholder engagement around these cycles it is something that we can assume will delay delivery of the Grains BMP into the future.
- There needs to be sufficient time from implementation of incentives to assessing practice change. In this case, the flooding event shortened delivery timeframes so in the future a longer time frame to measure practice changes is desirable.

6. Implications for the Plan, RIS and future direction of the regional NRM body

This project has demonstrated that the Grains BMP is an effective extension tool for engaging the CQ grains industry. It has provided a framework for FBA to integrate service delivery from multiple agencies and providers with our own programs and incentives. Due to the success of the Grains BMP it has been identified by FBA as the primary delivery approach for engaging grain growers,

implementing incentives programs and ultimately increasing the rate of adoption of improved practices.

The Grains BMP has already been incorporated by FBA into current and future delivery programs and regional natural resource management plan review. It is currently being used as the primary delivery approach for the Reef Rescue Package by regional groups and AgForce. It has also been included in our Water Quality Improvement Report which is the main report reviewing and making recommendations for many of our land management targets.

The piloting of the Grains BMP also has implications for other grain growing regions and regional NRM groups as the program is extended into other parts of Queensland.

7. Total Project or Activity funding details including leverage

	Proponent Funds	Other Leverage Contributions 1* DPI&F	Other Leverage Contributions 2* Landholders	NHT/NAP/NLP Funds	Total Project Funds
Approved	Not specified	$75,000.00	$334,000.00	$150,000.00	**$559,000.00**
Received	$136,100.00	$75,000.00	$718,400.00	$150,000.00	$1,079,500.00

	Proponent Funds	Other Leverage Contributions 1*	Other Leverage Contributions 2*	NHT/NAP/NLP Funds	Total Project Funds
Expended	$136,100.00	$75,000.00	$718,400.00	$150,000.00	$1,079,500.00
Unspent	$0.00	$0.00	$0.00	$0.00	$0.00
TOTAL	$136,100.00	$75,000.00	$718,400.00	$150000.00	$1,079,500.00

8. Appendices

Appendix 1 Standard performance report to cover the months the project has been operating since its last 6-monthly report, including

i. Expanded report against specifics of each project (including milestones)
ii. Final output spreadsheet

Activities	Milestone	Output	Delivered Milestones and Key Outputs
To trial the use of the Grains BMP for farmers to identifty ways to improve spray management	CB5.1Group Formation - Groups formed to trial the spray module	2 groups formed and evaluation of the documents and process	4 groups formed and evaluation of the documents and process
	CB1.1 Facilitiated SAT and AP - Facilitated SAT and AP workshops	2 SAT and AP workshop run	4 facilitated SAT and AP workshops
	P3.2 Collation of SAT and AP - Summary of current practices and AP	20 landholders documenting current practices and actions to improve	28 landholders documenting current practices and actions to improve
	P3.2 Evaluation of SAT and AP approach - Training needs of groups identified	1 document summarizing current practices and recommendations about how Grains BMP data can be summarized and presented (eg group average, individuals results etc)	1 document developed and in future used as standard template for to summarize current practices from web based Grains BMP database
Implementation of Action Plans	CB2.1 Training - Training events developed and run	2 training events held	2 training events held with a total of 34 participants
	CB5.1 Individual support - On farm consultancies organized	5 individual on farm consultancies	8 individual on farm consultancies
	OG9.1 On farm works - On farm works/practices implemented or equipment purchased	20 landholders implementing improved practices	25 landholders implementing improved practices. 20 landholders completed contracted milestones during the term of this contract
Review farmers changes as a result of being involved with the project	CB4.2 Facilitated SAT and AP - Facilitated SAT and AP workshops	2 SAT and AP workshops run	4 SAT and AP workshops completed
	CB1.2	20 landholders documenting current practices and improvements in management over last 12 months	20 landholders documenting current practices and improvements in management over last 12 months
	CB1.2	1 summary document showing improvements in practices for the 2 groups	1 summary document as per attached Appendix 2
Ensure the project results are communicated	CB1.2 Results and summary documents presented to Grains BMP reference group - Summary documents to improve grains BMP modules	2 summary document of current practices	2 documents presented to reference groups
	CB1.5 Results communicated via popular media and websites - Media releases	4 media releases	4 media releases
	CB1.1 Project updates presented to farmer/industry organisations (eg Grains Research Foundation Research Advisory Committees, Regional Australian Cotton Grower Research Advisory Council) - Presentations to farmer/industry organisations	4 farmer/industry organisations meeting attended	8 farmer/industry organisations meeting s attended 2 x Reef Rescue 1 x Regional Groups Collective meeting 2 x Agforce 2 x DPI & Sub Regions 1 x DPI & Wowan/Dululu Landcare day
	Final report	1 final report	1 Final report.

