

# AgSIP 15 Project



***Enhanced natural  
resource  
management in  
irrigated cotton and  
grains***

Findings Summary



March 2007

## **Acknowledgments**

This report is based on an informed persons' survey of stakeholders of Ag15 – *Enhanced natural resource management in irrigated cotton and grains*. The survey was undertaken by Coutts J&R with Liesel Rennie undertaking interviews and the initial data analysis. The Ag15 team provided the background, initial questions and contact details. The input from the informed persons who were happy to participate and give of their experience is acknowledged and much appreciated.

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## **Key Findings**

### **Overall**

It is clear that this project was well known and strongly supported across the stakeholder groups (by those aware of the project) represented in the informed persons' survey. The informants rated the project highly in terms of raising the profile of NRM issues, impacting on knowledge and understanding and strengthening collaboration. There was also a high level of belief across many informants that the project had already had an influence on on-farm planning and decision-making as well as having contributed towards regional NRM planning and implementation. The role of the NRM officers were seen to be an important component of this success and this was highlighted by 'hands-on' methods being seen to be the most useful in bringing about change in this area. NRM extension officers and Cotton Australia were seen to be the logical deliverers of NRM extension with NRM bodies and regional extension officers providing the strategic overview. BMP was seen to be a good framework although in need of extending beyond its current boundaries. Water use efficiency and soil management were seen to be the biggest priorities to tackle. An overall impression is that the informants saw a need to build on the momentum built up during this project.

### **Awareness**

Most of the 30 informants rated their knowledge of the project as medium to very aware with their interaction ranging from only occasional contact, regular contact with the project and its coordinators to discuss plans and regular contact and involvement in the project activities (2 respondents had little knowledge of the project). The level of involvement was relatively equal across all stakeholder groups.

### **Raising the profile**

Most informants rated the contribution of the project in raising the profile of NRM issues within the cotton industry as moderate to high (2 as low). The most common mentions were about the value of the coordinators themselves, the usefulness of newsletters and field days, and having raised the profile of NRM in the industry.

### **Impact on knowledge and understanding**

Over half of the informants considered that the project had made a significant impact on improved knowledge and understanding of NRM issues within the cotton industry with the remaining informants rating it moderate (and 2 low). Common comments included 'noticeable improvements', and the project having reinforced knowledge. It was noted by a number that there was a way to go yet.

### **Influencing planning and on-farm management decisions**

A third of informants believed that the project had already significantly impacted on planning and on farm management decisions with another third seeing a moderate influence (only 3 considered there was little to no impact at this level). The most commonly mentioned impact was the positive input the project has made towards the BMP.

### **Contribution towards regional NRM planning and implementation**

Over half of the informants who answered this question (8 felt they had insufficient knowledge to answer this) believed the project has made a significant contribution towards regional NRM planning and implementation with a number rating it as moderate (3 rated it as low). There were comments across all groups included that the project has exceeded all expectations – and the variation in impact across regions was noted.

### **Impact on improving collaboration**

In general, collaboration was seen to have significantly improved by most informants. In particular it was noted an increase in collaboration with Cotton extension teams, improved relations with Cotton growers and cotton consultants and that Cotton researchers were now more accessible as a result of the project. Respondents also noted that in some instances, relationships were unchanged because they already had frequent contact with certain groups.

### **Value of the NRM extension officer role in the cotton industry extension program**

All respondents viewed the role of the NRM extension officers as of some value, with a third viewing it as being essential to the success of extension in the industry, and half believing the role is important.

### **Sectors who should be most involved in the future delivery of NRM extension**

Informants believe that those sectors/groups that should be most involved in the future delivery or NRM extension in the cotton industry are: Cotton Australia Grower Services Managers and NRM Extension Officers. Respondents also see regional extension officers and NRM body staff/Landcare taking a strategic role. Water efficiency officers also received a high number of mentions followed by private consultants.

### **Most useful methods**

The most useful methods for NRM extension in cotton farming systems were noted by informants as field demonstrations and one-on-one extension. Also highlighted as useful were grower groups, workshops, technical notes and newsletters. Respondents also mentioned case studies, bus trips and training programs as being (less) useful tools in NRM extension efforts. It was interesting to note that web information was viewed as least useful.

### **Future priorities**

Informants noted water use efficiency and soil management as the highest future priorities for the content of NRM extension, with salinity, biodiversity and nature conservation at the next level of importance. These were followed by riparian and vegetation and water quality. Greenhouse, carbon use (dependence on fossil fuels) and weeds were noted by some informants.

### **Usefulness of BMP as a framework**

Almost all of the informants believe the BMP is a good to excellent framework for the delivery of NRM extension. The comments noted that it could be made (even) more effective – for example by including more NRM issues.

## Background

This informed persons' survey was undertaken at the end of the Ag15 project – *Enhanced natural resource management in irrigated cotton and grains*. An informed persons' survey was chosen to understand how the project was viewed, and what impacts were observed, by individuals who represented a range of stakeholder interests in the project. The telephone survey was undertaken by an independent company with potential participants being advised of the survey before being contacted.

### AgSIP 15

The AgSIP 15 project has the aim of building capacity in irrigated cotton and grain farming systems for sustainable management of natural resources through providing technical skills and expertise to support landholders implementing industry Best Management Practices (BMP) initiatives and addressing priority areas identified in regional NRM plans. Its objectives were given as:

- Raise awareness of regional plans within irrigated cotton and grain industries
- Facilitate linkages to provide technical support to the industry in all aspects of NRM management
- Contribute to ongoing enhancement of BMP approaches to accommodate wider NRM requirements
- Support industry partnerships with key R,D&E organizations involved in NRM, regional bodies and wider community

The expected outputs were provided as:

- NRM extension methodology for irrigated cotton and grain
- Information resources for landholders
- Structured communication strategy to highlight landholder responsibilities and opportunity
- Landholders understanding the targets of NRM plans
- Technical support to Land and Water BMP module
- Growers planning and implementing sound NRM strategies
- Documentation of biodiversity benefits and trials to enhance biodiversity and gain community and industry interest

### Survey approach

The purpose of this end of project telephone survey was given as to:

- Provide strategic recommendations regarding the future direction of NRM extension in the cotton industry
- Evaluate the impact of the NRM extension project
  1. Evaluate relationships established and maintained
    - *Improved coordination*
    - *Contribution to regional NRM processes*
    - *Relevance of project to industry*
    - *Relevance of project to regional planning process*
  2. Evaluate extension processes used and developed
    - *engagement*
    - *“staff skills”*
    - *New tools & processes*

A total of 30 survey participants were required coming from:

- Cotton Australia (5)
- NRM Bodies & sub-bodies (5)
- CRC Cotton extension staff (4)
- Cotton CRC (3)
- Researchers (2)
- CRDC (1)
- ACGRA (2-3) – NB: also growers
- IAWM (1)
- Growers (4)
- Consultants (2)

Other internal information available to supplement this report includes:

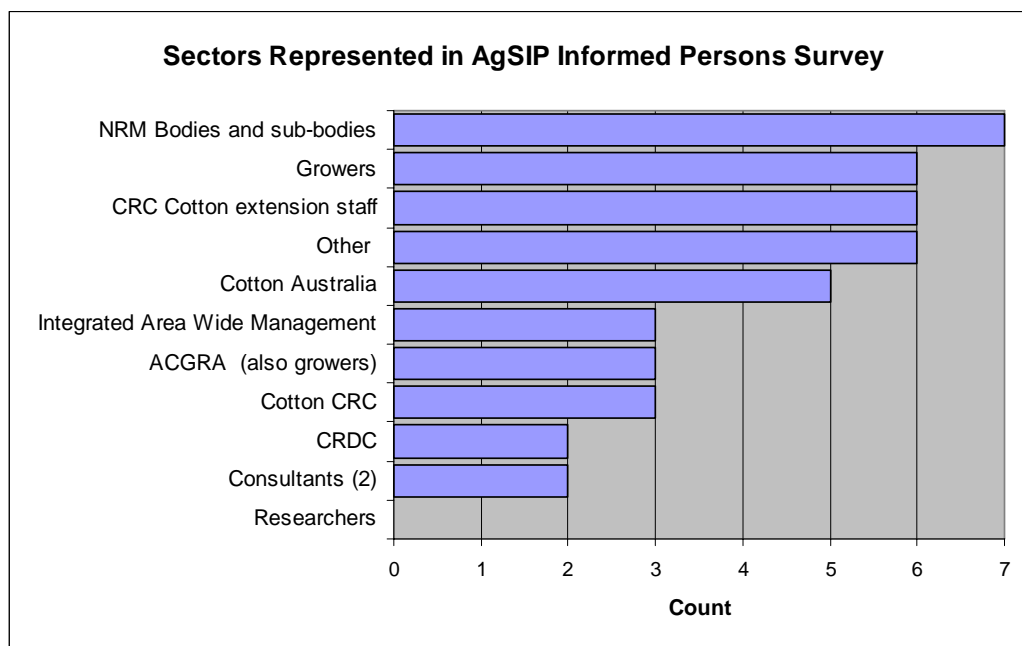
- participation rates in NRM activities
- comments from participants during or after such activities
- reflective logs with key stakeholders
- self-assessment of relationship management over time.

## Survey Results

### Sector

#### Sector

The following sectors were represented in this informed persons survey regarding the usefulness of the AgSIP15 project - *Enhanced natural resource management in irrigated cotton and grains* - and what might be of benefit in the future:



6 Respondents noted they represented more than one of the identified sectors in this survey. The 3 respondents representing the ACGRA are also representative of Cotton Growers and 3 respondents noted they represent both Cotton Australia and NRM Extension Bodies.

Other sectors mentioned included:

- DPI - water use efficiency
- Lobby Groups
- Rural WUEB

There were no researchers represented in this evaluation. The proposed representatives gave the following reasons for not being interviewed:

- “I had little to do with the project, since the introduction of the third CRC, I have taken a back seat.” – Researcher 1
- “I am not aware of the project. I do work in St George with cotton farmers, but on totally different projects.” – Researcher 2
- “Do not feel like I can make a valuable contribution as I am not closely related to the project.” – Researcher 3

For the purposes of this analysis the sectors represented above have been further grouped into larger more meaningful groups in order to produce relevant comparisons between data findings. These groups are:

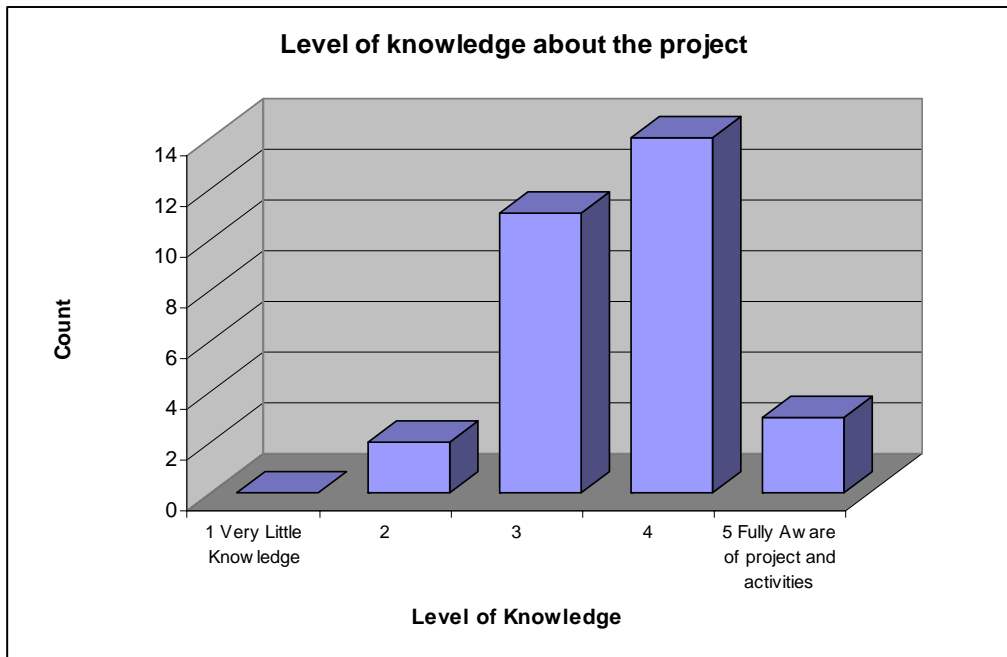
Cotton Consultants	2 Representatives
Cotton Australia + NRM Bodies and sub-bodies	9 Representatives
Cotton CRC + CRDC	5 Representatives
Growers + ACGRA/Growers	6 Representatives
IAWM + CRC Cotton Extension Staff	8 Representatives

Subsequent data presentation for each question will provide an overall presentation of data for all sectors combined, as well as a comparative presentation of findings within the different sectors.

