

Mango Industry Capacity Building Program

Trevor Dunmall
Australian Mango Industry Association Ltd

Project Number: MG10016

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Summary

This project underpinned a wide range of activities which were designed to address the industry development needs of the Australian mango industry. The key areas of activity within the project included industry development, communication, crop forecasting, and biosecurity.

Prior to the commencement of the project, an industry development needs assessment was developed concurrently with the development of the industry's strategic plan. The industry strategic plan had 4 priority areas.

The 4 priority areas are:

- Industry Profitability
- Orchard production and fruit quality
- Information and knowledge
- Management and growth

Through this project, the delivery on these priority areas was focussed on 4 activity areas. These activities areas are:

- Industry Development (including industry benchmarking)
- Communications
- Crop Forecasting
- Biosecurity

This project, and through linkages to other projects and activities, has been instrumental in delivering a range of outcomes for the industry.

These activities and outcomes include:

1. A significant industry wide benchmarking project that provided participating businesses the opportunity to gain a greater understanding of the income streams and costs associated with mango production. This project provided participating businesses the opportunity to look at their own practices and compare them with other businesses.
2. Respected communication, including the quarterly publication Mango Matters, monthly email bulletin AMIA Activities, which has been renamed 'The Slice', and the industry website, which hosts a range of information including daily reporting of wholesale prices throughout the season.
3. Events such as the biennial national mango conference, held in 2011 (Darwin) and 2013 (Cairns), an annual export forum (2012, 2013 and 2014) regional pre and post-harvest meetings in key production regions as well as wholesale markets, and study tours to China and Brazil/Peru.

4. Reliable crop forecasts to provide the industry with prior knowledge of the timing of harvest for each main production region as well as estimates of production volumes. This allowed greater planning in preparation for the season for all industry participants.
5. An awareness and alertness of biosecurity issues. The Australian mango industry, in partnership with State, Territory and Federal Governments, has managed incursions of Mango Malformation, and remained alert for potential incursion of pests such as Red Banded Mango Caterpillar and Mango Leaf Gall Midge.
6. Improved access to crop protection products, such as Scholar, Actara, and chemicals that have been under review, such as dimethoate and fenthion.

Keywords

Industry Development

Communication

Enterprise Assessment

Crop forecasting

Biosecurity

Benchmarking

Introduction

The Australian mango industry is located throughout northern Australia. Major production regions include Mareeba / Dimbulah, the Burdekin/Bowen and Darwin/Katherine.

Smaller, but still important regions include Gingin, Carnarvon and Kununurra in Western Australia; Bowen, Rockhampton / Yeppoon, Bundaberg, Gympie and the Lockyer Valley in Queensland; and northern New South Wales. Small numbers of trees have also recently been planted in the Mildura region on Victoria.

The industry comprises of approximately 800 growers as well as a wide range of associated businesses.

Production businesses range in size and produce varieties unique to Australia. While the industry was dominated by the Kensington Pride variety, believed to have originated from India, over the past 25 years the range of new Australian bred varieties, such as R2E2, Calypso and Honey Gold, have increased in production and now produce significant volumes through the season. Other international varieties, such as Keitt, Kent and Palmer are grown, mainly in Queensland. New varieties, either bred in Australia, or introduced from other breeding programs are being trialed to evaluate the commercial viability.

While many of the challenges that face the industry are common across many horticultural enterprises, mangoes face several unique challenges. These include distance to market, the need for more research in areas from production through to post harvest, the need for improved accurate and timely information through a very short harvest season, and the need for increased management tools for issues such as crop nutrition, canopy management and pest and disease management.

Methodology

The Mango Industry Capacity Building Program is a multi-faceted industry program which aims to ensure outcomes that have been identified as essential to support the development of the Australian Mango Industry are achieved during the term of the project.

