



FINAL REPORT

(due within 3 months on completion of project)

Part 1 - Summary Details

Cotton CRC Project Number: 5.01.01

Project Title: Cotton Training Coordinator

Project Commencement Date: 1st July 2005 **Project Completion Date:** 30th June 2008

Cotton CRC Program: The Adoption

Part 2 – Contact Details

Administrator: Helen Kamel (Principal Coordinator- External Funding)

Organisation: Department Of Primary Industries and Fisheries

Postal Address: PO Box 241, Darling Heights, Qld 4350

Ph: 07 46315 380 **Fax:** 07 4631 5378 **E-mail:** helen.kamel@dpi.qld.gov.au

Principal Researcher: Mark Hickman (Principal Development Extension Officer)

Organisation: Department Of Primary Industries and Fisheries

Postal Address: PO Box 102, Toowoomba Qld 4350

Ph: 07 4688 1206 **Fax:** 07 4688 1472 **E-mail:** mark.hickman@dpi.qld.gov.au

Supervisor: Geoff McIntyre (Principal Development Extension Officer)

Organisation: Department Of Primary Industries and Fisheries

Postal Address: PO Box 993 , Dalby Q 4405

Ph: 07 4669 0801 **Fax:** 07 4662 4966 **E-mail:** geoff.mcintyre@dpi.qld.gov.au

Signature of Research Provider Representative: _____

Part 3 – Final Report Guide (due within 3 months on completion of project)

(The points below are to be used as a guideline when completing your final report.)

Background

1. Outline the background to the project.

The Cotton Training Coordinator project (5.1.01) was developed from the previous three year CRDC funded project: 4.2.04 AC (IPM Training Coordinator). The IPM coordinator project focused on the development and implementation of a very successful Integrated Pest Management course within the Australian cotton industry. The IPM course was the first industry developed grower training program to be linked to a national training competency from the vocational education sector. The target audience was cotton producers with the primary focus of increasing their capacity to implement a more challenging pest management program. This course used a “hands on” approach in terms of delivery and was strongly based on adult learning principles. This particular project was successful and well received.

Since the completion of the IPM workshop series, the industry has experienced a greater challenge, the skills shortage. Nationally, the cotton industry is no different to any other agricultural sector. This industry is facing, through competition with alternative employers and climatic hardship, a reducing level of appropriate skills and a physical reduction in the available labour for positions at all levels within the industry. The challenge is to build a resilient industry to meet the skills shortage and to ensure the workforce has the best skills set to address the current industry challenges.

This challenge was a driver in the formation of project 5.1.01. The cotton industry wanted to expand on the success of the IPM training coordinator position with a project that fostered the development of other training programs using this vocational competency alignment model. The industry also wanted to create a point of reference for vocational education and training issues. The establishment of a point of engagement with the vocational sector ensured the skills developed both internally and externally to the industry increased the desired training/skilling capacity of the cotton industry. This development lead to the formation of a more national and strategically focused position created within the Australian cotton national extension team. The position was referred to as the CRC Cotton Training Coordinator (Project CRC 5.1.01).

Project 5.1.01 had three primary charters. Firstly, to assist in the development and implementation of industry funded training. Secondly, to identify new opportunities for training that could be developed by extension and researcher networks with the training coordinator conducting assessments of training opportunities which should be aligned to national competencies. Finally, the 3rd charter was to build networks and relationships with the vocational educational and training sector an achievement which would advance the development of a training culture and increase the influence of the cotton industry in areas addressed within the national training agenda.

Objectives

List the project objectives and the extent to which these have been achieved.

Project 5.1.01 had three objectives and all were comprehensively achieved. The following descriptions outline the agreed areas of work which were implemented. Full details of work conducted is presented in the result section of this report.

Objective 1: Facilitate, coordinate and align national competencies where appropriate, to targeted industry short courses that are developed.

Objective 2: To facilitate and promote the interaction between the Cotton Industry and the Vocational and Technical Education sector.

Objective 3: To provide the cotton industry with a technical resource for vocational and technical education and training related issues.

Methods

2. Detail the methodology and justify the methodology used. Include any discoveries in methods that may benefit other related research.

This project was an extension and adoption project. All training courses were developed for the industry in collaboration with various industry educational working groups. The primary driver for the development of a course's content was to address the issues which were identified by industry. The secondary driver for course content was the information required to meet the national competency chosen for alignment to that industry course.

