Strengthening Practice Change, Education & Extension in Reef Catchments

INDUSTRY BEST MANAGEMENT PRACTICES (BMP)

Focus

This paper summaries industry BMPs relevant to reef catchments and considers how they support adoption of targeted practices. In the context of this review, the particular focus is on encouraging and supporting practice change. The aim is to provide a background paper for the Review of Extension and Education as part of addressing " Recommendation 3: Extension and Education of the Great Barrier Reef Water Science Taskforce".
[http://www.gbr.qld.gov.au/documents/gbrwst-finalreport-2016.pdf]

Industry Sectors

The two largest sectors in reef catchments by landholders are beef cattle grazing (9,083 businesses) and sugar cane growing (3,316 businesses)[1]. Other agricultural sectors within reef catchments are: irrigated and dryland grain, pulse and cotton cropping, a wide range of horticulture including bananas as well as dairy farming.

BMPs

Rationale

Industry BMPs have their genesis in Environmental Management Systems (EMS) which were designed to be completed by landholders regardless of their commodity and region.

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[1] ABS (2013)

The background and process for EMSs is documented in a national framework[2]. EMS provides a management framework based on a simple 'plan, do, check, act' cycle that achieves continual improvement. Historically EMSs had a very low uptake by landholders as there is little in the way of policy drivers or market incentives for agricultural commodity EMS certification. In contrast BMPs are founded on specific industry practices.

In the main industry and Government policy agendas have been the stimulus for the development of industry BMPs. From this, resourcing has flowed to design and deliver BMPs. To illustrate, the driver for the first industry BMP, that of the cotton sector, was driven by significant community and government concerns about spray drift from pesticide applications. The industry response was the development of *my*BMP which commenced in 1997. The regional NRM group Fitzroy Basin Association (FBA) initiated the development of a grains and grazing BMP commencing 2007 and 2009 respectively in each case they partnered with AgForce and Department of Agriculture and Fisheries (DAF).

From 2012 onwards the Queensland Government took a policy decision to directly invest in industry BMPs in reef catchments as a voluntary instrument and shift away from land holder regulations. The initial focus was a grazing and cane industry BMP, with the grazing BMP partly developed and some modules delivered in pilot workshops, whilst the development of the cane BMP commenced following an agreement with Canegrowers. This direct investment in the development and delivery of BMPs clearly had the focus of encouraging and supporting voluntary improvement of land management practices to achieve enhanced water quality outcomes.

More recently investment has been made in developing Banana and Horticulture BMPs. To add to the geographic spread, grazing and horticulture BMP delivery is now supported in South-East Catchments as a means of improving water quality in Morten Bay. To cover the two other major sectors in the reef catchments, dry land cropping has the grains BMP available and dairy farming relies on the national program DairySAT.

Additionally, the Australian Government directly and indirectly supports industry BMPs and follow-up training and extension support through the National Landcare Program and more recently Reef Trust investment.

BMP process

All BMPs are available online and can be completed independently. However, the majority are completed with industry facilitator support in a workshop or one on one environment to work through the self-assessment process. The availability of project resources dictate the level of support for module completion. In the main, the content (standards) are grouped into modules and have a below, at and above industry levels. The documented industry standards have been developed by industry and research experts based on the best available science and best industry practice. Whilst some BMPs have endeavoured to cover all aspects of the business others are not as comprehensive, for example excluding people and business management.

BMPs are self-assessment tools and in general are only as effective as the understanding/knowledge and integrity of a participant's assessment. In parallel with EMSs they are based on a simple 'plan, do, check, act' cycle where participants can identify where there are opportunities for change (improvement) in their practices. Where a participant identifies a practice change, the BMP process allows an action plan to be produced. In some cases, the action may be acquiring additional information or a new skill prior to effecting the practice change.

