

A Report Card – BMP Implementation

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The cotton industry's Best Management Practices (BMP) program was released in late 1997. An industry commitment was made to have 100 percent grower adoption of BMP by the 30th June 2001. To achieve this an implementation program was developed through the Cotton Research and Development Corporation (CRDC) and involved both the former CRC for Sustainable Cotton Production and Cotton Australia. Growers received a copy of the BMP manual and attended training workshops. Since that time the implementation program has developed and expanded in response to the ever changing needs of growers. With the adoption target now less than 12 months away and release of the second edition of the BMP manual imminent, how close are we to meeting this commitment and what have we learned in the process?

BMP Implementation – What is it?

I would like to reflect for a moment on what it means to implement BMP. At what stage is a grower implementing BMP? One thing is certain, it will mean different things to different people. When you ask a cotton grower how their BMP is going, the response is quite often, "I'm already doing it anyway". Is it building a chemical shed that meets regulatory standards? Is it spraying in the right conditions? Is it having your crop checked regularly by a qualified crop consultant or recirculating all tail-water? When considering the practices, the answer to this question would definitely be yes. However, is it the practices themselves that are more important or is it the process? To answer this we need to look at what BMP means.

Best Management Practices is essentially about identifying hazards on your own farm, assessing the potential risk of these and then developing appropriate plans to reduce those risks. The risks are always there, but by putting in place controls, you effectively reduce the potential for that risk to cause harm. The decision for the grower is therefore to decide on the appropriate control (a planned action or activity) and this can only be made after considering

all the environmental, economic, social and commercial constraints that they operate under. Therefore a “Best Practice” in one situation will not always be the “Best Practice” in another. For example, the grower who stores over 1000 litres of chemical will require more controls to reduce the potential risks than the grower who stores 100 litres. However all things considered, effective plans are only those that are carried out and so a commitment to the process is the most important requirement to implement BMP. Therefore the three key factors to consider when implementing BMP are:

1. Identification of the hazards and some form of risk assessment – the review.
2. The development of appropriate, site specific plans to control the risks – the plan.
3. Evidence that the plans are being carried out – the commitment.

BMP Implementation – Where have we come from?

The implementation of BMP by the cotton industry has come a long way since the joint research program¹ identified that a Best Management Practices Manual was the best method of providing cost effective methods for minimising the impact of pesticides.

Table 1. Key events that have shaped the implementation of Best Management Practices.

Event	Date	
BMP seminar in Brisbane	October	1997
First edition of the BMP manual released.	January	1998
First Introductory Workshops conducted.	November - June	1997/98
“Good Neighbours” program launched.	December	1998
Endosulfan residues in beef shipment, “Endosulfan Crisis”.	December	1998
Appointment of BMP Implementation Coordinator.	January	1999
BMP Team deliver over 300 BMP & Spray & Drift Management Plan Workshops.	May - December	1999

We have clearly experienced two quite distinct implementation phases. After release of the first manual, the initial phase saw an increased awareness of BMP and adoption by industry pioneers. The second phase then saw increased adoption by the broader cotton growing industry through a consolidated implementation commitment. Although successful, the road

¹ “The Impact of Pesticides on the Riverine Environment Using the Cotton Industry as a Model”

thus far has been far from smooth and the “Endosulfan Crisis” during the late 1998/99 season, had a major impact on implementation progress (Table 1). In order to judge the relative success of the implementation program we should briefly look back from where we have come from.

The first draft of the Best Management Practices Manual was released over four years ago. Originally it consisted of a comprehensive booklet containing a list of ‘best practices’ under four major headings. This was then expanded the following year into what we now know as the BMP manual that included the practices themselves contained in four separate modules² and a process to assist their adoption. The industry then made a commitment, to have 100 percent of growers implementing Best Management Practices by the 30th of June 2001. The target, although ambitious, was divided into sub-targets as follows:

By	30 th June 1999	have	60%	Trained	and	30%	Auditable
By	30 th June 2000	have	80%	Trained	and	60%	Auditable
By	30 th June 2001	have	100%	Trained	and	100%	Auditable

The process involved training of growers in the process of BMP then moving them through to a stage where implementation could be externally verified by way of audit. To facilitate this process a regional implementation program was developed. The program was initiated at the grower association level by cotton CRC Extension Officers and former Cotton Australia Area Managers (now Grower Service Managers). They were responsible for distribution of the manuals, maintaining a record of the recipients and the delivery of training workshops for growers. The workshops were designed to show growers how to understand and use the manual.