A second component of the project involved establishing and developing relationships with various vocational education and training organisations. Organisations such as Agrifood Industry Skills Council (AFISC), Department of Education Training and the Arts (DETA), Tocal College, NSW Board Vocational Education and Training (BVET) and Department of Education Science and Training (DEST). These relationships were established and fostered by participation in workshops and meetings conducted by these organisations and by initiating personal visits to head offices to meet key personnel.

Results Section

This section is a combination of both what outputs (Q3) and associated outcome (Q4) have been achieved by the project's activities.

3. Detail and discuss the results for each objective including the statistical analysis of results.

AND

4. Describe how the project's outputs will contribute to the planned outcomes identified in the project application. Describe the planned outcomes achieved to date.

Objective 1: Facilitate, coordinate and align national competencies where appropriate, to targeted industry short courses that are developed.

IPM Short Course Activity

a). New production areas

Whilst no full IPM grower short course has been completed during the life of this project, there has been a need to educate new producers entering the cotton industry, especially those producers located in new production areas exploring the opportunity to enter the cotton industry. In order to address this need, a significantly reduced one day IPM workshop was developed. This workshop was held at both Ayr (Qld) and Griffith NSW during 2007.

The main outcome from both these workshops was a heightened awareness among these future and current producers of the complexity and unique management skills required to grow cotton in these more southern and northern regions of the established production areas. The workshops included technical information, field walks for hands on activities, facilitated group discussion combined with regional comments provided from pioneering local growers from within the group. In both cases the feedback was very positive.

b). IPM short course review.

A series of focus groups involving previous participants of the Cotton CRC IPM short course was conducted in November 2007. The review was conducted to investigate how to proceed with the course. Overall, the review indicated the IPM course still had a role within the industry, but perhaps with a different focus to the original course.

The following recommendations from the IPM short course review (2007) were reported on the CRC Centric database and submitted to CRDC for consideration.

1. Modernising the current IPM short course for Bollgard Cotton technology was essential. Once achieved, then the course should be shelved and rolled out when new people or regions required a course.
2. Training activities should focus on developing a course that is more holistic in nature - a course that outlines what growers should be doing in farming practices to achieve high yielding crops and which focuses on nutrition, comparative economic results, water management.
3. Precision Agriculture (PA) course. There is a need to have a *PA course for Dummies*. The course should cover how does the average producer get the most from PA and ensure individuals understand the basics for implementation.
4. The future format of short courses should be modelled on the structure and style of the IPM short course as the growers enjoyed the experience.

5. Future courses should link BMP activities and formal educational competencies. The growers felt this would be a good strategic move for the industry. There should be a continuous improvement cycle established.
6. Advertisement of aligning training to competencies was seen as insignificant, but certainly not negative. No grower looked at the alignment aspect as a major draw card. However no participant indicated that this was a reason not to proceed with the course. In fact, alignment to competencies was seen as a neutral aspect to the training.

Cotton CRC / CSIRO Field to Fabric Training course:

The Cotton Training Coordinator position had significant input into the development of this workshop. Initially, the project focused on the delivery structure and then on developing various evaluation aspects associated with the course. The training course provided an opportunity for increased grower interaction with the post farm gate sector of the industry. The course was primarily developed to encompass all components of the supply chain considering management impacts at each level on quality of the final product, the yarn. The workshop concept focused on educating everyone in the supply chain to engage meaningfully with a process one level up and one level down from their position.

Once the course was established and fully operational, an evaluation and review role was assumed by the training coordinator, initially conducted after each course and then on an annual basis. Evaluation of participant learning commenced from the first pilot. All pre and post course data sheets since the 2005 pilot courses have been analysed demonstrating strong trends and impacts. To date, there had been 175 participants in 7 courses. The following evaluation data excludes the last two courses (Nov 2007 and July 2008) since the evaluation data had not been processed at the time of this report. Despite this, the workshop intelligence previously captured would suggest the trend would not vary greatly.