An Industry Development Needs Assessment Plan (IDNA) was completed by the Australian mango industry in 2010. The IDNA plan was developed concurrently with the 2010 - 2013 Australian Mango Strategic Investment Plan. These two plans were seen as essential in outlining success markers and strategies to address issues affecting the Australian mango industry.

The Mango Industry Capacity Building Program aims to improve the delivery of information and services, and benefits to growers and other stakeholders in the mango industry. As outlined in each of the programs milestone reports:

The program will assist in a co-ordinated whole of industry approach, but with a focus on key areas aligned with the industry strategic plan.

The strategic plan has been prepared by the Australian Mango Industry Association (AMIA), the national peak body for Australia's mango industry. Its purpose is to provide a framework for industry growth and development.

AMIA facilitated the development of the strategic plan and together with Horticulture Australia Ltd. (HAL), will have responsibility for its implementation. The strategic plan is prepared against a background of influences, principal among them:

- The challenge to maintain product quality right along the supply chain – thus minimising wastage at retail level and maximising consumer satisfaction.
- An industry with a strong regional structure and those regions with their own production and market drivers.
- Acknowledgement that the industry, while it has both Marketing and Research and Development levies, has very limited resources to undertake activities and so must focus on issues of greatest need and impact.

This project employed an Industry Development Manager (IDM) to implement the range of activities within the scope of the project. Also within the scope of the project, staff were employed to work on the crop forecasting/crop flow component of the project and consultants contracted to undertake specific activities in relation to biosecurity and benchmarking.

The project mid-term review recommended that communication was critical component and

that this facet of the project needed increased resources. In mid-2013, a communications consultant was contracted to work on a part-time as needs basis with the project and in January 2014, a Communications Officer was appointed.

The involvement of the Board of AMIA was integral to this project as the Industry Development Manager and Communications Officer worked with the Board to implement the program of activities. The project delivery priorities were based on the industry strategic plan and the industry development needs assessment.

Outputs

The outputs of this project and activities and projects associated with this project include the following:

Crop Forecasting

Establishment of an Australian crop forecasting system. Transitioning of the crop forecasting system from the Northern Territory Department of Primary Industries and Fisheries to a national system managed by AMIA. This transition was assisted by the project MG08026, with the system rolled out and tested in other regions in Queensland and Western Australia. The system has evolved to include crop forecasting, the timing of harvest, using flowering dates, heat units and grower feedback. The system has been developed to include crop volume estimates and monitoring of actual dispatch volumes.

Communication

Publications – Mango Matters, a quarterly magazine style publication and AMIA Activities, recently renamed 'The Slice', a monthly ebulletin. These are important communication vehicles that provide information to industry participants. There are still a significant number of industry members who do not have easy and reliable access to the internet and hard copy publications, such as Mango Matters are valued. Mango Matters is also available in electronic format for those who prefer this method of delivery.

Mango Conferences – 8th Australian Mango Conference – Darwin May 2011 and 9th Australian Mango Conference – Cairns May 2013 (funded through Voluntary Contribution projects).

Meetings and workshops:

Pre and post-harvest workshops in major production regions and key wholesaler workshops

Meetings with major retailers an annual basis

Website The industry maintains a website which contains a range of information. One part of the site is focused on consumers and marketing and the other part of the site is focussed on industry. The website has been reviewed and the industry website has been upgraded in 2014.

Industry Development

Enterprise Assessment

This component of the project evolved during the course of the project. It became evident that increased production costs without the equivalent increase in returns to growers has been placing increasing financial pressure on mango growers. While the delivery of technology remains a key industry and project focus, it was also important that work was undertaken to address long term grower viability.

As an important component of this project an enterprise assessment project was undertaken by Howard Hall from CDI Pinnacle. The enterprise assessment project is based on a project currently underway in the banana and avocado industries.

Growers participated in the project which looked at areas such as:

- Production costs
- Grower returns
- Impact of yield and quality on business profitability
- Business viability.