Appendix 1(iii): Financial report for contracted period.

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12/02/09
Accrual Basis

Fitzroy Basin Association Inc
Profit & Loss
July 2007 through December 2008

	Jul '07 - Dec 08
Ordinary Income/Expense	
Income	
Grant Income	150,000.00
Total Income	150,000.00
Gross Profit	150,000.00
Expense	
Admin General	
Communications	
Phone	75.00
Total Communications	75.00
Total Admin General	75.00
On Ground Direct Project Costs	
Catering	605.99
Devolved Grants-NC	49,566.51
Service Contracts	77,000.00
Training-OG	21,002.07
Travel-OG	
Accommodation-OG	1,750.48
Total Travel-OG	1,750.48
Total On Ground Direct Project Costs	149,925.05
Total Expense	150,000.05
Net Ordinary Income	-0.05
Net Income	**-0.05**

Appendix 2

NLP Pilot Project - Grains Best Management Practices
Summary of Outcomes

Rod Collins, Department of Primary Industries and Fisheries, Biloela

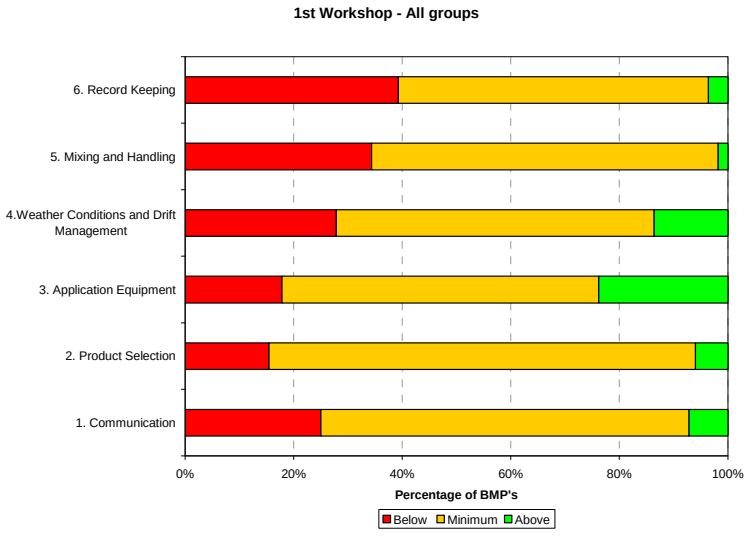
Background

In 2007, the Fitzroy Basin Association (FBA), in collaboration with the Department of Primary Industries and Fisheries (DPI&F) and AgForce Grains was successful in obtaining funding from the National Landcare Programme (NLP) to pilot the first module of the Grains Best Management Practices (BMP) program with central Queensland grain producers. This module, covering pesticide application practices was run as a series of two workshops to complete the self assessment and action planning component and provide targeted training from an industry expert to help growers improve knowledge and skills. An incentives program was run to assist growers to implement the high priority practices identified in their self assessment and therefore adopt improved pesticide application practices. Follow up workshops were held after the completion of incentives projects to measure changes in grower's practices, along with an evaluation survey to gather feedback on the overall process used.

Outcomes – Self Assessments

The first round of self assessment workshops were facilitated by staff from DPI&F and FBA sub-regional groups and the data from the self assessments collated. Figure 1 shows the percentage of BMP's completed which were at below, minimum or above BMP standards