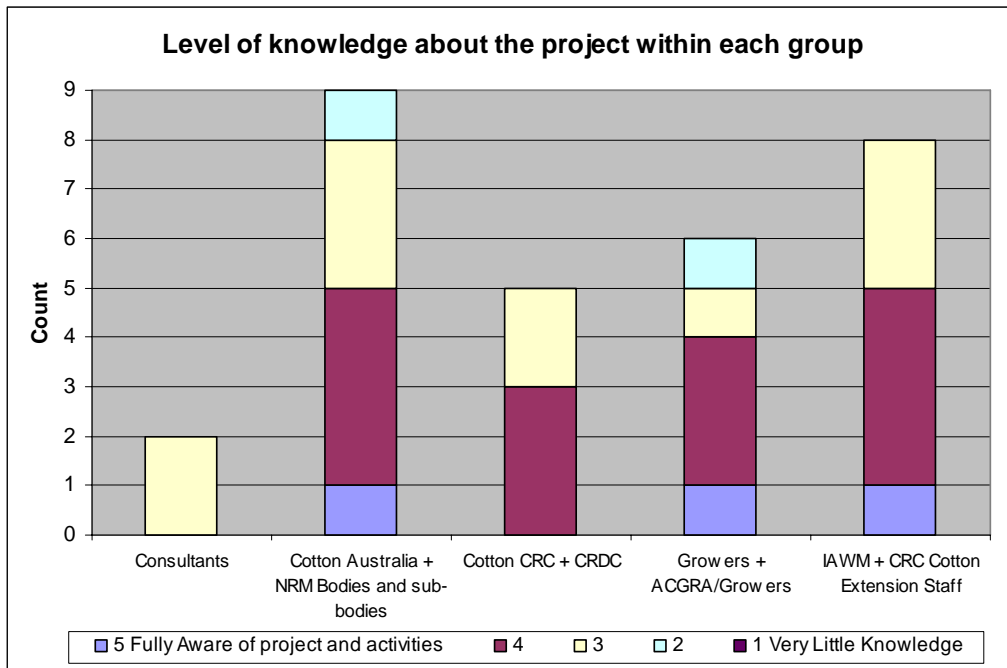
**Context**

**Level of knowledge about this project**

Respondents were asked to note their current level of knowledge about the project on a scale of 1 to 5, where 1 is “very little knowledge” and 5 is “fully aware of the project and its activities”. As shown in the chart below, all respondent surveyed had some knowledge of the project, with only two indicating a low level of knowledge. Three respondents indicated they were fully aware of the project and its activities, with the remaining respondents (25) indicating medium to high levels of knowledge.

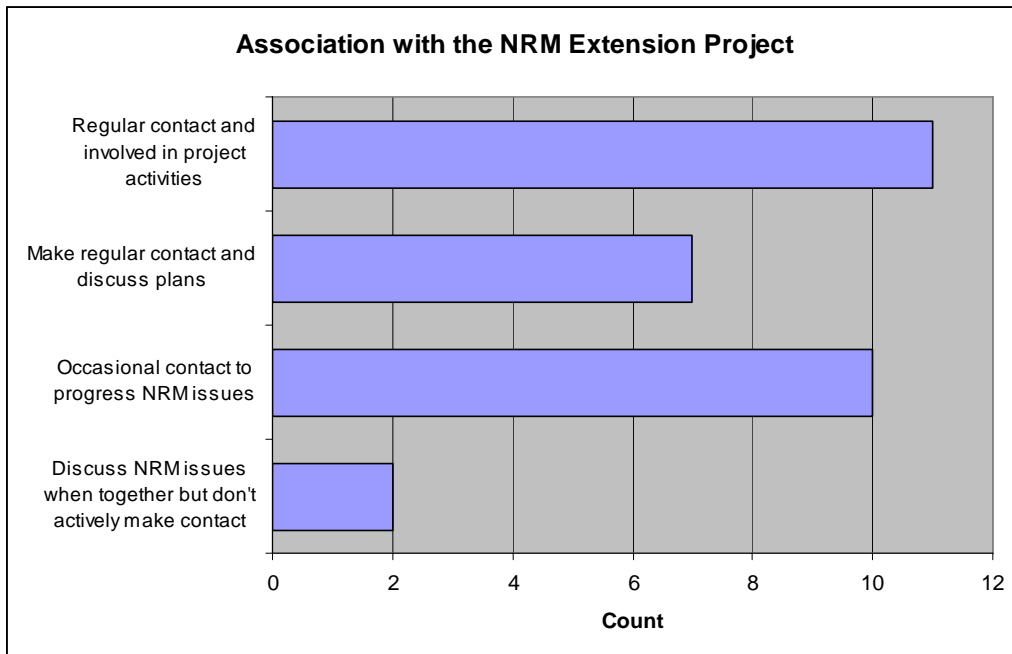


The chart below highlights those respondents that had low levels of knowledge were in the Cotton Australia+NRM Bodies and Sub bodies and the Growers+ACGRA Growers groups. Those with the highest levels of knowledge were in the Cotton Australia+NRM Bodies and Sub bodies, Growers+ACGRA Growers and IAWM+CRC Cotton Extension Staff groups.

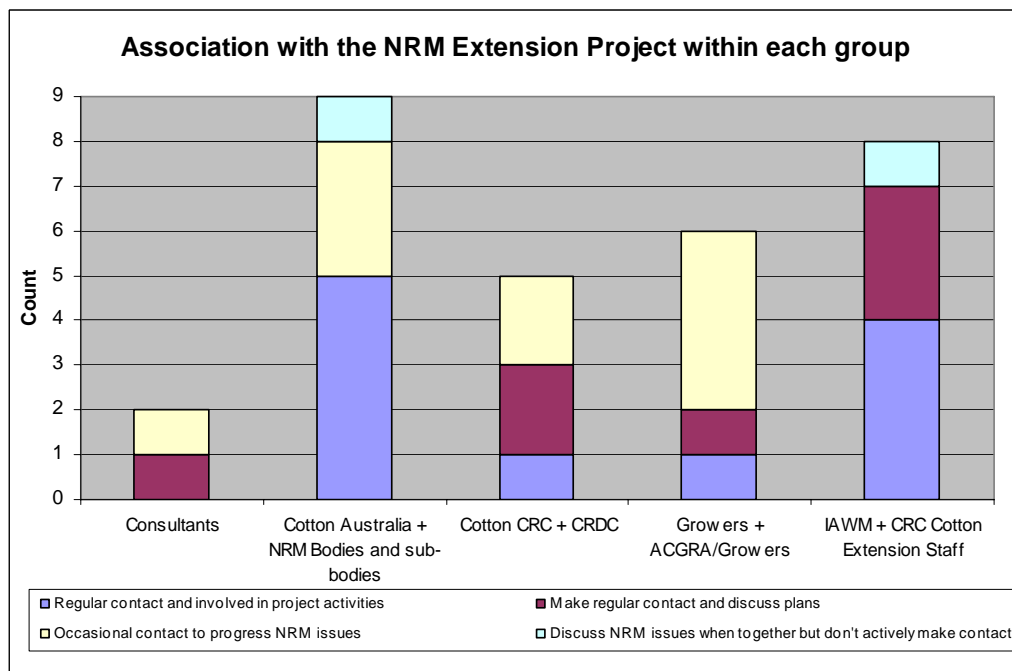


### Association with the NRM extension project

Respondents ranked their association with the project on a 5 point scale where 1 is “not involved” at all and 5 is “had regular contact and involvement in project activities”. There were no respondents who indicated no involvement in the project. A third of the respondents (10 respondents) noted they only had occasional contact with the project, 23% of the respondents (7 respondents) said they made regular contact with the project and its coordinators to discuss plans and 36.6% of respondents (11 respondents) had regular contact and involvement in the projects activities.



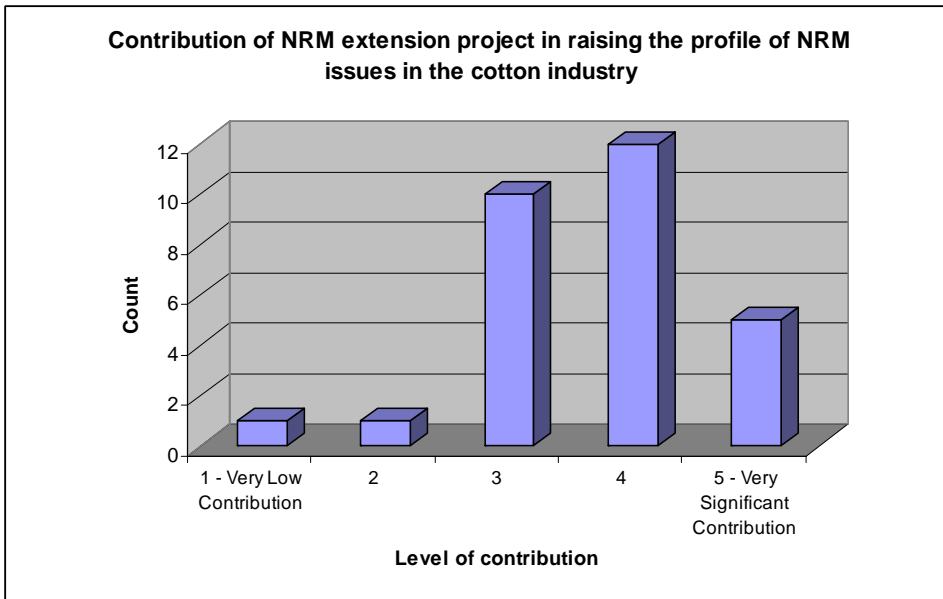
The chart below shows the level of association represented within each group. It can be seen that within each group at least half the respondents had regular/occasional contact and involvement with the project and its activities.