A pilot study commenced in July 2012 and the study was expanded to include 38 production businesses in 2013. The project concluded in mid-2014. While individual business information and analysis will remain confidential, the overall industry analysis has been presented at regional grower meetings as well as the 9th Australian Mango Conference, in Cairns in May 2013.

Mango handling workshops: These workshops were held in the Perth markets in the 2013/14 season and facilitated by mango post-harvest specialist, Mr Scott Ledger with mango wholesalers and growers from southern Western Australia.

Industry Risk Management: Industry needs to be prepared and have a well-considered plan for unforeseen events. Examples of an event that could cause significant damage to the industry include contamination of fruit by a harmful bacterial organism, pesticide residues above the maximum residue level or natural disasters, such as a cyclone causing significant crop damage. The company Control Risks undertook a workshop to develop a crisis management plan in association with the industry.

Dimethoate and fenthion

The IDM has participated in workshops relating to the Australian Pesticide and Veterinary Medicines Authority (APVMA) review of dimethoate and fenthion. In the early 2000s, the industry funded research into both dimethoate and fenthion and the results of this research

have been used to provide data for the APVMA review of dimethoate and fenthion. The APVMA released the final review of dimethoate in October 2011. The use pattern for mangoes remains unchanged. The final report on the fenthion review was released during 2014, and while application post-harvest is retained, pre harvest application has been removed.

Export

This project has acted as a communication and liaison vehicle between industry and DAFF Market Access. The industry focus has been on both gaining access to new markets, improving current protocols and developing existing markets.

Export workshops

Organise and facilitate an annual one day mango export workshop, with delegates from industry and Government present to discuss issues relating to export. The annual workshops commenced in 2012 and have been held in 2013 and in 2014. In 2014, two facilitated workshops were held with the aim of developing a new industry export plan. Attendees included representatives from exporters, growers, Northern Territory Dept of Primary Industries and Fisheries, Queensland Department of Agriculture, Fisheries and Forestry, HAL, DAFF Market Security and Exports. The workshop's main focus was to improve industry understanding of issues related to market access, phytosanitary protocols, market development activities and where industry should be focussing its activities and endeavours. It is planned that the export forum will become a regular event held on an annual basis.

Mango industry study tour

A grower study tour to Brazil and Peru occurred in May 2012. The study tour's primary focus was to gain a greater understanding on how growers in these countries manage their crops to spread the harvest period and also the management of pests and diseases, in particular Mango Malformation Disease. The tour was funded through the HAL VC project MG11701.

Biosecurity

Mango industry biosecurity plan – The mango biosecurity plan was reviewed and updated as part of a five year review through work undertaken by industry, with significant leadership by Dr Fiona Giblin from Biosecurity Queensland and the significant input of staff from Queensland Department of Agriculture, Fisheries and Forestry (QDAFF), Northern Territory Department of Primary Industries and Fisheries (NTDPI&F), Western Australian Department of Agriculture and Food (WADAF) as well as industry.

The manual provides information on:

- Biosecurity
- Mango pests
- Product management

- People and Biosecurity
- Biosecurity best practice checklist
- Fact sheets on key exotic mango pests and diseases

In addition, an orchard biosecurity manual was developed that provided growers with practical on farm guidance in addressing biosecurity issues.

A Mango Malformation workshop was held on the 7th and 8th December 2010, with one of the world's leading researchers into mango malformation, Dr Stanley Freeman from the Volcani Institute in Israel attending as well as leading Australian plant pathologists and researchers. Dr Freeman also returned to Australia to present information on the disease at the 8th Australian mango conference held in Darwin from the 18th to the 21st May 2011.