Evaluation data indicates participants were strongly supportive of the course and the associated activities. On average (n=134), the participants indicated an average increase of 56% between their pre and post course knowledge. The following quotes are a sample of the take home messages recorded via grower comments. *"I now see the importance of quality cotton right through the supply chain, particularly when you consider the unattractive premiums rewarded for something so important".* Another grower commented that he would: *"Spend more time analysing quality and try and trace back where quality problems occur. I need to increase vigilance on contamination and work with merchants to try the same. I certainly will be targeting a long staple in the future."*

The evaluations asked the participants to write a brief few lines on how they would describe the course. There are a few such comments that give a good insight into people's impression. The *"course delivered a good understanding of cotton processing pathway and also highlighted the complexity of the spinning process. Including how fibre quality impacts on this"*. Another participant commented: *"1. Refreshing and Challenging. Details : **Refreshing** since I was able to meet the people in the supply chain (growers, ginnery, merchants, spinners. Also I was able to engage in dialogue with each person's view - Interesting. **Challenging** : Trainers encouraged participants to think further with respect to fibre properties and their relations to textile."*

The course is having a significant impact in changing individual's boundary as to where they believe their responsibility starts and finishes in relation to fibre quality. Reducing both foreign and vegetable contamination and producing good quality cotton for the spinning sector have both been key attributes or take home messages expressed by participants. Both aspects are important issues which should be addressed in maintaining and enhancing Australia's global cotton reputation.

Cotton Grains Irrigation Management Workshop Series

This workshop series was developed as part of the Phase II NPSI Knowledge management project lead by Knowledge Broker, David Wigginton. An Irrigation Training Group (ITG) was established including the Cotton Training Coordinator with the role of providing recommendations on delivery structure and alignment to competencies within the national training packages.

The final course presented a new training structure in the form of a series of discrete, but related workshops delivered as "hands on " field workshops. All workshops were aligned to training competencies to some degree and various combinations of the workshops contributed towards a unit of competency. However, the competency is issued through a combination of workshop evidence and post workshop interviews. Evidence collected at the completion of each field day was stored on a web database and can be accessed if and when the grower requires the information. When a grower wishes to obtain the unit of competency, this course evidence and assessment interview, known as a recognition of prior learning assessment, are used to develop a portfolio of justification of how the individual meets that competency requirements.

There were a number of benefits of this style of training including:

- Each workshop was short. The aim was for each workshop to be approximately 3 hrs in duration which is much better for participants, both in terms of their availability and their ability to absorb new information.
- Each workshop was practically focussed on a single topic. This allowed workshops to integrate on farm trials and research into the delivery mechanism.
- The format was significantly more flexible. Individuals were able to attend those workshops that were most relevant to them, and the order in which workshops were delivered is typically not fixed.
- The format enabled better integration of adult learning principles. Workshops are conducted 'in the field' with real examples and data. Duration is short so that attention spans are maximised. Practical activities and assessment tasks are wholly integrated.
- The training could be marketed as grower workshops or integrated into farm walks or field days, getting away from the stigma that is sometimes attached to formal training. Hence, the word training has been removed wherever possible, the training simply named the '*Cotton and Grains Irrigation Workshop Series*'.

- Workshops could be used as a mechanism to bring together mixed groups of participants to share knowledge. The aim is to form groups around these workshops, so that the participants drive demand for the workshops they want and become comfortable with their fellow participants. It is hoped this will lead to improved knowledge sharing between participants over time. For this reason, it is recommended that workshops are not run on an advertised schedule, but are specifically facilitated according to the demands of different participant groups.

Table 1 lists how the workshop series align to the nominated units of competencies. Table 2, illustrates the titles of the workshop listed in table 1. Table 3, highlights how the workshop series is aligned to other industry and vocational courses and how the course contents are aligned to the contents of the land and water module of the industry BMP manual.

Table 1

Competency Code	Workshop Code
RTE4603A	2, 4, 5
RTE4605A	1, 2, 4, 6, 7
RTE4609A	1, 2, 4, 5, 7
RTE5604A	1, 2, 3, 4, 5, 6

RTE4603A Implement an irrigation-related environmental protection program
RTE4609A Implement, monitor and adjust irrigation schedules
RTE4605A Schedule irrigations
RTE5604A Develop an irrigation and drainage management plan

Table 2:

Workshop code	Workshop Topic
1	Benchmarking and Water Budgeting
2	Scheduling I
3	Pumps
4	Surface Irrigation Performance Evaluation
5	Storage and Distribution Systems
6	Metering
7	Scheduling II

Table 3

	Units included in Irrigation Workshop Series				Additional Units Required for that award
	RTE4603A	RTE4605A	RTE4609A	RTE5604A	
Cert IV Agriculture (cotton or grain)	Non-listed Elective*	Listed Elective	Non-listed Elective*	Non-listed Elective*	9
Cert IV Irrigation	Compulsory	Compulsory	Compulsory	Non-listed Elective	8
Diploma Irrigation	Non-Listed Elective*	Non-Listed Elective*	Non-Listed Elective*	Listed Elective	9
IAL Certified Irrigation Manager (Cotton)	Yes	Yes	Yes	Yes	RTE4602A
IAL Certified Irrigation Agronomist		Yes	Yes	Yes	Choice of 3 other units
CCA Certified Cotton Consultant	TBC				
IAIST Agcredited				Yes	Choice of 7 other units

* - Only 2 non-listed electives can be used to contribute to the qualification.