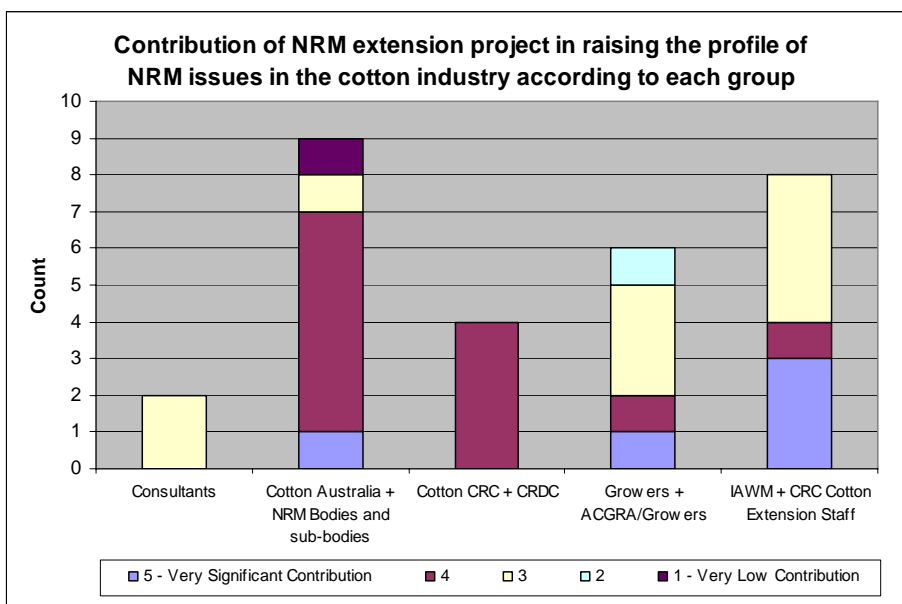
**Project Success**

**Contribution of NRM extension project in raising the profile of NRM issues within the cotton industry**

Of the 29 respondents that answered this question, more than half (22 respondents) noted that this project has made a significant contribution (rating 4 and 5) in raising the profile of NRM issues within the cotton industry. 10 respondents noted the contribution as being average and 2 noted the contribution of the project as being low (rating 1 and 2).



The chart below shows that those respondents who believed the project to have made little to no contribution in raising the profile of NRM issues were representing the Cotton Australia+NRM bodies and Growers+ACGR Grower groups.



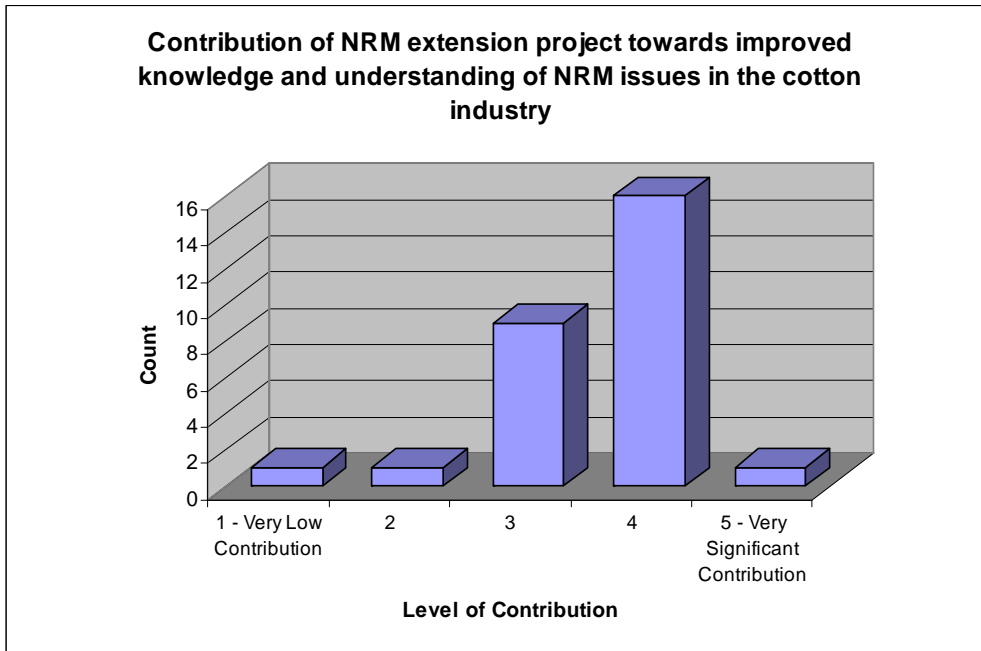
Comments made about the impact the project has had in raising the profile of NRM issues in the cotton Industry are summarised in the following table according to each group. The most common comments made by respondents included:

- The project and its coordinators were always available and informative
- Informative newsletters and field days
- Coordinators were involved in the technical aspects of on farm management and were instrumental in the movement of information from researchers to landholders.
- Given the circumstances, it has had a really good result. With all the issues in the industry (affecting profitability), NRM issues have taken a back seat recently

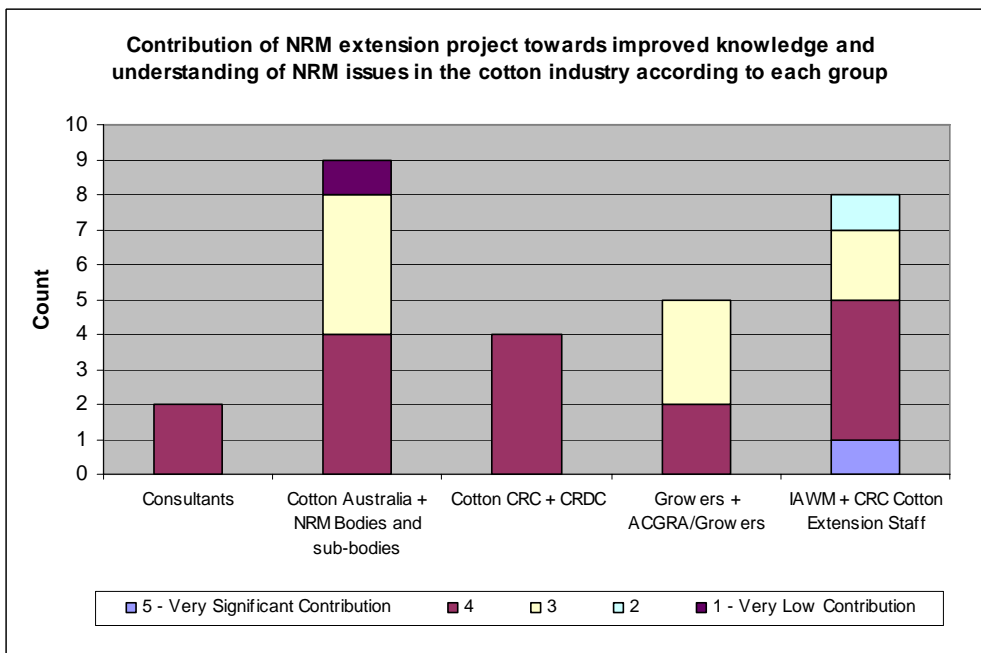
Group	Comments
Consultants	<ul style="list-style-type: none"> <li>▪ Susan was always available and informative.</li> <li>▪ It has started to raise awareness, but these sorts of things do take time.</li> </ul>
Cotton Australia + NRM Bodies and sub-bodies	<ul style="list-style-type: none"> <li>▪ Constantly working on things.</li> <li>▪ Low contribution in the Condamine Catchment.</li> <li>▪ They have highlighted the importance of deep draining, and other natural resource management issues, with landholders. Showing how to do the right thing and record and monitor issues.</li> <li>▪ Generated case studies - heavily involved in <b>technical input into Farm Management Systems - this has been the most valuable.</b></li> <li>▪ With joint workshops, Cotton Australia and NRM raised profile. These are included in the BMP and daily progress.</li> <li>▪ In some areas it has done really well- people are starting to come forward as a result of the coordination and awareness generated through AgSIP. QMDC, Cotton Australia, DPI, sub catchment officers and landholders are all seeking information from the project.</li> </ul>
Cotton CRC + CRDC	<ul style="list-style-type: none"> <li>▪ The local NRM groups (water efficiencies) gain funding through AgSIP which is really good and they are tied in with the Land and Water modules.</li> <li>▪ There are <b>not many similar projects that are focusing on NRM</b></li> <li>▪ Through the newsletters and field days - interaction with catchment groups at a local level and dealing with rural water use.</li> <li>▪ They have been able to access and find necessary information pulling it all together - some to go to growers and also consultants. Have used information to create several publications</li> </ul>
Growers + ACGRA/Growers	<ul style="list-style-type: none"> <li>▪ Her position puts out a helpful newsletter</li> <li>▪ Given the circumstances, it has had a really good result. With all the issues in the industry (affecting profitability), NRM issues have taken a back seat.</li> <li>▪ It will be challenging - <b>it just got underway at the wrong operating time for the industry</b> (this is no fault of the project) - NRM is not a high priority issue at the moment. The project has the right operating mode - it is just the wrong time.</li> <li>▪ <b>Land and Water management plan - would struggle without their help.</b></li> <li>▪ Difficulty I have had is the Land and Water Management Plan - this is an area to focus on. But over the last two years (with different government issues), NRM has been a difficult thing to pay too much attention to.</li> </ul>
IAWM + CRC Cotton	<ul style="list-style-type: none"> <li>▪ They have been involved in putting out information through the cotton magazine, regular newsletters and a number of field days. Difficult to comment as <b>everything has a Queensland focus</b> and I am based in NSW, but what contact I have had has been beneficial.</li> <li>▪ <b>Ground breaking project</b> - first of its kind in the cotton industry that deals with sustainable resource management</li> <li>▪ Newsletters and fact sheets</li> <li>▪ We did the monitoring and the <b>scientific work and Susan took these results to the farmers</b></li> <li>▪ Susan was at a lot of functions and she always helped with workshops</li> <li>▪ Susan is very involved in all issues and very involved with the growers. She is very well regarded by the growers</li> <li>▪ My awareness has certainly increased - probably more so than the growers</li> </ul>

**Extent to which the NRM extension project contributed to improved knowledge and understanding of NRM issues within the cotton industry**

Of the 28 respondents that answered this question, 17 noted that the project has made a significant contribution (rating 4 and 5) towards improved knowledge and understanding of NRM issues within the cotton industry. Nine respondents note this contribution as being average and only 2 respondents believe it had little impact (rating 1 and 2) on improved knowledge and understanding.



It can be seen in the chart below that those respondents noting the contribution as low were in the Cotton Australia+NRM Bodies and IAWM+CRC Cotton Extension groups.



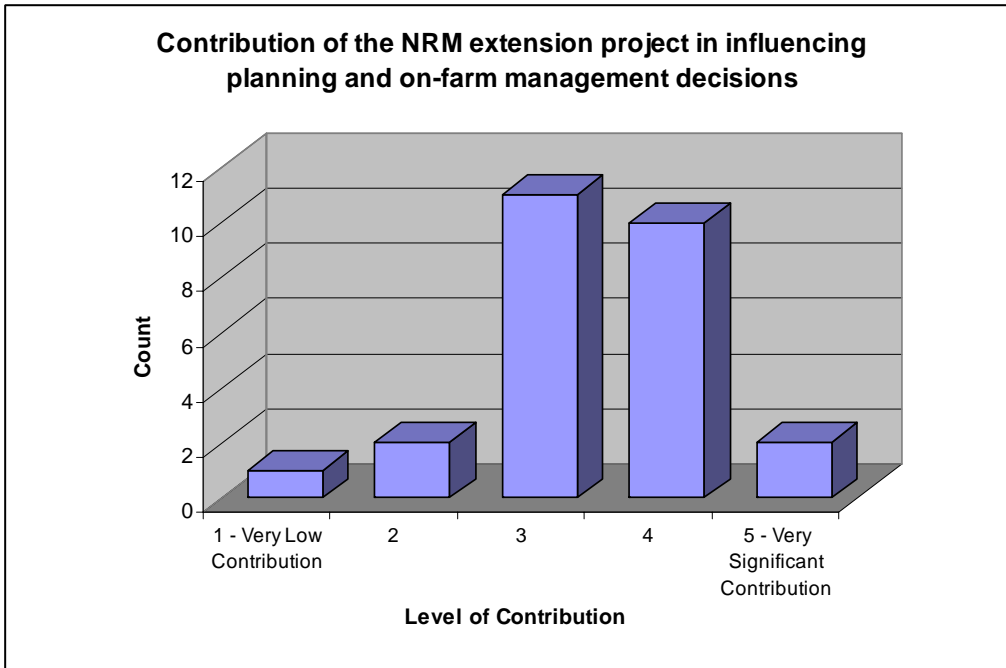
Comments made regarding the impact the project has had in improving knowledge and understanding of NRM issues in the cotton Industry are summarised in the following table according to each group. The most common comments made by respondents included:

- There have been noticeable improvements, however there is along way to go in the industry towards increased knowledge and understanding NRM issues.
- The project is still in its early stages and there is a long way to still go.
- It depends on the region – some areas are improving while others (where there is no extension staff) are not.
- Did not increase knowledge as much as reinforced it.