Biosecurity preparedness

Following Dr Freeman's initial visit to Australia, noted leading Australian plant pathologist Dr Greg Johnson agreed to assist with the industry's response to any future Mango Malformation incursions. Through Dr Johnson's involvement, industry has gained an improved understanding of the management of incursions and the development of improvements in the manner in which incursions will be managed. The IDM co-ordinated industry response to biosecurity incursions, including participation in meetings with the Consultative Committee on Exotic Plant Pests (CCEPP) and Scientific Advisory Panels (SAP). This included SAP meetings related to Mango Malformation as well as several CCEPP meetings on Mango Malformation.

Program Management

AMIA communicated and liaised with researchers; HAL staff and others in the industry to assist develop and deliver activities that are beneficial to the industry.

Outcomes

Crop Forecasting

The establishment of a national crop forecasting system and the development of a crop flow system is providing all sectors of industry with current and accurate information on the timing of harvest for each region as well as the volumes of product (trays) being shipped to markets on a weekly basis during the season.

While the mango season stretches from September to March each year, seasonal climate and weather patterns can influence the timing of the harvest for each region and also the volume of harvest. Accurate crop forecasting is important as it provides industry participants with an objective assessment of when the harvest will commence in each region and allows them to plan for the season. This information is used by many sectors of

the industry, from on farm service providers (e.g. carton manufacturers, labour hire companies) to the wholesale and retail sector. This is especially important for large retailers when planning their category management and marketing programs.

Providing estimates of volumes for each region allows sectors, such as transporters, wholesalers and retailers to be better prepared when they have knowledge of what volumes to anticipate.

The system is now being used by the majority of larger production enterprises as well as medium to small production enterprises as a guide to harvest periods. 80% of the larger mango production enterprises (enterprises with more than 20,000 trees) have contributed to and utilise the information provided by the crop forecasting system. An estimated 60% of other commercial enterprises (1,500 to 20,000 trees) view the crop forecasting information (based on feedback at grower meetings).

The information from this system is now being used by Australia's major retailers to better implement their category management programs and the timing of targeted marketing campaigns. For example, during the early part of the 2014/15 season, retailers adjusted their marketing campaigns based on information received from the industry crop forecasting system.

Communication

The mango industry is spread across wide geographic regions throughout Australia. While the majority of production is in northern Australia, there is significant production in other regions. While developing the export market is a priority for the industry, the industry at present is heavily reliant on the domestic market. Communication to these markets is very important. This industry uses a range of methods to communicate to all sectors. Importantly, project staff meet with people from the range of industry sectors on a regular basis. Examples include meeting growers at regional meetings and on farm, meeting wholesalers in markets and visiting major retailers on a regular basis. This provides the opportunity for regular feedback on issues impacting the industry.

Publications – Mango Matters, a quarterly magazine style publication and AMIA Activities, recently renamed 'The Slice', a monthly ebulletin. These are important communication vehicles that provide information to industry participants. There are still a significant number of industry members who do not have easy and reliable access to the internet and hard copy publications, such as Mango Matters are valued.

While The Slice has information on topical issues, and links to other sites for those readers who need more information, Mango Matters, is used as the industry's primary tool to communicate on a range of issues, for example, research outcomes, issues relating to pesticide reviews, marketing updates, pest and disease information, exotic pest incursion information and general industry issues, both at a national and regional level.

Mango Matters is available both in print and also electronically. The industry distributes 800 copies of Mango Matters on a quarterly basis. The Slice is also distributed on a monthly basis to 800 people within the industry. The distribution of Mango Matters has reduced by

20% over the life of the project due to people leaving the industry and a review of the distribution list to ensure only those people directly involved in the industry received the publication.

Mango Conferences – 8th Australian Mango Conference – Darwin 18th to 21st May 2011 and 9th Australian Mango Conference – Cairns 14th to 17th May 2013 (funded through VC projects). The mango conference is an opportunity for people in the industry to gather together and focus on the issues impacting the industry. The conferences have a heavy focus on presenting the outcomes of research, but the focus has spread to exports, marketing and business issues.