RTE4602A Determine hydraulic parameters for an irrigation system

Cotton / Grains Irrigation Workshop Series Database Development: Both the Knowledge Broker (David Wigginton) and the Cotton Training Coordinator (Mark Hickman) have designed a training web database for the Cotton and Grains Irrigation workshop series. The site is hosted on the Irrigation Futures CRC website. This is one example of the innovative practices developed by the knowledge management project. This online database was designed and developed to act as a pilot for future industry training databases. Remote trainers within the regions are able (via a password and username) to upload individual workshop details and scanned and link evidence of participants work into a central web database. The database is secure, with multiple access permissions layers required for data integration and posting. Public access is not granted and trainers have only limited access to the database, with permissions granted for only posting of workshop and participant

information. Major advantages of the database are: the ability to integrate in years to come; assessment of an individual's training status; provision for recommending individual training required for a unit of competency as formal recognition of their efforts if desired.

FarmBis Target Industry Initiative Project

This strategic project investigated how the cotton BMP assessment manual aligns to competencies contained within the Australian training packages leading to the development of a mapping document that clearly demonstrated an alignment to 19 training competencies from three packages: Business Management, Rural Production and Land Conservation training packages.

Following a review of the mapping report, ten of the 19 possible units of competencies were selected and packaged to form a Diploma of Agriculture (specialising in cotton). The Diploma of Agriculture initiated the concept of a Certified BMP Farm Manager Industry award. The term "Certified BMP Farm Manager" translated into a Diploma of Agriculture qualification for the VET sector. This new industry award represents industry acknowledgement of an individual's skill set developed in gaining BMP accreditation to the farm. An assessment process and structure has been developed in association with the new award which has been endorsed by the ACIC BMP Committee.

Industry interest in this award continues to develop. At the time of writing this report, 15 people had started the RPL assessments, with nine applicants successfully achieving the Diploma of Agriculture. Of these, five people have achieved the status of Certified BMP Farm managers since their enterprises were BMP accredited. An industry launch and presentation of the industry's first certificates occurred at the 14th Australian Cotton Conference in August 2008.

Funding under the target industry initiative project has developed a platform for increasing the adoption of RPL assessments and promote the benefits of undertaking a BMP accreditation both personally and for that business enterprise.

Objective 2: To facilitate and promote the interaction between the Cotton Industry and the Vocational and technical education sector.

Cotton Industry Skills Development Pilot Program

This project was an initiative of Cotton Australia and funded by the Australian Government Department of Education, Science and Training under the National Skills Shortages Strategy. The purpose of the pilot project was to develop and trial a range of training delivery and assessment strategies to address industry skills needs. Central to this project was the development of an industry specific Skills Recognition, Training and Career Pathway. The Pathway comprises five levels aligned to the Australian Qualifications Training Framework (AQTF) from pre-vocational training through to Diploma level qualifications.

Cotton Australia coordinated the development of the training framework for the industry to consider. Conceptually, this project reduced the level of choice in the traditional certificate II in Agriculture (specialising in cotton) and repackaged the units of competencies to reflect the pre vocational and new employee skill sets needed to satisfy industry employment. This process was repeated for the certificate III to Diploma levels leading to the now familiar names of Cotton Seed , Cotton Basic, Cotton Intermediate and Cotton Advance.

The Training Coordinator worked very closely with the project manager Niel Jacobsen on both the industry implementation and advisory role as a member of the Project Steering committee. The use of Recognition of Prior Learning (RPL) was another key strategy trialled under this program. The Training Coordinator position assisted in the customisation of standard assessment templates used to conduct the RPL interviews for cotton. These RPL assessment templates will provide key documentation for the industry to ensure rigorous assessment is repeatable across various RTOs.