For the most part, a standard implementation process was used. Growers were made aware of the manual through their local grower association. They were then invited to attend an introductory meeting where trainers provided a brief introduction to the development and

² Farm Design & Management, Pesticide Application, Integrated Pest Management & Pesticide Storage & Handling.

content of the manual. They then stepped growers through each section of the manual and presented worked examples to reinforce the whole process. Further meetings and farm visits were conducted when required to help growers complete the manual. These workshops were largely conducted during the 1997/98 season.

The second phase of implementation began with the appointment of the BMP Implementation Coordinator in January 1999. It was recognised at the time, that to ensure the ongoing commitment of the cotton industry to BMP, a person dedicated to overseeing the implementation program was required. Furthermore, this led to the appointment by Cotton Australia, of three fulltime BMP facilitators, whose primary role was to facilitate the implementation of BMP in the cotton industry. Following the "Endosulfan Crisis" and the requirement for growers to develop a Spray and Drift Management Plan (SDMP), their role was expanded to include the development of a program to increase awareness of the changes to the endosulfan label and to deliver SDMP workshops. The SDMP's were built around the Pesticide Application module of the BMP manual and are an important component of BMP.

A total of 124 workshops were conducted between May and August 1999. Of these 42 were introductory BMP workshops and 82 were spray and drift management plan workshops. There were a total of 2140 attendees, 692 for introductory workshops and 1448 for spray and drift plan workshops. Seventy percent of the attendees were growers, the remainder were consultants, farm workers, applicators and others. For almost half of the attendees it was their first introduction to BMP. To maintain the momentum, follow-up work was conducted in all valleys prior to and throughout the 1999/2000 season, although the main emphasis was to ensure that growers who used endosulfan had developed a spray and drift management plan.

What have we learned?

The BMP implementation program has been as much a learning experience for us as it has been for the growers. The BMP philosophy is all about "Continual Improvement" and it applies equally to both those providing the training and those adopting. Hindsight is a wonderful thing and there were some important lessons learned from the implementation program.

1. There was limited time and resources allocated to the initial implementation phase.
 - The CRC Extension Team and Cotton Australia Area Managers had only allocated a small proportion of their time for BMP activities.
 - Introductory workshops were conducted, however little time went into important follow-up work, particularly at the one to one and small group level.
2. There were some inherent problems with the layout and structure of the manual.
 - First impressions were of a bulky manual, difficult to use and understand. This became clearly evident during workshops where the manual was pulled apart and reorganised to make it easier to use.
 - There was confusion over Hazard Analysis versus Self Assessment. Were both required or could they stand-alone?
 - There were issues dealt with in the manual that confused growers, for example attendance at the Cotton Conference and the Amount of Chemical Stored.
 - There was a lack of information, particularly with respect to the Pesticide Storage and Handling module.

BMP Implementation – Where are we now?

The Process

Cotton Australia has the ongoing role of facilitating the implementation of BMP. Under the new company structure all Grower Service Managers are responsible for BMP activities in their areas with the Implementation Coordinator overseeing the program. There is an increasing demand from growers to take BMP back to the farm level. The current program aims to do this by providing more face to face and small group work for growers to help them through the BMP process.

The Outcome

The ultimate test for implementation will be whether the industry can meet the commitment of 100 percent grower adoption of BMP by June 2001. Even if we do, how are we going to measure it? The development of an industry BMP audit program has provided one mechanism

that will enable us to do that. Not only will it provide a benchmark for the success of the implementation program and grower adoption in the short term, but it will also demonstrate to the wider community our long-term commitment to the BMP program. Auditing also has many other benefits for the grower such as making it a positive learning experience, allowing you to benchmark yourself against the rest of the industry, shows the benefits of documenting practices and so on. However auditing alone will not provide the ultimate test because a grower can demonstrate commitment to BMP without the need for an audit.

With less than 12 months from our June 2001 target, the question still remains, how close are we to achieving 100 percent adoption of BMP? To help provide some answers we put together a brief survey. Cotton Australia's Grower Service Managers developed the Survey and the aims were:

1. To gain a general understanding of where growers were at with implementation of BMP.
2. To determine if growers fully understood how to implement BMP on their farms and
3. To gain an indication of grower 'audit readiness'.

Grower Service Managers in their own regions faxed the survey out. Two hundred and twenty one surveys were returned and assuming 1400 growers in the Australian industry, it represented a sample size of 16 percent. All percentages refer to the percentage of total respondents, except where indicated. Eighty two percent had attended both a BMP introductory and a SDMP workshop. Ninety two percent had also developed a SDMP. Of those who didn't attend any workshops, most had developed a SDMP. Significantly, 87 percent said that they had started to implement BMP on their farm.