Meetings and workshops – Each year, AMIA host pre and post-harvest workshops in major production regions and key wholesale markets. These workshops and meetings are an opportunity for presentations on market conditions, a review of the season, and a focus on issues growers and wholesalers need to be aware of for the forthcoming season. The meetings and workshops also provide an opportunity to present updates on research activities and participants to provide feedback on issues impacting on their businesses and their region.

The attendance at workshops has increased during the life of the project. This is attributed to several reasons, including a focus on improved content and increased communication with growers in the lead up to the workshops and field days. For example, during 2014, pre-season workshops were held in major production regions during July, August and September. Attendance at each workshop is included in the table below. This is an estimated 30% increase in attendance over the life of this project.

Workshop location	No. of attendees (growers, QDAFF staff, supplier representatives)	Estimation of percentage of regional production managed by people attending workshops
Darwin, NT	35	80%
Katherine NT	14	80%
Mareeba, Qld	60	60%
Bowen, Qld	31	50%
Ayr, Qld	29	70%
Bundaberg, Qld	16	50%

Website -The industry maintains a website which contains a range of information. One part of the site is focused on consumers and marketing and the other part of the site is focussed on industry. The website focused on industry has been refreshed during 2014 to provide easier access to information and ensure the information is accurate and timely. Information includes market prices and conditions (during the season), research project outcomes,

industry statistics, resources and information of a general nature pertinent to the industry.

There has been a major increase in use of the website over the life of the project (Google Analytics). Comparing similar time periods during the early peak of the mango season illustrates the increase in website traffic. Comparing the period, 30th September to 30th November in 2014 with the same period in 2011 shows the increase in website use.

Number of sessions: increase by 217%

Number of users: increase by 194%

Number of page views: increase by 166%

This information demonstrates that the website is an important communication vehicle and the industry needs to ensure the site is maintained with accurate and timely information.

The project mid-term review, undertaken by independent consultant, Dr Jeff Coutts, provided the following assessment of the communication component of this project. The assessment is from a range of industry stakeholders.

Industry informants were quite positive about the communication outputs from the program. They commented on the value of information presented in the Mango Matters magazine, the Conferences and workshops. There were also comments relating to workshop participation with some noting it is good and others noting the challenges of engaging growers. Comments relating to the Mango Matters and the Mango Conference were overall favourable. Several attributed the success of the conferences to the review carried out at each conference: collecting attendees' feedback to inform the next conference. Comments relating to communication outputs included:

- It is being delivered well. The turnout to our workshops was 50 people at one and 25 people at another. There is some criticism from others that the Mango Matters is not very useful, but I read the whole thing and always find something of benefit. [Grower]
- Brilliant! Every time we go to a conference we always come back with important information to improve our business. Whether it is new information or old information reinforcing what we are doing, it is getting growers together to discuss issues. [Grower]
- There is always a good range of speakers at the conferences and relevant information to what we are doing. [Grower]
- The conference is constantly evolving and they are trying to improve information delivery to engage growers. It has always been well attended by service providers and wholesalers. The challenge is to engage growers. They have also upgraded their website. The Mango Matters is also a good read. They are doing a good job

delivering information. It is a big task. [Service Provider]

- The conferences are very good. You cannot believe how good they are until you attend one. And the fact they review after each conference to help improve and direct the next one. The newsletter is a mighty powerful and quality output. It is very important this keeps going as it is. [Grower]

The results of an industry communication survey undertaken early in the life of the project provide an assessment of the value of the communications component of this project.

- 90% said they find the Mango Matters magazine either “Somewhat useful” or “Extremely useful” in providing information on production-related matters.
- 80% answered similarly for the AMIA Activities monthly email bulletin

Industry Development

Enterprise Assessment

This component evolved during the course of the project. It became evident that increasing production costs without the equivalent increase in returns to growers has been placing increasing financial pressure on mango growers. While the delivery of technology remains a key industry and project focus, it was also important that work was undertaken to address long term grower viability.