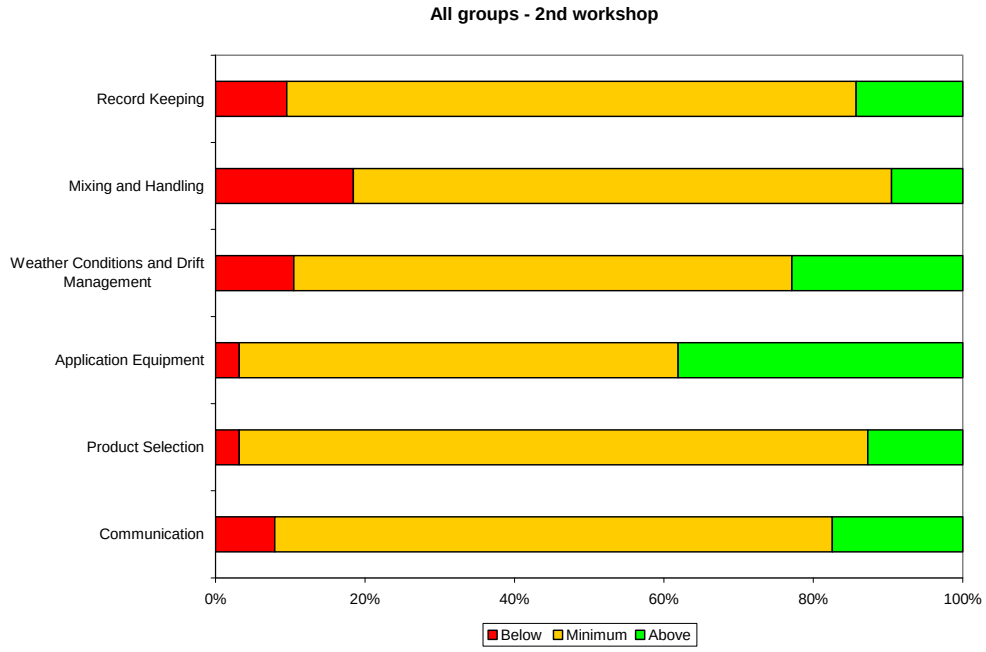
Figure 1: Summary results from the first self assessment workshops



These data followed the expectations of the project team, with practices involving record keeping and mixing and handling the areas requiring most improvement. As a result, these areas were a key focus of the targeted training held after these self assessments were completed, to assist growers in improving their practices.

Following the delivery of the targeted training by an industry expert (Bill Gordon Consulting), growers identified and implemented changes aimed at improving their alignment with the minimum BMP standards set by the Queensland grains industry. A second self assessment workshop was conducted to measure the changes in practices as a result of the targeted training and implementing incentives projects. The percentage of BMP's completed at minimum or above BMP standard is shown below in Figure 2.

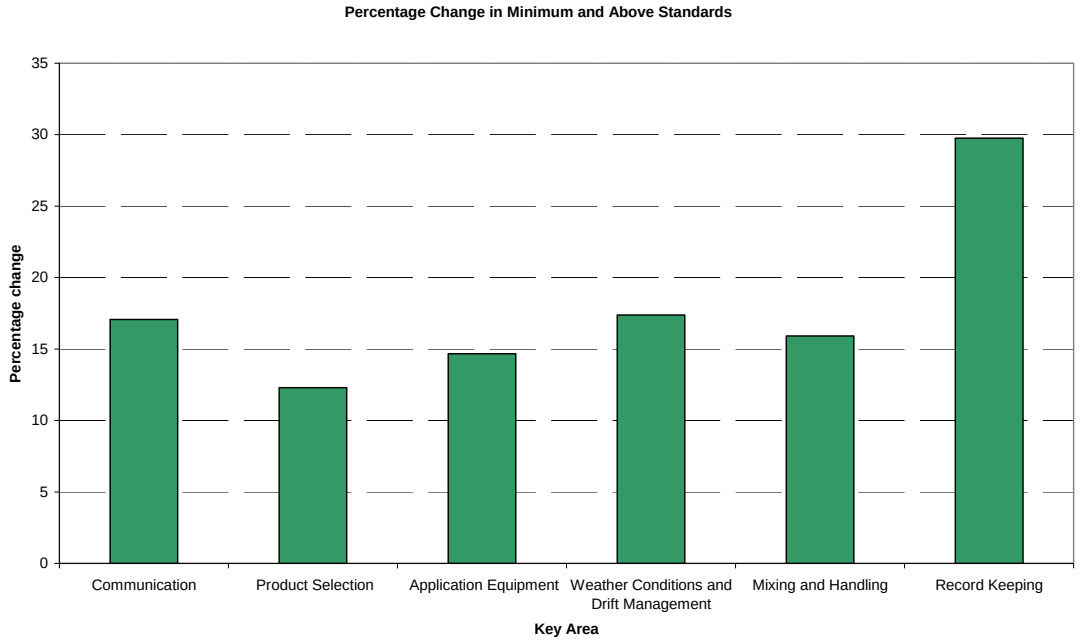
Figure 2: Summary results from the second self assessment workshops



A comparison of Figures 1 and 2 shows that there was a large improvement in the percentages of BMP's at minimum and above BMP standards across each of the six key areas in the Pesticide Application module. Importantly there were large improvements in those key areas identified in the first self assessment workshops as needing the most attention. This level of improvement in practices is summarised in Figure 3 below.