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[2] Australia's National Framework for Environmental Management Systems in Agriculture Natural Resource Management Ministerial Council Oct 2002

The provision of information and training may be integrated into BMP events with a twofold purpose of raising awareness and providing an opportunity for skill development (e.g. soil health, farm safety). However, this is not universal. This process has a twofold purpose, of stimulating a more critical and informed participation self-assessment as well as the provision of relevant information. All BMPs encourage participants to repeat their self-assessment on a routine basis, for example Grains suggesting annual reassessment.

Data gathering

BMPs are a very data rich environment and in the majority of cases the data is held by the relevant industry organisation. However, given Government funding, periodic reports are required with aggregated summaries of industry practices across specific geographic areas. Given the background of potential reef regulations all BMPs provide assurances that individual participant results will remain anonymous and only aggregated data reported.

Initially the level of participation and balance of below, at and above industry standard was of interest, now with the completion of reassessed modules, there is greater interest in the number of participants that have reassessed and improved their practice. There was however one interesting Grains BMP experience where there was a reduction in the average level of standards for some practices upon reassessment. The explanation suggested was that growers were now better informed and are making a more 'critical' self-assessments due to their improved knowledge and understanding of the self-assessment process.

The other and critical use of the results for extension is the opportunity to identify where additional skill development may be required. Two approaches are taken to identify the extension needs, firstly where data is reviewed on a district basis to identify where practices are low for specific standards and secondly, where some BMPs request participants to complete a training expression of interest form to identify training and extension support they are interested in. Both data sets can bring an efficiency to the content selection and geographic targeting of follow-up extension delivery as well as improved coordination across providers. The on-going challenge for those involved in extension/advice delivery is, whether project resources are available and whether there is flexibility in existing project commitments to address the identified needs. The other opportunity for this data is to better inform current and future industry research and development investment. There is also scope for the private sector and input suppliers to link in with identified gaps and needs with improved servicing/advice in a win/win arrangement with clients – for example, precision agriculture.

Accreditation

The two primary BMPs (Grazing and Cane) funded by the Queensland Government require that a percentage of those completing a BMP be audited by a third party to assure credibility and integrity in the self-assessment results. For Grazing BMP those successfully completing an audit achieve the status of an Accredited Producer which is valid for three years. However, there are currently no market signals that reward accredited producers and hence a weak value proposition for producers. There could potentially be scope to increase 'social recognition' and hence peer encouragement. Cane growers need to have completed three modules to be eligible for accreditation prior to nominating for an audit. For the cane BMP, independent third party industry audits are used as part of the BMPs monitoring, evaluation and performance review with a random sample being selected anytime within the following five-year period. On the other hand Cotton growers may elect to have an audit completed of their self-assessment to achieve *my*BMP accreditation which will be current for five years.

Currently audits costs for both cane and grazing BMPs are met by the respective projects (Qld Government funding). In New Zealand, auditing (compulsory and user-pay) of Nutrient Management Plans in currently being phased in (pers com N Botha).

Summary of the sector BMPs

Banana sector

The Australian Banana Growers' Council with support from the Queensland Government deliver Banana BMP. The program is also supported by Horticulture Innovation Australia. The BMP was launched at Banana Industry Congress in 2013. Banana BMP is a single point where growers can get information about suggested farming practices, reflects the structure of Freshcare's Environmental Code and provides a checklist, management plan (priorities for change) and resources to help. Modules include:

- Land and soil
- Biosecurity
- Pesticides
- Integrated pest and disease management
- Fertilizer and soil additives
- Water
- Waste
- Energy
- Fuel

Dairy sector

The Dairy Self-Assessment Tool (DairySAT) is a voluntary national environmental self-assessment and action planning tool for Australian dairy farmers and is funded by industry levies. DairySAT is an environmental self-assessment and action planning tool for Australian dairy farmers. It covers 10 key topic areas: Soils, Fertilisers, Effluent Management, Irrigation, Greenhouse Gas Emissions, Biodiversity, Energy and Water in the Dairy, Pests and Weeds, Chemicals, and Farm Waste. DairySAT enables farmers and the broader dairy industry to:

- Understand the environmental issues facing dairy farming;
- Benchmark on-farm environmental management practices with industry best practice;
- Identify the most critical environmental management practices on their farm;
- Develop action plans to address the identified practices;
- and Access further information to understand environmental issues and improve practices on farm

Cotton sector

*my*BMP is a voluntary farm and environmental management system which provides self-assessment mechanisms, practical tools and auditing processes to ensure that Australian cotton is produced according to best practice. The original BMP program began in 1997 and was reviewed and redeveloped in 2006-07 with the new online 'myBMP' system re-launched in 2010. *my*BMP is hosted and managed by Cotton Australia with funds from the National Landcare Program and Cotton Research and Development Corporation. *my*BMP provides the opportunity

for participants to benchmark their practices (across all the business) and identify where they sit against industry standards. *my*BMP advisors are available to support growers complete the program and resources available include the latest research findings and legislation, on-farm tools and templates for workplace health and safety matters.

*my*BMP modules include:

- Biosecurity
- Energy
- Fibre quality
- Integrated Pest Management
- Pesticide Management
- Petrochemical storage and handling
- Farm safety
- Water management Natural assets
- Healthy soils and accountability

Grains sector

The Grains BMP program is a voluntary, industry led process which helps broad acre grain growers to identify improved practices which can help improve the long-term profitability of their business. It also helps identify the steps needed to be taken to incorporate best management practices into an enterprise. Grains BMP was initiated by FBA with the support of AgForce and the Department of Agriculture and Fisheries (DAF) in 2008.

Action plans associated with these modules are developed by individual growers to help identify and prioritise improved practices for their own farm. Grain growers can complete the modules independently, with assistance from an advisor or in groups. The Grains BMP modules are:

- Soil fertility management
- Property design and layout
- Pesticide application
- Making best use of rainfall
- Integrated pest management
- Managing climate risk

Grazing sector

The Grazing BMP program is a voluntary, industry led process which helps graziers to identify improved practices which can help improve the long-term profitability of their business. It also helps identify the steps needed to be taken to incorporate best management practices into an enterprise. Grazing BMP was initiated by FBA with the support of AgForce and the DAF in 2010. Grazing BMP is now delivered by partner organisations across three reef regions and SEQ with funding support from the Queensland Government. Grazing BMP comprises of 157 standards and divided into the following modules:

- Soil Health
- Animal Health and Welfare
- Animal Production
- People and Business
- Grazing Land Management

Grazing BMP has an accreditation system in conjunction with ISO19011 which enables producers to independently audit their businesses through a third party, against a set of core criteria within the program. This also ensures credibility and integrity in the data.

Horticultural sector

Hort360 is a computer based, risk assessment tool, which is designed to give an overview of farm business operations. It is a whole of farm business approach. The program is voluntary, managed by Growcom with funding support from the Queensland Government. Growcom provide one-on-one support to complete Hort360. If practices are below the industry standard advice will be offered as to what necessary actions are required to reach the right level. The modules available in Hort360 are:

- Sediment and nutrient management
- Water quality
- Irrigation
- Workplace safety
- Industrial relations

Sugarcane sector

The Smartcane BMP is led by Canegrowers with Queensland Government support and is a voluntary best practice system for cane growing across Queensland, aiming to support business productivity, profitability and stewardship. Smartcane is delivered by partner organisations across all growing districts. The BMP facilitators work with growers to develop an action plan to assist them to meet the required standard. Action plans are designed to suit each individual farmer and their business and support is provided to assist in the implementation of the actions. Seven BMP modules are included and are aimed at addressing whole of farm operations:

- Drainage and irrigation management*
- Pest, disease and weed management*
- Soil health and plant nutrition management*
- Crop production and harvest management
- Natural systems management
- Workplace health and safety management
- Farm business management
- Managing people and the environment

*Core modules to be completed for a grower to achieve accreditation.

The Smartcane BMP modules have been modified to align with the on-farm criteria used by Bonsucro which provides international standards for sustainable sugar. Bonsucro is designed to establish global market access across a wide range of production systems.