Finally, the Cotton Australia pilot program trialled and established the Cotton Seed and Cotton Basics programs into the Farrar Memorial Agricultural High School as part of the VET in Schools curriculum for years 9 to 12. To support this development, the Training Coordinator held a professional development day for teachers from across the North West NSW region who wished to implement the Cotton Seed or Cotton Basics program. The day was aimed at giving these educators the understanding and real life examples of the skill sets they were teaching. The professional development program was developed closely with Graeme Harris (Head Agricultural teacher / Regional VET Coordinator at Farrar) and Niel Jacobsen to ensure the program being developed built on the strengths and addressed the deficiencies of the teachers. The pilot was extremely successful.

Engagement with vocational organisations.

In July 2007, a presentation was delivered by the Training Coordinator to the NSW Board of Vocational Education and Training (BVET) conference. The presentation, titled “Creating cotton skills: How the Cotton CRC is engaging with the VET sector”, outlined the opportunities which could be fostered to strengthen the current industry – VET relationship. This presentation was well received and generated numerous post conference interaction with various vocational organisations. Both the cotton and dairy industries were considered at the time as leaders in this area.

Fostering relationships with the VET sector is an important role of this position. To facilitate this aspect, the coordinator has engaged in vocational surveys and requests and participated in meetings conducted by the following organisations: Agri-Food Industry Skills Council (AFISC), Bendigo Regional Institute TAFE, Tocal College, Rural Skills Australia, Department of Agriculture Fishing and Forestry (DAFF), Department of Education, Employment and Workplace Relations (DEEWR)

, Qld FarmBis State Advisory Board and the Department of Education, Training and the Arts (DETA).

The interaction with both DETA and AFISC was of particular interest. DETA are responsible for the allocation of resources to meet Queensland's training needs. To assess these agricultural needs, DETA sought advice from several organisations including QDPI &F which has established a "Rural Skills Strategy Advisory Group", which provides advice to DETA. At the request of Di Edelman (QDPI &F – Coordinator Rural Industry Skills), the Cotton Training Coordinator annually submitted an industry letter developed in collaboration with numerous bodies such as CA, CRC, CRDC, and ACGRA to capture needs of the cotton industry in addressing the current skill shortages. This information was used in conjunction with other sources by DETA to develop a skills plan for the future. Engagement by the training Coordinator directly with Di Edelman provides DETA with the information required for making a strategic well informed government investment.

Development of skill guides for Cotton and Grain.

AFISC represents the skilling and training interest of all agrifood commodities at the federal level. Therefore, a key aspect of their business is to engage industry in assessing needs and training material development. The Training Coordinator is a key cotton contact for AFISC. Recently, three national training packages (Rural Production, Conservation Land Management and Amenity Horticulture) have been merged into one. The package will now be referred to as the Agriculture Conservation Horticulture package (ACH).

The merging of packages has allowed a rationalisation of competency units by AFISC. The benefits are two fold: firstly, it has allowed the redesigning of individual, unit content. Secondly, the total number of units to be managed by AFISC has been reduced. A reduction of total units and a generalisation of information within the unit allows any desired skill set to be adaptable across any rural commodity. Industry into the future will have a greater role in determining what examples and skills that are taught under these competencies. A training provider will have to demonstrate how their workshop meets the needs of industry via industry endorsement. Training providers will have access to a new set of documents known as the industry skills guides to ensure that what is delivered is what industry requires. The Cotton Training Coordinator is a member of the steering committee developing the first pilot of skills guides on behalf of AFISC for the certificate III in Agriculture for both cotton and grains. A set of Certificate III skills guide has been developed and submitted to DEEWR for approval.

Development of a machinery skills training

The Cotton Training Coordinator was a member of an industry reference group guiding the development and implementation of a NSW DET funded pilot program called the “North West machinery partnership project”. This project is addressing the labour shortage for trained machinery operators in both the cotton and grains industries - graduates from this program will have machinery skills relevant to both industries. On Monday 15th September, 15 participants graduated with a statement of attainment for several machinery maintenance and operational competencies. This pilot program was deemed highly successful by the industry reference group and could lead to a rural skills passport style program in the future. The machinery project shows how industry and training providers can work collaboratively together to deliver an industry skill set which is common across commodities.

Objective 3: To provide the cotton industry with a technical resource for vocational and technical education and training related issues.

Alignment of Queensland Land and Water Management Plans and Cotton BMP Accreditation

Cotton Australia has successfully negotiated with the Queensland Department of Natural Resources and Water the accreditation of the Cotton BMP program as an approved Queensland Land and Water Management Plan. This is a significant achievement which has subsequently triggered many Queensland producers to become accredited under BMP entitling them to trade water allocations.