The largest improvement in practices was in the area of record keeping, although the levels of improvement across all key areas was surprising given the short time span of this project. This level of practice improvement highlights the effective engagement of grain growers by the project team by providing tailored information and training to help growers improve their practices. This also demonstrates the effectiveness of the process proposed to deliver the Grains BMP program as a Farm Management System (FMS) for the grains industry in Queensland.

Figure 3. Percentage improvement following second self assessment workshops



Outcomes – Evaluation survey

At the second round of self assessment workshops, an evaluation survey was used to gather participant's views on the impact of the pilot project . The summary of their views on the project outcomes is shown below in Table 1.

Table 1. Participant opinions on the project outcomes

Percentage	Strongly disagree	Disagree	Unsure	Agree	Strongly agree	n
Helped improve my understanding of the important aspects of applying pesticides	0.0	0.0	9.1	77.3	13.6	22
Helped improve my understanding of why applying pesticides correctly is important	0.0	0.0	9.1	77.3	13.6	22
Helped me learn new ways of improving the way I apply pesticides	0.0	4.5	31.8	50.0	13.6	22
Helped me identify opportunities to further improve my pesticide application practices in the future	0.0	0.0	13.6	63.6	22.7	22
Helped me implement better ways of applying pesticides	0.0	4.5	13.6	68.2	13.6	22

This data shows that the process has generally helped those grain growers involved improve both their knowledge and skills as well as farm practices. Importantly, 86% either agreed or strongly agreed that the pilot process has helped them identify opportunities for future improvements in their practices which will hopefully encourage further improvement in practices over time.

Participants surveyed identified a range of areas in which the pilot program had helped them improve their practices, as well as those they plan to improve in the future. This is shown below in tables 2 and 3.

Table 2. Changes made by participants involved in the pilot process

Response	n	rank
Improved record keeping	15	1
Better nozzles	9	2
Better management of weather conditions	3	3
mixing tank	1	5
water testing	1	5
MSDS register	1	5
Personal protective equipment	2	4
Communication with neighbours	3	3
Product manifest	1	5
Staff training	2	4

This data builds on the responses presented in Table 1 and shows that the largest areas of improvement were in terms of record keeping and better boomspray nozzles. However, there were also a wide range of other improvements that growers had implemented, highlighting that the process used can successfully achieve improvements in a range of practices simultaneously.

Table 3. Changes planned for implementation in the next five years

Response	n	rank
Improve application	2	5
Upgrade equipment	7	2
Better communication with neighbours	1	6
Better mixing/ storage area	9	1
Better record keeping	6	3
none	1	6
Improve/ maintain BMP compliance	4	4

The highest ranked future changes included better storing and mixing areas and improved spray application equipment. Due to the high capital cost of these items it was difficult to achieve changes in these areas given the short time frame over which the incentives projects were conducted over.

Participants were also asked to comment on the process used to implement the project, with the summary of this data shown below in Table 4.

Table 4. Participant views on project process impact on pesticide application knowledge and practices

Percentages	Very ineffective	Ineffective	Unsure	Effective	Very effective	n
Running the self assessment and action plans in a group setting	0	4.55	31.82	54.55	9.09	22
Attending the training workshop with Bill Gordon	0	0.00	9.09	50.00	22.73	22
Being able to access the incentives program	0	4.55	9.09	40.91	36.36	22
Reviewing the self assessment and action plan	0	4.55	18.18	50.00	27.27	22

Again, most participants surveyed thought that the processes used were effective in delivering the project outcomes, with the training workshop, incentives and second self assessments all similarly effective in improving their knowledge and practices. The lower score for the first workshop is likely due to three reason:

- Some growers stated that they are less comfortable in group extension processes, preferring one-on-one support.
- growers not being familiar with the process and/or
- the several months between the first self assessment workshop and when the survey was conducted (after the second self assessment workshop).

Overall conclusions

The process of assessing practices, delivering targeting training and providing incentives to encourage practice change and then reviewing progress has been shown to be an effective means of improving the knowledge, skills and practices in relation to their pesticide application practices. However, the short duration of this project meant that reviewing the success of projects happened soon after they were implemented, which may have impacted on our ability to measure the full extent of changes in practice. In the future, more time to better document these changes would be desirable.