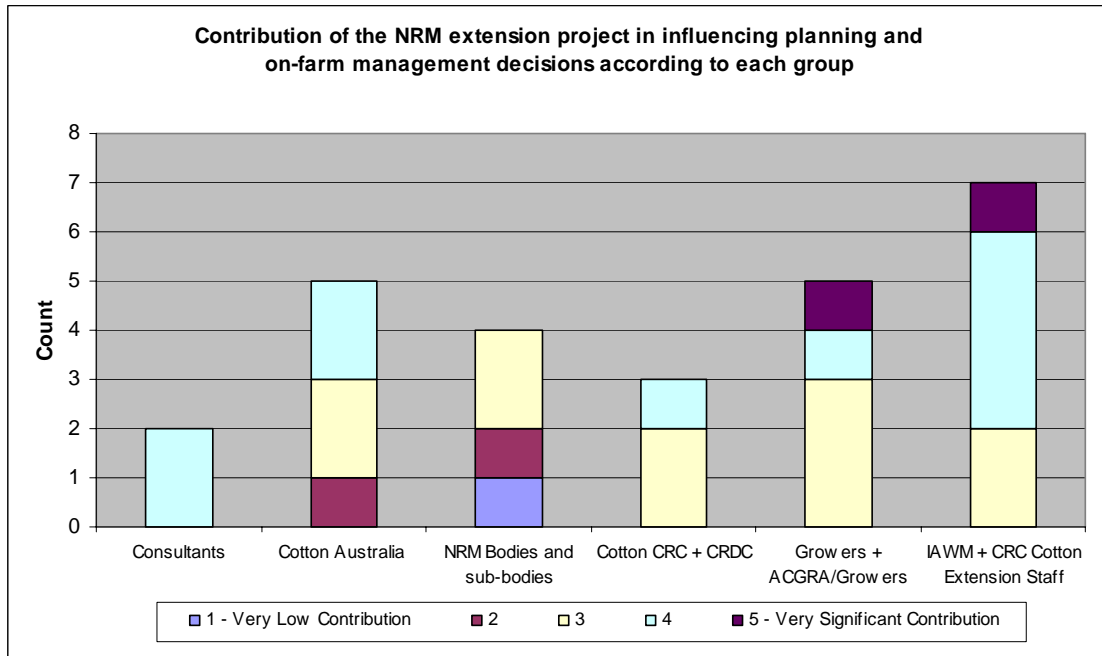
Group	Comments
Consultants	<ul style="list-style-type: none"> <li>▪ Susan's work and presence at meetings helped as well as her involvement in activities with growers. <b>Relaying information from researchers.</b></li> <li>▪ It is <b>still in early stages</b> - difficult to say for sure.</li> </ul>
Cotton Australia + NRM Bodies and sub-bodies	<ul style="list-style-type: none"> <li>▪ More communication to growers is needed.</li> <li>▪ <b>Did not really increase as many are already doing these things - did reinforce knowledge, looking ahead - need to raise the bar.</b></li> <li>▪ Low contribution in the Condamine catchment.</li> <li>▪ Have <b>brought NRM issues to the forefront.</b></li> <li>▪ Compared to what has been available in the past, combined with the BMP - has been an effective approach.</li> </ul>
Cotton CRC + CRDC	<ul style="list-style-type: none"> <li>▪ Regular extension officers distributing newsletters and attending meetings is generating knowledge and understanding as well as influence.</li> <li>▪ A lot of field days</li> <li>▪ <b>Information is complimentary and supplementary to the BMP programs</b></li> <li>▪ Sure it has - but I have not observed these results.</li> </ul>
Growers + ACGRA/Growers	<ul style="list-style-type: none"> <li>▪ Good objectives, <b>adoption will be a challenge.</b></li> <li>▪ A lot to do with water monitoring and moisture monitoring</li> </ul>
IAWM + CRC Cotton Extension Staff	<ul style="list-style-type: none"> <li>▪ Difficult to know what has led to change - it is difficult to gauge the capacity for implementation.</li> <li>▪ Helping to raise awareness - which leads to understanding, but there is still a way to go in the industry.</li> <li>▪ Been very good link between Cotton Australia and IAWM and working with the growers. <b>Been able to add valuable information to growers knowledge.</b></li> <li>▪ Have read the newsletters - they are excellent, impressed by the knowledge in them</li> <li>▪ Some improvements - not across the whole industry, but certainly where there are extension staff</li> </ul>

### Contribution of the NRM extension project in influencing planning and on-farm management decisions

There were 26 responses to this question. Those that did not respond felt they were not in a position to make a judgment on the topic based on their limited knowledge. Twelve respondents believe the project has had a significant contribution (rating 4 and 5) in influencing planning and on farm management decisions. Eleven note it has made an average contribution and 3 note it has had little or no contribution towards improved on farm planning and management decisions.



The chart below provides a comparison of the responses within each group regarding the contribution the project has made towards improved on farm planning and management decisions.

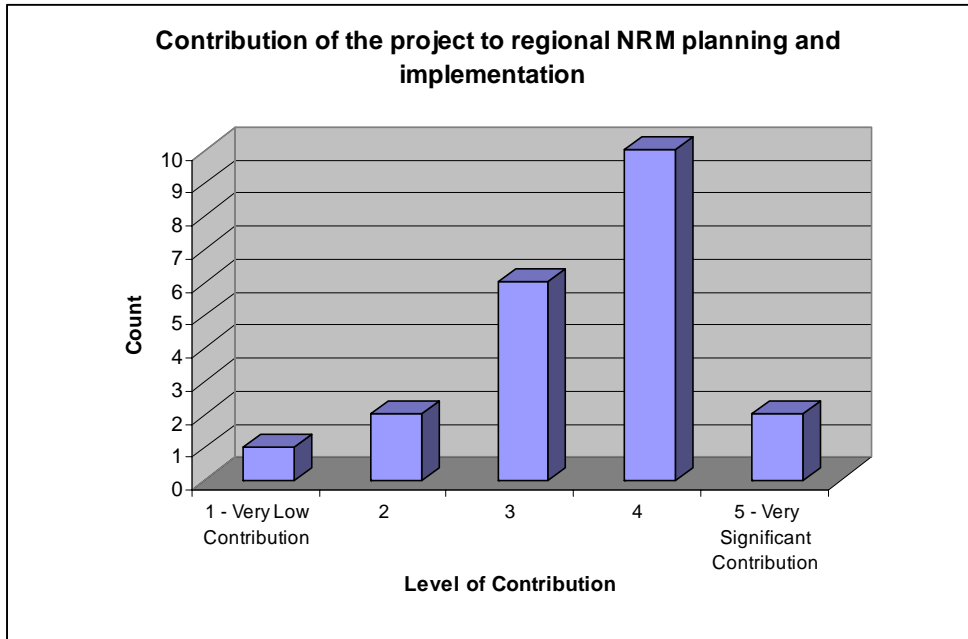


The following table summarises respondents' comments regarding the contribution of the project to improved planning and on farm management decisions. The most commonly mentioned impact was the positive input the project has made towards the BMP.

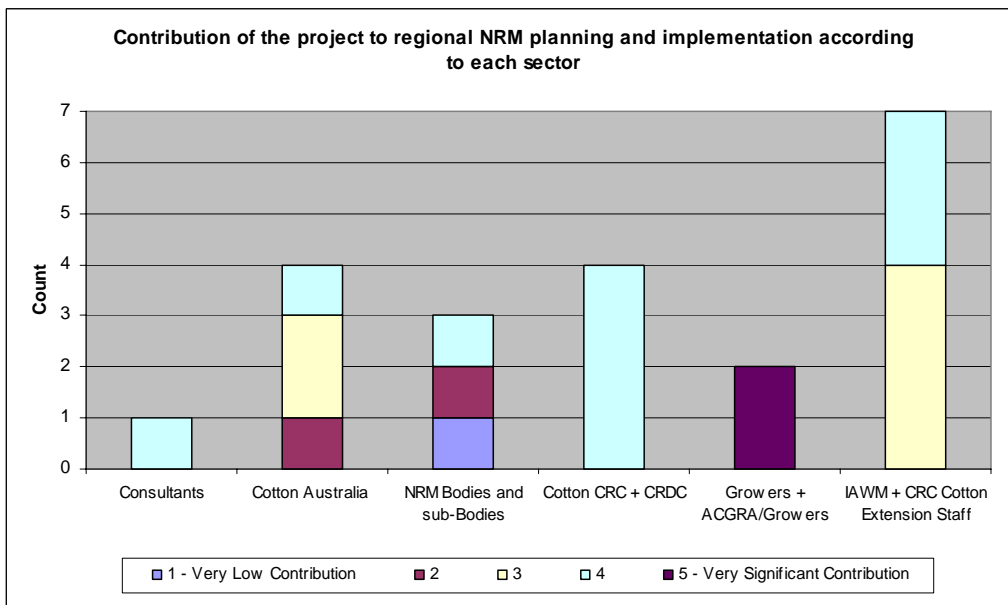
Group	Comments
Consultants	<ul style="list-style-type: none"> <li>▪ Do not have much to do with this area of NRM extension so cannot comment except for myself.</li> <li>▪ <b>The workshop days helped a lot.</b></li> </ul>
Cotton Australia + NRM Bodies and sub-bodies	<ul style="list-style-type: none"> <li>▪ Communication of objectives - also rests with grower needs and so can only provide direction.</li> <li>▪ Biodiversity did improve.</li> <li>▪ Low contribution in the Condamine catchment</li> <li>▪ Improved infrastructure and management planning and the ability to be economically and environmentally sustainable and raising the importance of NRM issues</li> <li>▪ <b>Where the opportunity has presented itself they have helped significantly.</b> There are areas where they are limited (issues outside of their influence)</li> <li>▪ Certainly raised awareness of NRM issues - <b>but more reinforced rather than changed.</b></li> <li>▪ Working with ongoing challenges - need to influence what people do - it will get there eventually. The catchment group has been good.</li> <li>▪ Connection with the BMP, education and resources, but there is still along way to go.</li> </ul>
Cotton CRC + CRDC	<ul style="list-style-type: none"> <li>▪ Water efficiency, Riparian areas and water quality issues.</li> <li>▪ Limited by Cotton Australia Land and Water Management. Main delivery mechanisms. Will have to see how this progresses over the next 12 months.</li> <li>▪ Not sure about this. <b>Activities are supplementary and complimentary to the BMP framework.</b></li> <li>▪ We only provide the funding for the project - are yet to see documented results.</li> </ul>
Growers + ACGRA/Growers	<ul style="list-style-type: none"> <li>▪ The BMP has been really good.</li> <li>▪ Already a progressive farm - but others may not be so - so may help to progress this.</li> </ul>
IAWM + CRC Cotton Extension Staff	<ul style="list-style-type: none"> <li>▪ <b>A lot of input into the BMP program</b> which is the main planning NRM tool used by growers - they have done a lot here.</li> <li>▪ The project officers are very grounded in making on farm and production links to increase uptake.</li> <li>▪ Where information was relevant to the situation it was used.</li> <li>▪ Essential link - <b>has bridged the gap between research and the delivery through Cotton Australia</b></li> <li>▪ Cannot give concrete evidence about the Darling Downs</li> <li>▪ Central Queensland - through the land and water management plan</li> <li>▪ Through the use of BMP and the Land and Water modules</li> </ul>

**Contribution of the project to regional NRM planning and implementation**

Of the 21 respondents that answered this question, 12 believe the project has made a significant contribution towards regional NRM planning and implementation (rating 4 and 5). Six note this contribution as being average and only 3 respondent believe the contribution has been low (rating 1 and 2). Eight respondents noted they did not have sufficient knowledge to comment on this question.