Self-Assessment was the preferred process chosen to implement BMP, with 52 percent using this pathway and a further 34 percent choosing both Self Assessment and Hazard Analysis. Of those respondents who chose Self-Assessment, 83 percent had started working through the modules. Of those that had started working through the modules 63 percent had completed all four modules, 10 percent had completed only Farm Design and Application modules, while eight percent had completed only Farm Design, Application and Integrated Pest Management

(IPM). The Self-Assessment modules ranked in order of completion were, Pesticide Application, Farm Design and Management, IPM and then Pesticide Storage and Handling.

Seventy four percent said that they had developed action plans. Seventy seven percent also said that they had then implemented those plans. This difference possibly accounts for those growers who are “already doing it anyway”, without necessarily completing the paper work. It also shows some misunderstanding of the process, given that documenting the change is important in showing ‘due diligence’. Of those respondents who had developed action plans, only four percent had not yet implemented them. To indicate whether growers understood how to implement BMP on their farms they were asked to rank themselves on a scale of one to five, with one being that they fully understood and five that they had no idea how to implement BMP on their farms (Table 2).

Table 2. Growers understanding of how to implement BMP on their farms.

Rank	Percentage of all respondents
1	23
2	39
3	28
4	6
5	2
No Response	2

Of the respondents that indicated they fully understand how to implement BMP (twenty three percent), almost half had already been audited. Interestingly, 15 percent of those that ranked themselves two and three had also been audited, indicating the ongoing potential for ‘continual improvement’. Of the respondents that indicated they had started to implement BMP and had completed all four Self-Assessment modules (forty five percent of all respondents) 12 percent had not developed action plans.

Twenty two percent had already been audited, while for those who had yet to be audited, the preferred time was next year (Table 3). Sixteen percent did not intend to be audited. Growers

cited various reasons for this including concerns about the cost, they were too busy with other programs such as Cattle Care, lack of obvious benefits and that they needed more help with implementation.

Table 3. Growers preference for a BMP audit, expressed as a percentage of all respondents.

Preference for an audit	Percentage of all respondents
I have already been audited.	22*
Following picking.	6
Before next season.	15
Some time next year.	36
Don't intend to be audited.	16
No Response	5

* This figure likely to include growers confused over BMP V's SDMP audits.

Twelve percent said that they were ready for a BMP audit, while a further 44 percent knew what was required of them to have an audit, but had not completed the paperwork. Twenty one percent didn't know what was required of them to be ready for an audit, while the remainder had already been audited or did not respond.

The survey outcomes more than likely favour the early adopters, although looking at the comments we have clearly captured a good cross-section of the grower population. Growers put considerable effort into the development of SDMP's during the last off-season and it was encouraging to see a large number also starting to implement BMP. Whether that was developing and implementing action plans or simply completing Self-Assessment worksheets, significant progress has been made. Progress has also been made in the areas of weather monitoring and communication with stakeholders, a heightened awareness of the risks associated with chemical application and increased levels of chemical accreditation among growers. Despite this, there still appears to be some basic misunderstandings of the BMP process and 'shyness' by growers to have an audit. These problems will largely be solved through further education and improved communication.

BMP Implementation – The Future

Over the next six months and in the lead up to our commitment on 30th June 2001 it will be a case of all hands on deck. Our success will largely be measured on how many growers we get to the stage of being 'audit ready'. Grower confidence in being able to implement BMP is certainly increasing even though many have not yet filled in the manual. To help provide better help to these growers the emphasis needs to be directed towards face to face and small group work.

Many of the lessons learned from the first edition of the BMP manual have been addressed in the second edition which will be delivered to the industry in October this year. Cotton Australia Grower Service Managers in each region will coordinate distribution of the new manuals. Release of the manual will unfortunately coincide with early stages of the 2000/01 cotton season, however every effort will be made in providing a simple and efficient process. For future manual development it will be essential that a process be put into place to ensure that industry feedback is captured and that technical updates can be made simply and quickly.

The cotton industry has come a long way with implementation of BMP. Practices that only our progressive growers would have thought possible ten years ago are now the industry minimum standards. The industry should be proud of its achievements. However the bar continues to rise and through BMP we can control both our own standards and rate of progress. Implementation of BMP is moving forward but we have considerable work to do leading up to and long after our June 31st 2001 commitment. Whether we can achieve our target is arguable, but one thing is sure, the Australian Cotton Industry has provided a good model for improving environmental performance that will lead agriculture into the new century.