Participating growers now have a much better understanding of their businesses and what aspects of their businesses impact on their viability. These parameters include production costs for each activity, yields, pack out quality and proportion of first grade compared to other grades of mangoes. Each participating grower received their own individual report and a report comparing their businesses with other businesses within the industry.

Industry Risk Management: Industry needs to be prepared in the event for any unforeseen events. The development of a crisis management plan provides the opportunity for the industry to consider a range of issues that may impact on the industry (for example, severe weather events) and how the impact of these events can be best managed. The plan also identifies the range of potential issues, and how each issue will be managed.

Dimethoate and fenthion

The mango industry uses these products to manage fruit fly, both in the orchard and in the packing shed. Both products have been under review by APVMA. Following the review of dimethoate there is little change of use of the product and it maintains registration for both pre and post-harvest. The review of fenthion has resulted in the pre-harvest use being restricted but the post-harvest use being retained, with some amendments to the condition of use.

Export

This project has acted as a communication and liaison vehicle between industry and DAFF Market Access. The industry focus has been on both gaining access to new markets, improving current protocols and developing existing markets.

Export workshops

Holding export workshops provided key industry participants (growers, exporters, researchers, Federal, State and Territory Government staff) an opportunity to openly discuss challenges and opportunities for the development of the export markets for fresh Australian mangoes.

These annual workshops led to a greater understanding of the issues impacting on market access and the development of phytosanitary protocols.

Mango industry study tour

This study tour was undertaken to provide participants with a greater understanding of mango production in other countries and to look at both production and export issues. Importantly the study tour focussed on the methods used to manipulate crop flowering and therefore harvest timing. This information has led to research being commenced in the Northern Territory focussed specifically on manipulating the timing of flowering, utilising some of the techniques studied in Brazil and Peru.

Biosecurity

Having a professionally developed biosecurity plan provides the industry with tools and processes to follow in the event of a pest or disease incursion. In addition, an orchard biosecurity manual provides information to growers on biosecurity issues and raises awareness throughout industry on issues and how to be better prepared to manage pest or disease incursions.

Facilitating a Mango Malformation workshop and inviting leading researcher, Dr Stanley Freeman from the Volcani Institute in Israel, as well as leading Australian plant pathologists and researchers was instrumental in the industry gaining a greater awareness and understanding of the potential threat to industry from Mango Malformation.

Following Dr Freeman's initial visit to Australia, noted leading Australian plant pathologist Dr Greg Johnson agreed to assist with the industry's response to any future Mango Malformation incursions. Through Dr Johnson's involvement, industry has gained an improved understanding of the management of incursions and the development of improvements in the manner which incursions will be managed.

During the period of this project, the IDM has co-ordinated industry response to biosecurity incursions, including participation in meetings with the Consultative Committee on Exotic Plant Pests (CCEPP) and Scientific Advisory Panels (SAP). This included SAP meetings related to Mango Malformation as well as several CCEPP meetings on Mango Malformation.

Program Management

This project has provided the industry with the ability to communicate and liaise on the wide range of activities within the mango industry, Horticulture Australia and other Federal, State and Territory Departments of Agriculture/Primary Industries. This not only includes mango levy funded activities, but activities and research projects funded through other sources, such as the Australian Centre for International Agricultural Research (ACIAR), HAL staff and others in the industry to assist develop and deliver activities that are beneficial to the industry.

The project mid-term review, undertaken by independent consultant, Dr Jeff Coutts, provided the following assessment of the industry development component of this project. The assessment is from a range of industry stakeholders.