The chart below shows that those respondents who rated the contribution of the project to NRM planning and implementation as being low were in the Cotton Australia and NRM bodies and sub-bodies groups. Of the 2 Growers and ACGRA Growers that felt they were qualified to answer this question, both believe the contribution of the project to regional planning and implementation has been very significant.



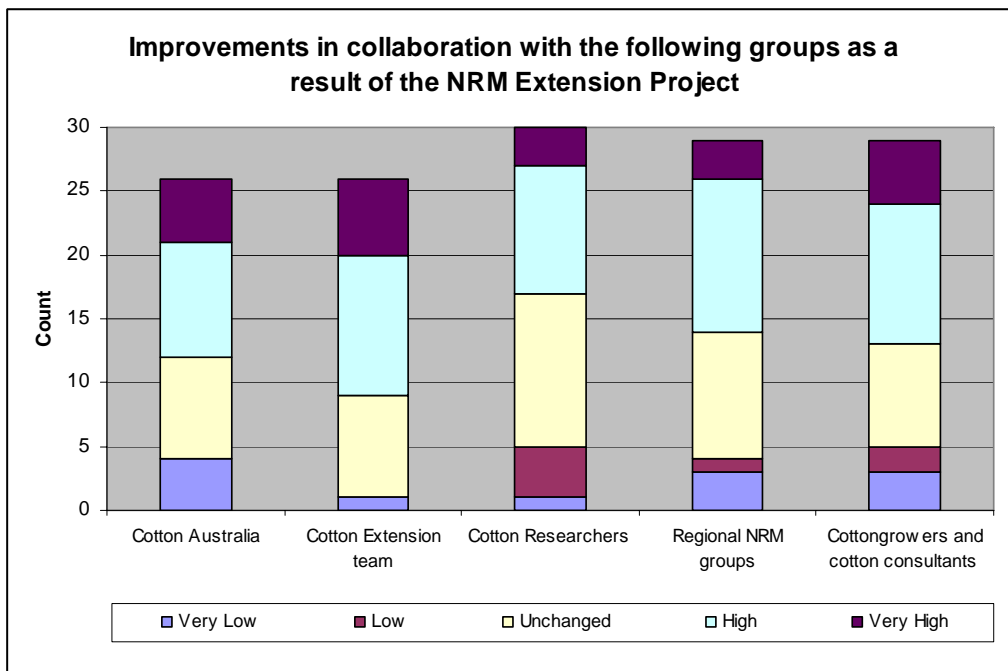
The table below summarises the respondents comments regarding the contribution the project has made towards regional planning and implementation. The most common response across all groups included:

- The project has exceeded all expectations
- Cannot comment - due to a lack of knowledge about different regions
- It varies across regions

Group	Comments
Consultants	<ul style="list-style-type: none"> <li>▪ Been working really hard. However, fragmentation is working against them.</li> </ul>
Cotton Australia + NRM Bodies and sub-bodies	<ul style="list-style-type: none"> <li>▪ <b>All activities exceeded expectations towards the regional targets.</b></li> <li>▪ No influence on regional planning in the Condamine</li> <li>▪ The Emerald irrigation in particular, has shown landholders and the service industries that NRM issues are intense and ever changing. It has shown that we can adapt and have therefore become leaders in change for other industries.</li> <li>▪ I am not a regional planner so could not say, but they have <b>assisted in bridging the gap between industry and regional planning.</b></li> <li>▪ Had a more localized effect than regional - not influenced much.</li> <li>▪ More work is needed here.</li> <li>▪ In the future, this will have a greater impact.</li> </ul>
Cotton CRC + CRDC	<ul style="list-style-type: none"> <li>▪ Strong involvement with the Fitzroy Basin which has a big influence.</li> <li>▪ <b>Mostly through Catchment groups.</b></li> <li>▪ In areas such as Dirranbandi and St George - the contribution has been very high. Central QLD very high. Darling Downs - is a more diverse group of farmers so not sure about the contribution here.</li> <li>▪ We only provide the funding for the project - are yet to see documented results.</li> </ul>
Growers + ACGRA/Growers	<ul style="list-style-type: none"> <li>▪ Not sure - no knowledge at a regional level.</li> <li>▪ Not sure - more involved with the local IAWM.</li> <li>▪ They been able to address all this and focus on regional needs.</li> </ul>
IAWM + CRC Cotton Extension Staff	<ul style="list-style-type: none"> <li>▪ Cannot comment as based in NSW, <b>but believe they have worked with NRM bodies and tried to make meaningful linkages with these organisations.</b></li> <li>▪ Given the catchment groups more credibility. And it is not just within cotton it is in production enterprises as well - the gains in cotton are passed on to others.</li> <li>▪ Helped the BMP process.</li> <li>▪ <b>Most emphasis has been on cotton industry as opposed to regional NRM issues.</b></li> <li>▪ My understanding is they have been involved in the Land and Water plans and industry wide programs so I would say they have been very valuable.</li> <li>▪ <b>Differs between regional and sub catchments.</b></li> <li>▪ They have been involved in a lot of things especially in Emerald.</li> </ul>

**Impact the NRM extension project has had on improving collaboration with different groups**

Respondents were asked to rate on a scale of 1 to 5 where 1 is very low and 5 is very high, the impact the project has had on improving collaboration with different groups in the industry. The chart below shows that in general, collaboration did improve with most groups (rating 4 and 5). Seventeen respondents indicated an increase in collaboration with Cotton extension teams, 16 respondents noted they had improved relations with Cotton growers and cotton consultants and 15 respondents noted Cotton researchers were now more accessible as a result of the project. Respondents also noted that in some instances, relationships were unchanged because they already had frequent contact with certain groups.

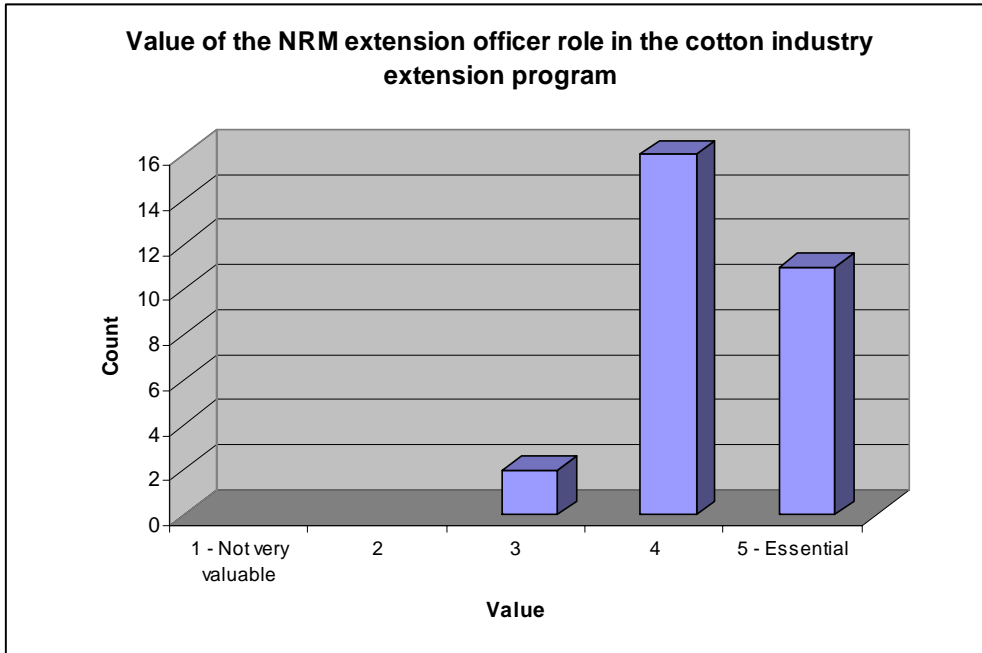


The following table highlights respondents' comments regarding improvements in collaboration with other groups in the industry.

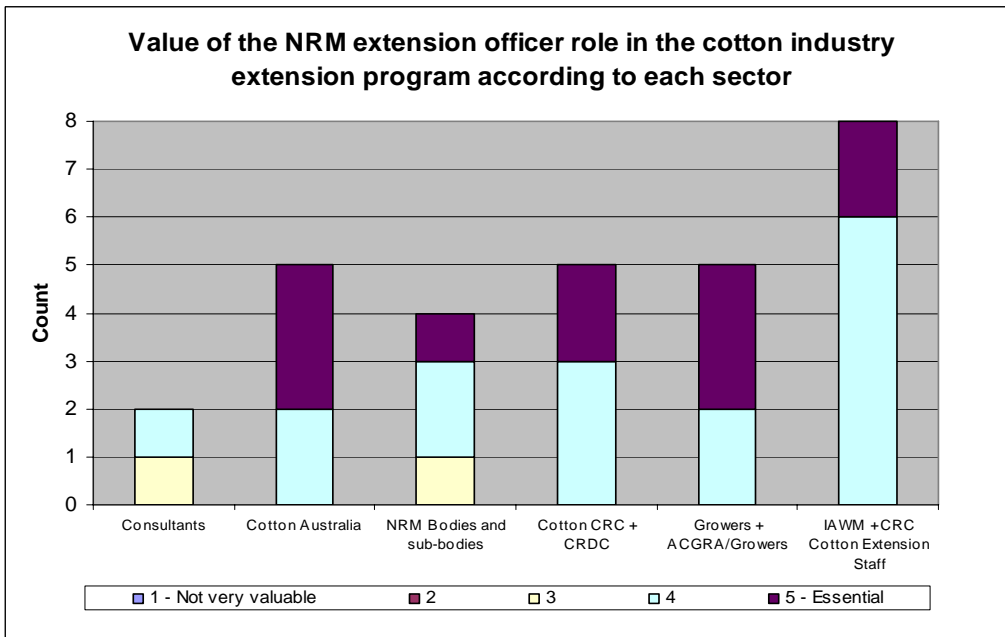
Group	Comments
Consultants	<ul style="list-style-type: none"> <li>▪ Cotton Extension Team - had a lot to do with them anyway Regional NRM - without Susan this would have been non existent.</li> <li>▪ <b>Been a really good platform to broker relationships.</b></li> </ul>
Cotton Australia + NRM Bodies and sub-bodies	<ul style="list-style-type: none"> <li>▪ Did not really improve with any groups, but not through lack of them trying, it takes us to make the effort as well. <b>Our regional interactions are going well though.</b></li> <li>▪ NRM team - it is not really their role to introduce us to growers and consultants, but they do help them get in touch with Department consultants.</li> <li>▪ Aware of their contributions.</li> <li>▪ Unaware of any contribution in the Condamine.</li> <li>▪ Been very fortunate to have a group of thinking landholders who have been very efficient in ensuring environmental and economic sustainability. Service groups such as DPI and agronomists are all working together really well - been very efficient.</li> <li>▪ The increase in collaboration has been the greatest impact for all sectors involved.</li> <li>▪ <b>Allowed me to connect with growers easier. Can now offer them a working partnership.</b></li> <li>▪ Really positive - but <b>there needs to be more collaboration particularly in the early planning stages so there is no doubling up and everyone is value adding.</b></li> <li>▪ Project has <b>provided a key link to researchers.</b> Without the project the link between them and NRM bodies would not exist.</li> </ul>
Cotton CRC + CRDC	<ul style="list-style-type: none"> <li>▪ We are in the same areas as the NRM groups in terms of extension</li> <li>▪ These roles are all important in getting wider extension and incorporating the same information into everyone's messages.</li> <li>▪ It needs more coordination</li> <li>▪ We have not had hands on participation in the project as we have only provided the funding</li> </ul>
Growers + ACGRA/Growers	<ul style="list-style-type: none"> <li>▪ They have all assisted a lot</li> <li>▪ It has not really affected relationships because <b>mostly we already had good relationships</b> and we are basically in the pockets of cotton consultants already - but it did help to raise general awareness amongst everyone.</li> <li>▪ <b>Has not improved so much with consultant, more with the growers.</b> At a grower level, it needs to be a simple process in order for them to adopt the objectives otherwise they will find it all too difficult. A good process would be to work through a network - need a template to implement.</li> <li>▪ <b>Cotton Australia - Susan has a great relationship Cotton Extension - greater presence in the area.</b> more extension tem workshops and general increased contact</li> </ul>
IAWM + CRC Cotton Extension Staff	<ul style="list-style-type: none"> <li>▪ Have had a lot to do with the project in getting in contact with cotton growers</li> <li>▪ Because of the nature of my role, <b>I oversee all of these organisations anyway ensuring viability - they are all my stakeholders already.</b> My job is to get all these different partners working together.</li> <li>▪ <b>Great links - Susan has been pivotal</b></li> <li>▪ There has been <b>a lot of collaboration with Cotton Australia through the BMP program and a greater alignment with Cotton Extension teams.</b> The project has been the key reason in facilitating and promoting the interaction between AgSIP, NRM and planning activities. Brought us all together within the industry.</li> <li>▪ Already had a good relationship with Cotton Australia. <b>Greater collaboration with the researchers. Unchanged with growers. Made more aware of research in NRM in the industry.</b></li> </ul>