During these Cotton Australia negotiations, the Cotton Training Coordinator provided independent training advice to both Geoff McIntyre (Queensland DPIF working party representative) and Sarah Hindmarsh (NRW Senior Policy Officer). In particular, the advice reviewed the competencies from the national training packages which could be used to ensure the assessors in both the NRW and Cotton Australia organisations had equal skill sets in auditing against state requirements. After a series of meetings, an agreement was reached between both NRW and Cotton Australia on the standard of technical expertise required to perform the audits. The advice provided was pivotal to the final outcome.

Increasing Cotton Careers Through Science at School

This training project has also assumed a facilitator role by brokering activities between other departmental and external projects and industry representatives and fostering the development of vocational education in secondary school. The successful Cotton Basic program implemented at NSW Tamworth Farrer Agricultural school is a solid model that should be considered for implementation into Queensland schools. In addition, the use of vocational education programs to promote science in the secondary school system has been another area of activity.

Engagement with Ms Peta Jackson (Senior Science Officer- Queensland Education) was a key contact in achieving these aspirational targets.

A jointly convened meeting with Ms Peta Jackson was held to discuss the future interactions and linkages between the Cotton Industry and Queensland Schools science programs. Participants included Dan Galligan (Cotton Australia), Cleave Rogan (ACGRA), Niel Jacobsen(VET Consultant) Bob Ward (Rural Skills Australia), Geoff McIntyre (DPIF) , Helen Dugdale (CRDC),Gordon Stone (VET consultant) and Michael Flietcher (DPIF).

The meeting resulted in a document being generated that listed suggestions for the Cotton CRC to consider as a way forward in addressing a school program. Recommendations included the potential establishment of a Cadetship, the need for industry to provide professional development / close working relationships with regional teachers and finally to implement the Russell model for school engagement. The suggestions from this Toowoomba meeting were considered by the Cotton CRC at a subsequent meeting in Narrabri after the CRC employed a schools coordinator to establish and foster educational engagement.

CCA Engagement, review of CCA Professional Development scheme

Amber Diamond (CEO, Crop Consultants Australia) had been presented with a discussion paper by David Wigginton (NSW DPI) and the training coordinator outlining how consultants could achieve both national competencies and professional development points via industry developed competency based training. The model presented was the Cotton & Grains Irrigation Management Workshop series.

The suggestion proposed is that CCA members obtaining professional development points via vocational training could be considered as achieving a higher level of PD points compared to points awarded by simply attending a field day or technical update. The rationale was vocational training assessment measures both skill sets and implemented outcomes. Subsequently, association members who elect to achieve a unit of recognised competency should receive extra professional development. Unfortunately, the CCA executive did not respond to the discussion paper and the awarding of current points has not changed. A disappointing outcome given consultants could have had the opportunity to gain a formal qualification whilst achieving professional development.

5. Please describe any:-

- a) **technical advances achieved (eg commercially significant developments, patents applied for or granted licenses, etc.);**

No technical advances were achieved by the project.

- b) other information developed from research (eg discoveries in methodology, equipment design, etc.); and**

This project successfully developed, in partnership with NSW's Tocal College, modification of Tocal college's recognition of prior learning assessment sheet for the cotton industry. This assessment sheet has packaged units of competencies to the requirements of a Diploma of Agriculture (specialising in Cotton Production), using evidence and industry practices relevant to the cotton Irrigated Farming System. More details can be found in the result section of this report under the heading "FarmBis Target Industry Initiative Project".

- c) required changes to the Intellectual Property register.**

No relevant.

Conclusion

6. Provide an assessment of the likely impact of the results and conclusions of the research project for the cotton industry. What are the take home messages?

The Cotton Training Coordinator project has made several significant achievements over the past three years of funding. The establishment and resourcing a Cotton Training Coordinator has provided a contact point for the vocational education and training sector to engage with the cotton industry. A good working relationship with various vocational organisations such as Agrifood Industry Skills Council, Department of Education Employment and Work Relations and the Queensland's Department of Education, Training and the Arts (DETA) were created through this position, generating various invitations to joint numerous project steering and advisory committees. This strategic involvement has ensured the cotton industry skills needs are tabled for consideration at the federal and state training agenda. Active participation in the development of the 2007 and 2008 Queensland Rural Skills plan is one example of this beneficial interaction. This plan has been prepared by the Department of Primary Industries and Fisheries to help advise DETA in Queensland identify the agricultural skill needs required.