The program was seen by industry informants as being vital and valuable: *without [the IDM] we would be in the 19th Century. [The IDM] is really important.* In particular reference was made to the value of the program's extension and communication of matters relevant to the industry and supporting growers as well as those Agribusinesses attempting to communicate with growers. It was also noted that as a *diverse* industry, the program is important in addressing and delivering a unified mango industry solution. A QDAFF participant commented that *it is vital they [the mango industry] have someone who can fight fires and has the capacity to do something in the industry. In the past this role was played by government, now industry has taken the role back. Personally I would not invest in the Mango Industry if this project was not in place with its current structure.*

Industry informants agreed that that *Mango Industry Capacity Building Program* has benefited from the work done by the IDM. His impact and contribution to the program can be summarised by these comments:

- *You have to view the program in context. It is a very disjointed industry. [The IDM] has to work in a difficult environment, constantly looking for new information, inspiring presenters, getting attendance. He has worked hard to build a good rapport with the tools he has had available. He is doing well. [QDAFF]*
- *I believe that before the role of [the IDM] was created the industry had poor representation. [Grower]*
- The Management Committee considered that the participation of the IDM in industry and government committees was crucial in getting value for the industry – and the level of input could not be achieved by Board members alone. It was noted that the *playing field is changing* and the industry needed to be properly represented. The project was seen as providing an effective mechanism for industry coordination – there would be fragmentation otherwise. This includes coordination across states, sectors and the market chain. This was seen to provide real supply chain benefits. It also ensures that information is brought together and disseminated and made available across the industry. This process also allowed issues to be identified that needed to be addressed.

Evaluation and Discussion

In late 2012 and early 2013, this project was subject to a mid-term review, undertaken by independent consultant Dr Jeff Coutts. The review made a range of findings and recommendations. It is appropriate to consider this reports findings and recommendations when evaluating this project for the final report.

The mid-term review reported that there was a strong message from the range of informed persons that the IDM's role within the project had been critical in coordinating information and input across regions and sectors of the value chain, and that the project/IDM is engaging with the industry strategically and as much as possible given the limitations of staff and resources. This issue has been addressed by the appointment of a part time consulting Communications Manager and the appointment of a Communications Officer. The quality and timeliness of communications from this project has improved significantly since these appointments occurred

Feedback on outputs from the project has been very positive. This ranges from the contributions to Strategic Industry Plans, export protocols and chemical regulations to communication and engagement activities such as the conference, workshops and Mango Matters. There appears to be some work still to be done on the crop forecasting system – but progress has been made and the value understood. Since the release of this mid-term review, improving the crop-forecasting systems has been a priority of the project and the Capacity Building project Stage 2 also reinforces the importance of having an accurate, industry supported and well-resourced crop forecasting system.

The success of this project has seen the industry support (through the Industry Advisory Committee) the second stage of this style of project and the Capacity Building Stage 2 project, which commenced in July 2014. This project continues on the activities of the Capacity Building Stage 1 Project and as discussed above, provides additional resources in the communications and crop forecasting components of the project.

Recommendations

The project has delivered a range of outputs and outcomes to the industry. Several recommendations of the mid- term review have been implemented. The Capacity Building Stage 2 project has already commenced.

The recommendations from the mid-term review have been considered and implemented in the Capacity Building Project Stage 2. These include:

- Ensure each component of the project is well resourced
- Aim to have measurable performance indicators in the project. This can be challenging for some components of the project, but there should be consideration to have enough deliverable outputs so the progress of the project can be measured
- Ensure that future projects of this type have the flexibility to adapt to changing industry priorities. For example, if the industry develops a new strategic plan, then, projects of this nature need to be able to be amended if the new plans' priorities are different from the previous plan.
- A monitoring and evaluation process needs to be considered. The independent review of this project was invaluable in that it highlighted areas that needed attention, but also provided feedback on the positive aspects of the project. Where there are few tangible outcomes, improved methods of assessment of the value of the activities need to be considered early in the life of the project.
- A business plan should be developed to develop alternative funding strategies for project and activities within the project to reduce the burden on levies.

Scientific Refereed Publications

Not applicable

IP/Commercialisation

Not applicable

References

Not applicable

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Appendices

nil