**Value of the NRM extension officer role in the cotton industry extension program**

Respondents were asked to note the value of the NRM extension officer role in the cotton industry extension program on a scale of 1 to 5, where 1 is “not very valuable” and 5 is “essential”. Eleven respondents noted this role as being essential to the success of extension in the industry, 16 believe the role is important and 2 respondents felt the role was neither essential nor unnecessary. There was no respondent who felt the role was of little value.



The chart below provides a comparison of responses made regarding the role of the NRM extension officer role within each group.



The following comments highlight the main attitudes and opinions of respondents towards the importance of the NRM extension officer role.

Group	Comments
Consultants	<ul style="list-style-type: none"> <li>▪ The position has been <b>more useful to growers than to consultants.</b></li> <li>▪ AgSIP newsletter is really good. Given more time and more activities it is bound to gain momentum.</li> </ul>
Cotton Australia + NRM Bodies and sub-bodies	<ul style="list-style-type: none"> <li>▪ They have been placed really well as members of services groups, they are helping a lot.</li> <li>▪ Doing an excellent job but it has been a tough season. They are definitely needed</li> <li>▪ Extremely essential because of community expectations. They have farmers understanding and are able to provide practical on farm suggestions.</li> <li>▪ Consider the role of NRM extension officer very valuable, so much so the Alliance is willing to invest in funding the position - also would provide that critical link of NRM and production</li> <li>▪ <b>The role has access to resources that supplement us, they have played a facilitator role</b>, researchers and on ground role. They have chased up resources and information that has been really important to us.</li> <li>▪ Performed essential role - <b>needs to continue with an expanded technical capacity.</b></li> <li>▪ <b>The joint workshops that we did were very valuable</b>, but most activities are more focused on Emerald area.</li> <li>▪ A bit confused about what they have completed. Still believe it is a good role, probably more relevant to growers. They needed to communicate more and sell themselves better.</li> <li>▪ <b>Without this role, there would be no link with the growers and no means of getting the information out there.</b></li> </ul>
Cotton CRC + CRDC	<ul style="list-style-type: none"> <li>▪ NRM issues are too easy to ignore - we need positive work to keep them forefront</li> <li>▪ <b>Really needed in place, especially the BMP and the resulting technical knowledge</b></li> <li>▪ <b>Long term - need more funding. It takes time to increase the priority and awareness. The cotton growers tend to get left out of planning.</b></li> <li>▪ There is still room and areas to improve overall. The coordination of things such as value and use of the BMP programs has been good. They have also provided links for example between the role of Cotton Australia and the NRM people</li> <li>▪ Very valuable, they have put in 120%, they work really hard on the job. The industry really needs them</li> </ul>
Growers + ACGRA/Growers Growers +	<ul style="list-style-type: none"> <li>▪ The work she has done is very important.</li> <li>▪ <b>Nothing would have been achieved without them.</b></li> <li>▪ The role has been very important - but when Susan went on leave it made it difficult to maintain the traction. it is also a difficult subject to approach with growers - they will <b>need more time in the role.</b></li> <li>▪ We could not keep up with the scientific data without them</li> <li>▪ Like to see it become more focused - more grower driven and the importance of meeting NRM targets.</li> </ul>
IAWM + CRC Cotton Extension Staff	<ul style="list-style-type: none"> <li>▪ In Emerald with the water quality issues - the fact sheets and field days have had a significant impact on landholder decisions</li> <li>▪ <b>It has brought focus into the industry in sustainability and production.</b> The officers are out there - <b>they are the conduit between NRM and producers.</b> They have an understanding of both and are able to look for synergies to explain better to producers, hence increase uptake.</li> <li>▪ Generated and highlighted many issues that growers have not thought about. They provide awareness and contacts. They have fast tracked the process.</li> <li>▪ The way Susan worked was very effective. Even during the early days she coped very well.</li> <li>▪ They have been instrumental in key areas including raising awareness of environmental issues - this has been a difficult task when people have been focused on bottom line. But <b>what the project has done is kept it on the agenda.</b></li> <li>▪ Always been assisting us as well as helping everyone else.</li> <li>▪ Been very actively involved with growers - there are not man who would get out into the paddocks and have a chat with them</li> <li>▪ NRM needs people with expertise and most extension staff only have production backgrounds. NRM needs to be in the public arena</li> </ul>

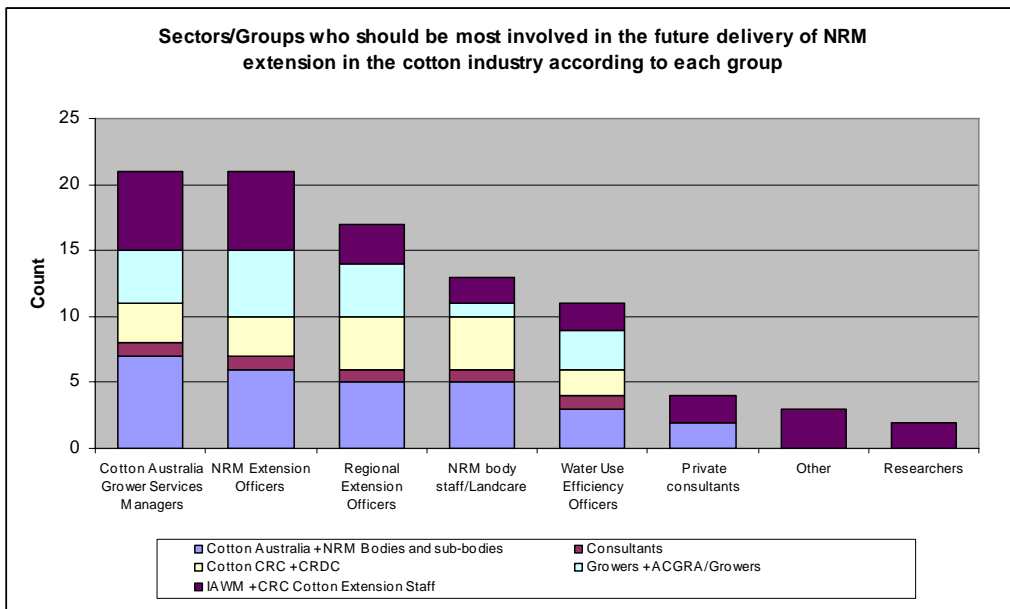
If the cotton industry NRM extension officer roles did not exist, how would NRM extension occur for the industry

Group	Comments
Consultants	<ul style="list-style-type: none"> <li>▪ Do not know - Susan is doing a lot of things, not sure which one organisation would do this.</li> <li>▪ It has been an essential component - it needs more to develop - more fragmented.</li> </ul>
Cotton Australia + NRM Bodies and sub-bodies	<ul style="list-style-type: none"> <li>▪ It would leave a vacuum.</li> <li>▪ Other service providers such as us (<b>Cotton Australia</b>). There will be a gap between information providers (researchers). NRM is the conduit for this.</li> <li>▪ <b>Cotton Australia</b> - the way that NRM groups operate - not much involvement from them.</li> <li>▪ There is some chance that with the reshape of BMP currently being undertaken the value of NRM and link to production and sustainability would take a higher profile across all aspects of the industry and specific NRM officer may not be needed " <b>future partnerships with the industry, regional bodies and DPI&amp;F would be necessary</b> to ensure the role continues in some format" the Alliance is willing to contribute financially to making this happen.</li> <li>▪ <b>Sub regional groups such as CHRRUP</b>, but we will need more support to be as effective. The role should not go.</li> <li>▪ To get NRM knowledge through we will need to develop other partnerships - but this will be difficult.</li> <li>▪ It will be difficult to link with grower groups. Will have to go through <b>Cotton Australia</b> - but even their roles are becoming more narrow. It will also be more difficult to access researchers.</li> <li>▪ Fall back onto us (<b>NRM bodies</b>) and our ability to engage growers with the assistance of Cotton Australia.</li> <li>▪ Through <b>regional bodies</b>, but we do not have the direct link and irrigation experience. There would have to be a lot of one on one extension - which would take a long time. Through the BMP program.</li> </ul>
Cotton CRC + CRDC	<ul style="list-style-type: none"> <li>▪ It will end up going through community based catchment groups - <b>CHRUPP and FBA</b>.</li> <li>▪ It would be a lot more difficult to get the message out. Other <b>cotton extension staff</b>. But they would have have the expertise to get the message through.</li> <li>▪ They have delivered in all areas - but to take over the role, it would involve a lot more people - <b>regional extension officers, water efficiency officers</b>. May need to become more production focused.</li> <li>▪ There would have to be closer links between <b>regional bodies</b> - we need people with time and energy to put the same amount of effort into creating links between industry and regional bodies.</li> <li>▪ At a much reduced level - will have to rely on outside organisations.</li> </ul>
Growers + ACGRA/Growers	<ul style="list-style-type: none"> <li>▪ The will probably be very little effort if this occurred.</li> <li>▪ <b>By word of mouth - through NRM groups</b> and perhaps the irrigators association.</li> <li>▪ Now CRC - the whole program is based on a catchment approach. Its strength lies in the collaboration o fdiffernt departments in industry resources.</li> <li>▪ May have to use <b>private consultants</b> but this would cost us more.</li> <li>▪ Through <b>development officers</b> - but they are already over extended.</li> </ul>
IAWM + CRC Cotton Extension Staff	<ul style="list-style-type: none"> <li>▪ Closer collaboration with regional <b>NRM bodies</b> to become the extension arms of the industry. However the advantage that AgSIP has over NRM bodies is that that are industry based and have the trust of landholders - they are already associated with the industry whereas regional departments and state agencies are distrusted.</li> <li>▪ <b>Effective change management is needed to ensure they are not lost altogether</b> - We have spawned a national scale project.</li> <li>▪ <b>Cotton Australia, Regional Extension officers</b>. Land and water - doing the BMP process.</li> <li>▪ It may fall back onto us (<b>IAWM</b>) and <b>peak bodies such as Cotton Australia and Grower groups</b>. There will probably be less support from government agencies and regulation.</li> <li>▪ Could not see much more happening. There are pressures of cost and production which might overshadow NRM.</li> <li>▪ Greatly reduced - this is a vital role. <b>Cotton Australia and NRM</b> will be important in sustaining it.</li> <li>▪ It would not happen very well.</li> <li>▪ Do not think it will occur as readily. It will continue through the BMP and Land and Water, but otherwise may be neglected.</li> </ul>