The project has proven the viability of linking field extension activities with units of competencies from the Australian Qualification Training Framework. The Cotton and Grains Irrigation Workshop series is a good example of how this practical link can occur. The workshops are short three hour in-field events that have been developed to assist the adoption of industry research in water management. The development of the workshop contents addressed the key research / extension messages in addition to the requirements of selected water and environmental units of competency from the Rural production training package. The vocational alignment provides greater rigour to the final product and provides a clear pathway for producers to obtain a formal qualification in the future if they wish to do so by using this training experience.

The development and industry endorsement by Australian Cotton Industry Council (ACIC-peak industry body) for a new industry award known as the Certified BMP Farm Manager

(*aka* Diploma of Agriculture – specialising in cotton production) is another significant milestone. The training coordinator was able to demonstrate how a unique skill set developed by an individual via the implementing and achieving BMP accreditation for their farm, can be assessed and recognised by the vocational sector as achieving a Diploma of Agriculture- Specialising in Cotton Production. The process of achieving a certified BMP Farm Manager award is not an automatic award upon a farm achieving accreditation. Rather, the applicant undertakes an assessment via the recognition of prior learning pathway to demonstrate their new skill sets. This assessment is substantial and rigorous with an independent registered training organisation (RTO) conducting the process. Successful applicants receive both the Diploma from the RTO and an award from industry. This new industry award provides the eligible individual with a marketable skill both within and outside the irrigated farming system. A legacy this project has been generated for years to come.

Extension Opportunities

7. Detail a plan for the activities or other steps that may be taken:
 - (a) to further develop or to exploit the project technology.
 - (b) for the future presentation and dissemination of the project outcomes.
 - (c) for future research.

The foundations and relationships developed by the Cotton Training Coordinator project will be enhanced and extended via the current CRC project (project CRDC 00066: National Cotton Training Coordinator). It is expected that this project will continue to work closely and foster relationships with the National Cotton Extension Team, industry researchers, industry bodies (CRDC, ACGRA and Cotton Australia) and finally numerous representatives from the vocational sector. Future extension activities will include the promotion and adoption of the new industry award known as a Certified BMP Farm Manager (*aka* Diploma of Agriculture specialising in cotton production). Training developed and extended will continue to be an integration of vocational education and training material with the new BMP program. The project will explore and develop engagement pathways based on information gathered from alternative rural industries such as grains, sugar, beef, horticulture and dairy. Exploring training programs may lead to more innovative extension and vocational training techniques that may be suitable for an irrigated farming system.

Publications

9. A. List the publications arising from the research project and/or a publication plan.

(NB: Where possible, please provide a copy of any publication/s)

Conference Papers :NON refereed

Hickman M.A, *Maximising Your Training Efforts: A New Way Forward For The Australian Cotton Industry*, 13th Australian cotton conference, Broadwater Queensland 2006 (Conference DVD)

Hickman M. (2007) Milestone 3 Report, Cotton FarmBis Targeted Industry Initiative Project.

Hickman M, Collie G, (2007), *Cottoning on to training bonus* ,_Queensland FarmBi\$ Press Release 9th October 2007

Hickman M, Wigginton D, (2007) *Cotton And Grains Irrigation Workshop series: Recognition For Your Skills, On Farm Series: People & Knowledge What's New Fact Sheet*, Cotton Catchment Communities CRC, November 2007.

Hickman M, (2007), *CVCB Survey report: Investigations of Extension Planning and potential involvement of Vocational Technical and Educational Planning*. CRDC and CRC Internal paper.

Hickman M, Wigginton D, (2007)_*CCA Discussion Paper: Amending the current CCA professional point system to differentiate between competency based training and non competency based training*. , CRDC and CRC Internal paper. October 2007

Hickman M, (2007) *Integrated Pest Management Short course Review*, CRDC and CRC Internal paper, October 2007.

Hickman M.A, *Vocational Extension: A New Era is Dawning*, 14th Australian cotton conference, Broadwater Queensland 2008 (in press)

Wilson L, Hickman M., Deutscher, S, *Research update on IPM and secondary pests*, 13th Australian cotton conference, Broadwater Queensland 2006 (Conference DVD)

Hickman M. (2007) Milestone 2 Report, Cotton FarmBis Targeted Industry Initiative Project.