**Future of NRM Extension**

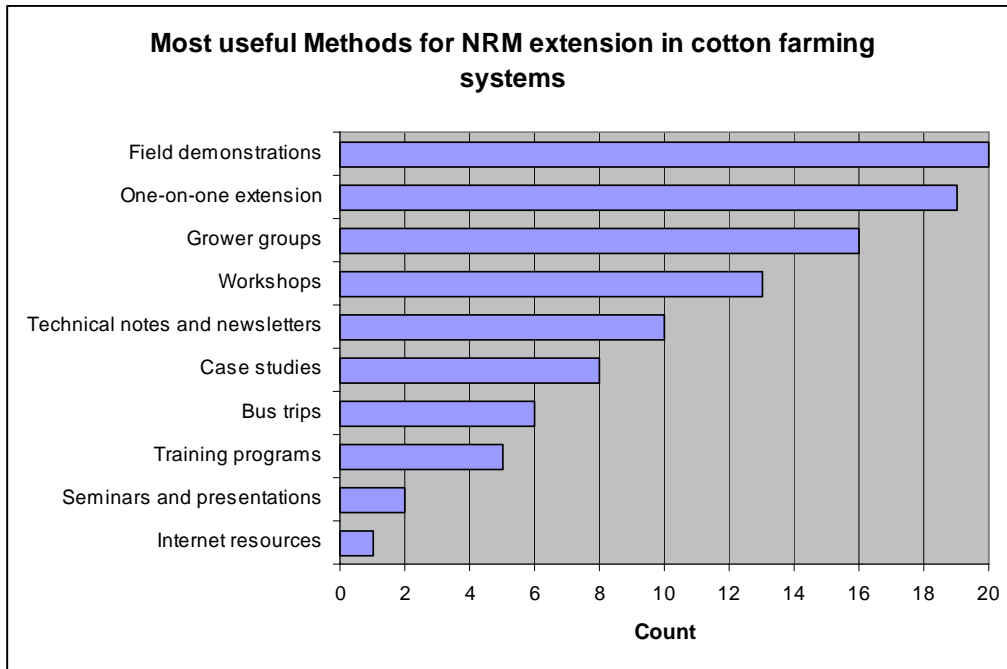
**Sectors/Groups who should be most involved in future delivery of NRM extension in cotton industry**

The chart below shows that respondents believe those sectors/groups that should be most involved in the future delivery or NRM extension in the cotton industry should be Cotton Australia Grower Services Managers and NRM Extension Officers (21 mentions each). Respondents also see Regional extension officers and NRM body staff/Landcare taking a strategic role (17 and 13 mentions respectively). Water efficiency officers also received a high number of mentions (11 mentions), followed by private consultants (4 mentions), other sources (3 mentions) and researchers (2 mentions). The chart also provides a comparison of which groups nominated each sector/group as those who should be most involved in future extension.



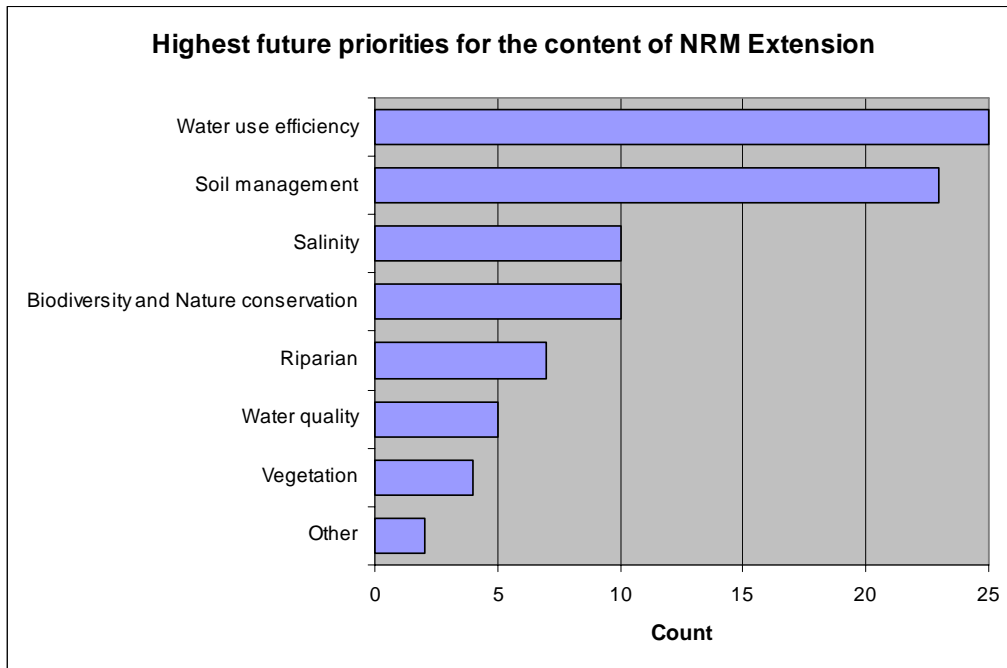
### Methods most useful for NRM extension in cotton farming systems

The most useful methods for NRM extension in cotton farming systems were noted as field demonstrations and one-on-one extension (20 and 19 mentions respectively). Also highlighted as useful were grower groups (16 mentions), workshops (13 mentions) and technical notes and newsletters (10 mentions). Respondents also mentioned case studies, bus trips and training programs as being useful tools in NRM extension efforts (8,6,5 mentions respectively).

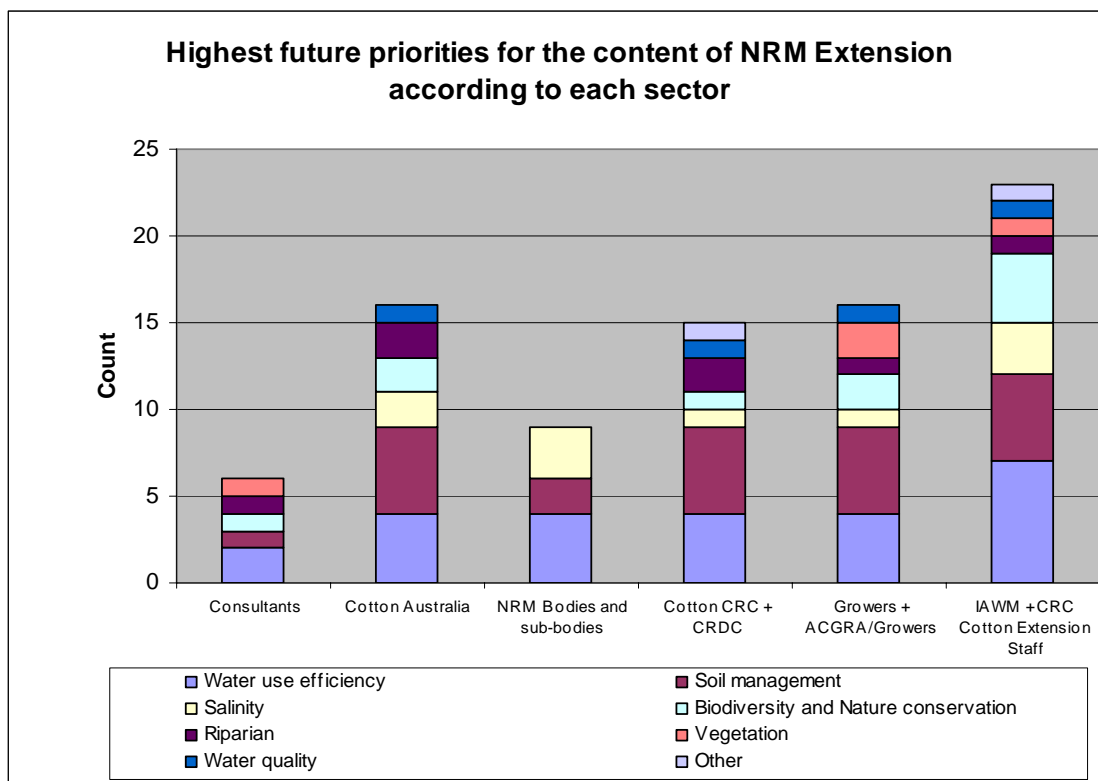


**Highest future priorities for the content of NRM extension**

Respondents noted water use efficiency and soil management as the highest future priorities for the content of NRM extension (25 and 23 mentions respectively). Salinity and biodiversity and nature conservation were also highlighted as important (10 mentions each), followed by riparian (7 mentions) and vegetation and water quality (4 mentions each). Greenhouse, carbon use (dependence on fossil fuels) and weeds were noted by some respondents as also being important.



The following chart serves to highlight those issues regarded as important in the content of NRM extension by each group. It can be seen that water use efficiency was regarded as highly important by all groups as well as soil management.



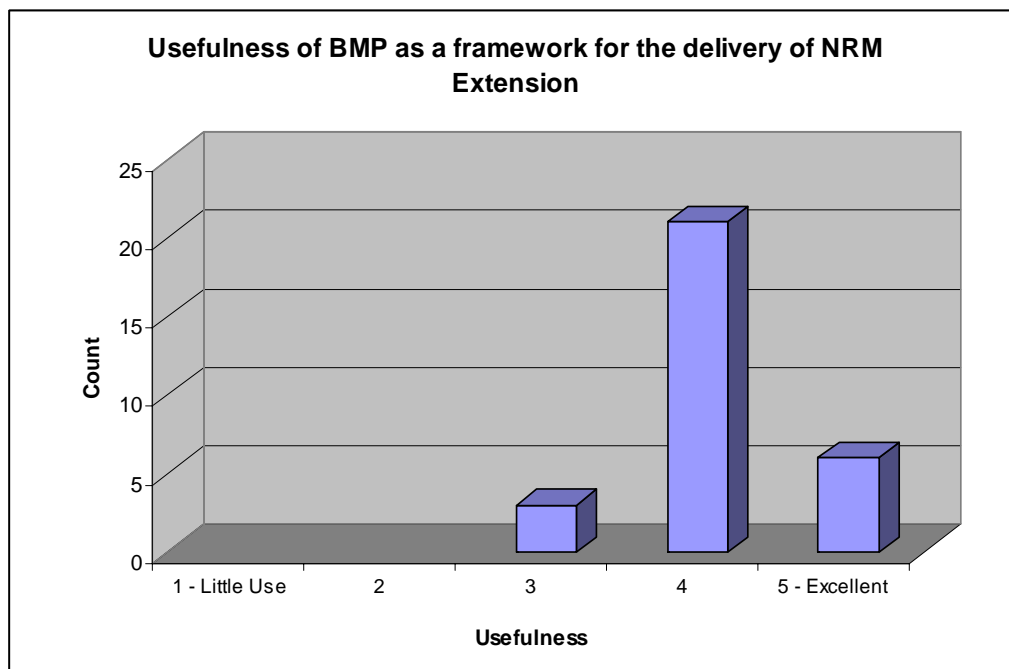
Respondents' comments regarding the highest future priorities for the content of NRM extension are highlighted in the following table.

Group	Comments
Consultants	<ul style="list-style-type: none"> <li>All of these are current issues - these three (riparian, vegetation and water efficiency) affect growers to a larger extent in this area.</li> <li>Water efficiency takes care of salinity and vegetation. Soil Management is critical and has been overlooked. Biodiversity needs to be maintained and enhanced.</li> </ul>
Cotton Australia + NRM Bodies and sub-bodies	<ul style="list-style-type: none"> <li>These are all important priorities.</li> <li><b>Link of NRM activities to production and sustainability, particularly the economic aspects.</b></li> <li>Get these right (salinity, soil and water use), then the others will follow.</li> <li>Need to find (as a group) a way of raising awareness of salinity risks. Encourage prevention and monitoring.</li> <li>All of these issues are linked and integrated into each other.</li> </ul>
Cotton CRC + CRDC	<ul style="list-style-type: none"> <li><b>It all starts at the paddock and soil level and this is where management should begin.</b></li> <li>These issues need to be strongly linked to production which growers relate to better.</li> <li>These areas have the biggest impact on production (soil and water). Target these areas first to encourage growers to get involved. <b>Measurable production benefits</b> will attract growers, then you can target more environmental issues.</li> <li>Soil encompasses fertility and salinity.</li> <li>They all hinge on Soil, water and conservation.</li> </ul>
Growers + ACGRA/Growers	<ul style="list-style-type: none"> <li>These issues are important to cotton development, soil is still very unknown</li> <li>Soil management is important in resource use.</li> <li><b>All of these are equally important.</b></li> <li>All are very important.</li> <li><b>Invest in areas of long term economic and environmental sustainability.</b></li> </ul>

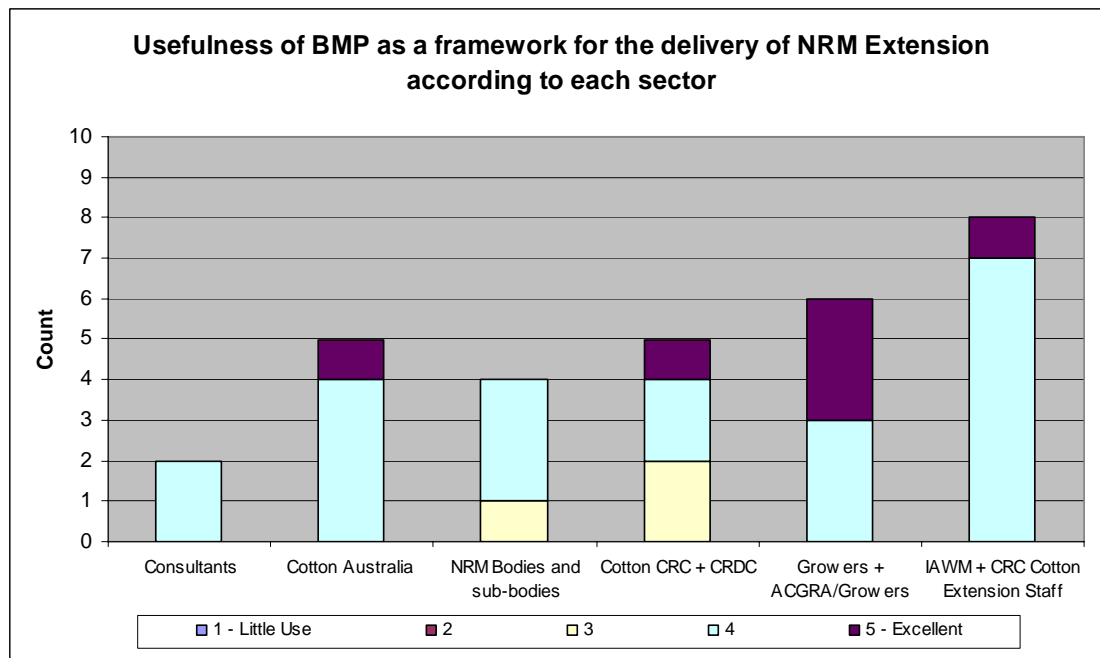
Group	Comments
IAWM + CRC Cotton Extension Staff	<ul style="list-style-type: none"> <li>▪ There is a link between soil production and water use. It is harder to communicate biodiversity and riparian.</li> <li>▪ These are the areas where we need to invest resources and. The others are not have 'crystallized' in science and need to explore more.</li> <li>▪ Biodiversity: We need to be aware of the landscape and keep it healthy Water use efficiency: if we just become more efficient, but still use the same amount of water - there is no net benefit. We need to farm more efficiently using water. Greenhouse: We have to depend on energy - we are just learning about the impacts on the environment.</li> <li>▪ Salinity is the most relevant in the Goondiwindi area.</li> <li>▪ These are directly related to outputs. They relate to the cost benefits for growers.</li> <li>▪ They are the major NRM issues and integrate most with production.</li> </ul>

**Usefulness of BMP as a framework for the delivery of NRM extension**

Respondents were asked to rate the usefulness of BMP on a scale of 1 to 5 where 1 is 'of little use' and 5 is 'an excellent framework'. The chart below shows that 90% of respondents (27 of the 30 respondents) believe the BMP is a good to excellent framework for the delivery of NRM extension (rating 4 and 5).



The following chart shows a comparison of the response towards the usefulness of BMP across each group.



Respondents' comments regarding the BMP Framework are presented in the following table. The main comments regarding this framework included:

- A good framework, but it needs to be more relevant, it is not as effective as it could be.
- It needs to be include more NRM issues.

Group	Comments
Cotton Australia + NRM Bodies and sub-bodies	<ul style="list-style-type: none"> <li>▪ Encompasses all areas, land and water and resource management - <b>needs an overhaul to be more relevant and increase uptake.</b></li> <li>▪ The BMP is a very good framework. There is <b>no other available that meets these needs.</b> It does need to be greater than the individual properties though. It needs to be taken to the next step - to groups and to cover all NRM issues.</li> </ul>
Cotton CRC + CRDC	<ul style="list-style-type: none"> <li>▪ <b>Not as effective as it could be</b> - it needs to be improved by us (CRDC) and one this happens it could change how we deliver extension in the industry. We would use the BMP for more targeted extension. Bringing in Cotton Australia and Water efficiency roles effectively. Critical that there is a need to better integrate what happens on farms to actively implement at the catchment level. The BMP needs to be of value to growers, it needs to be production focused and get the biggest bang for the dollar in NRM. Water efficiency will be an issue. Production and resources needs to be connected with the critical areas in cotton.</li> <li>▪ Very worthwhile - <b>need to push the NRM aspect of the program.</b> Need more of it in general - need a higher profile and more publicity - but that would require a higher budget.</li> </ul>
Growers + ACGRA/Growers	<ul style="list-style-type: none"> <li>▪ The position is really good in getting BMP implementation moving forward. Growers will not just get up and do it alone. Veronica has been a very valuable resource in the area.</li> <li>▪ In the past it has served us well, <b>essential to the industry - we just need to revisit it and increase its usefulness to farmers as a QA process.</b></li> </ul>

Group	Comments
IAWM + CRC Cotton Extension Staff	<ul style="list-style-type: none"> <li>▪ <b><i>This is an industry driven program based on science, which has credibility and where producers take the responsibility.</i></b> It was put in place before NRM issues so is leading rather than being forced. The AgSIP has made huge inroads into providing focus in the industry - uptake has been phenomenal. If we lose momentum it will be detrimental.</li> <li>▪ <b><i>Accelerated NRM issues - needs to be more in depth now.</i></b> For future projects they need to get out and sell themselves better. Some issues are real and they need more demonstrations for these.</li> <li>▪ Industry bodies are the best people to work with growers. Most are already in connection with them and are trusted and able to provide the needed support. AgSIP and Susan - the three way collaboration has been really effective way to deliver NRM outcomes and the BMP. It has been seamless and there has been great load sharing</li> <li>▪ <b><i>Need to make sure that the differences between properties is understood and that NRM issues will require different solutions - it need to be flexible.</i></b></li> <li>▪ There are other methods - but <b><i>this one does seem to be working.</i></b></li> <li>▪ Is a good framework and farmers know about it and the <b><i>Land and water modules link to it. It is a necessary parts of extension programs these days</i></b> - only going to increase in its awareness</li> </ul>

## General Comments

### General comments about the AgSIP 15 “NRM extension in irrigated cotton and grain” project and NRM extension in general

#### Consultants

- *They have done really well here. Not sure about their performance in other areas.*
- *A timely initiative.*

#### Cotton Australia + NRM Bodies and sub-bodies

- *Would be disappointed if it was not continued as it is a good program and has good resources and good people (Veronica and Susan). There is a problem surrounding the certainty of employment - programs with ending dates. People spend 12 months learning, 6 months working it really well and then 6 months looking for another job. So there is limited productivity. These people have good skills and they need job security.*
- *More information in getting it out there in newsletters is great - just need others to advocate it. Private consultants are important in getting the message out there as they are right there helping landholders make decisions.*
- *AgSIP is better than others- has had real outcomes.*
- *AgSIP15 just did not get to where it could have in the Condamine which was a pity hope it was able to deliver in the QMDC and FBA areas.*
- *The role has been very effective. Would like to see it remain as it has provided great support and resources.*
- ***The project has only scratched the surface*** in getting technical knowledge and on farm objectives out there. *These all need to be linked to catchment level issues now.*
- *The activities were mainly focused elsewhere, but what we did receive here (Theodore) was valuable and the linkages have been great.*
- *Will be a great project in getting landholders involved. The DPI and Cotton Australia collaboration is really needed, without it there would be no other avenues in this area (St George). They have been an excellent partner. The position connects us with researchers and landholders.*

#### Cotton CRC + CRDC

- *In my area NRM extension has been well represented - very lucky. I understand it is not as good in other areas*

- *Really good project - need to invest in the longer term and need to keep the momentum going.*

#### **Growers + ACGRA/Growers**

- *I think the project has been very worthwhile - should succeed in the future with the right resources. It will be important to the future sustainability of the industry.*
- *It will become important to link NRM with production. Area wide management groups are a really good idea - growers talk about farming issues (pests, soils) - a very good vehicle. What is important is simplifying the strategies for implementation. it needs to be easy and production based so that growers see the value in implementing NRM issues. The industry has been in a difficult period (profitability) NRM has not been a major issue.*
- ***NRM needs to be led by the industry*** - we need a steering committee to determine and prioritize programs and evaluate them regularly
- *Being able to accurately calculate energy man made & environment for trading.*

#### **IAWM + CRC Cotton Extension Staff**

- ***Overall it has beneficial to have extension officers dedicated to NRM issues. It has been a really good process and a lot of extension material and knowledge has opened the eyes of landholders to new issues. It is a slow process to build this up.***
- *Have received several newsletters - but it was not until recently that I realise how much value the information had. I fear this may the same for others - they receive a newsletter that does not catch their attention and it is ignored (regardless of how useful the info is). **They need a better masthead than AgSIP, need to be more interesting, badge it more accordingly - it is great and needs to catch our attention.***
- *It has been a very good idea, a very needed project and the growers appreciate it.*