Industry Documents- Acknowledgements

Bayley D., Jacobsen N., (2006), *Improving Labour management in the Cotton Industry*, NSW Department of Primary Industries publication, Training manual for labour management Workshops.43pp

Media Articles

Cotton research and Development Corporation, "Recognition of learning and Skills in extension workshop", Spotlight magazine Autumn 2008 Issue, p9.

Cotton research and Development Corporation, "Diploma in Agriculture a bonus for BMP farm managers", Spotlight magazine Autumn 2008 Issue, p10.

Presentation

Hickman M., Dugdale H, (2008) "Aligning National Competencies with the Cotton Industry's Best Management Guidelines for Strategic Training", Queensland FarmBis Targeted Industry Initiative Projects 2008 Forum, Indooroopilly Golf Club, 13th May 2008

B. Have you developed any online resources and what is the website address?

Yes a training web based database has been developed and it is currently being hosted on the Irrigation Futures CRC website.

Address: <http://www.cottonandgrains.irrigationfutures.org.au/>

Part 4 – Final Report Executive Summary

Provide a one page Summary of your research that is not commercial in confidence, and that can be published on the World Wide Web. Explain the main outcomes of the research and provide contact details for more information. It is important that the Executive Summary highlights concisely the key outputs from the project and, when they are adopted, what this will mean to the cotton industry.

The first exposure the cotton industry had to linking industry developed training programs to the vocational education sector occurred between 2002-2005, with the funding of an extension project called the IPM Training Coordinator (project AC 4.2.04). The experience was extremely positive and well received by industry. Subsequently, the Cotton Training Coordinator project (5.1.01) was established. It was a strategic position within the Cotton Catchment Communities CRC extension team. The project had three foci. Firstly, to assist in the development and implementation of industry funded training across all research areas. Secondly, to identify training opportunities within cotton that had potential alignment to the vocational education system. Finally, the third was to build networks and relationships within the vocational educational and training sector. Achieving these objectives would advance the development of a training culture and increase the influence of the cotton industry within the national training agenda.

Establishing and resourcing a Cotton Training Coordinator for the industry provided a contact point for the vocational education and training sector to engage with the cotton industry. A good working relationship with various vocational organisations such as Agrifood Industry Skills Council, Department of Education Employment and Work Relations and the Queensland's Department of Education, Training and the Arts (DETA) was created generating various invitations to joint numerous project steering and advisory committees. This strategic involvement has ensured the cotton industry skills needs are tabled for consideration at the federal and state training agenda. Active participation in the development of the 2007 and 2008 Queensland Rural Skills plan is one example of this beneficial interaction. This plan has been prepared by the Department of Primary Industries and Fisheries to help advise DETA in Queensland on the required agricultural skill needs .

The project has proven the viability of linking field extension activities with units of competencies from the Australian Qualification Training Framework. The Cotton and Grains Irrigation Workshop series is a good example of how this practical link can occur. The workshops are short three hour in-field events that have been developed to assist the adoption of industry research in water management. The development of the workshop contents addressed the key research / extension messages in addition to the requirements of selected water and environmental units of competency from the Rural Production training package. The vocational alignment provides greater rigour to the final product and provides a clear pathway for producers to obtain a formal qualification in the future if they wish to do so by using this training experience. Potentially, a more effective use of their time.

This project's development and industry endorsement by Australian Cotton Industry Council (ACIC- peak industry body) for a new industry award known as the Certified BMP Farm Manager (*aka* Diploma of Agriculture – specialising in cotton production) is another significant milestone. The training coordinator was able to demonstrate how a unique skill set developed by an individual via the implementing and achieving BMP accreditation for their farm, can be assessed and recognised by the vocational sector as achieving a Diploma of Agriculture - Specialising in Cotton Production. The process of achieving a certified BMP Farm Manager award is not an automatic granting upon a farm achieving accreditation. Rather the applicant undertakes an assessment via the recognition of prior learning pathway to demonstrate their new skill sets. This assessment is substantial and rigorous with an independent registered training organisation (RTO) conducting the process. Successful applicants receive both the Diploma from the RTO and an award from industry. This new industry award provides the eligible individual with a marketable skill both within and outside the irrigated farming system. A legacy this project has been generated for years to come.

For more information regarding this project contact Mark Hickman (National Cotton Training Coordinator Queensland Department of Primary Industries / Cotton CRC) on mark.hickman@dpi.qld.gov.au.