

COTTON EXTENSION PROJECTS

Part 1 - Summary Details

Please use your TAB key to complete Parts 1 & 2.

CRDC Project Number: **CRDC218C**

Project Title: **GROUND APPLICATION EXTENSION PROJECT**

Project Commencement Date: 1/10/02 Project Completion Date: 30/6/03

Part 2 – Contact Details

Administrator: Bill Gordon

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Supervisor: (Name & position of senior scientist overseeing the project).

Organisation:

Postal Address:

Ph: **Fax:** **E-mail:**

Researcher 2 (Name & position of additional researcher or supervisor).

Organisation:

Postal Address:

Ph: **Fax:** **E-mail:**

Signature of Research Provider Representative: _____

Part 3 –Final Report

(Maximum 8 pages)

Part 3.1 - Inputs

1. List all staff associated with this project.

Mr Bill Gordon - Project Coordinator (Bill Gordon Consulting)
Mr Peter Hughes (QDPI – Queensland Department of Primary Industries)
Mr Paul Kleinmuhlman (QDPI – Queensland Department of Primary Industries)
Mr Graham Betts (ASK GB)
Mr Ian Rankine (FOURT)
Mr Michael Burgis (CFI - Conservation Farmers Inc)

Budgetary gains/collaborations that have been formed including name of contact person and organisation, and the advantage/s of the collaboration.

From the original budget of \$140,000 (excl.GST) only \$ 129,595 (excl.GST) was drawn from CRDC. The initial cost saving resulted from a reduction in fees by Graham Betts (saving \$8,505) and Bill Gordon (saving \$1,900), with a further \$ 19,149.54 in uncommitted QDPI funds to be returned to CRDC (by the QDPI).

The final delivery cost for the project was \$110,445.46 (excl. GST)

CFI helped secure approximately \$ 19,800 from Farmbi\$ and participants to assist in the delivery of workshops conducted by Graham Betts and Bill Gordon. Industry personnel not eligible for Farmbi\$ support also contributed towards the cost of delivery of workshops.

Part 3.2 – Individual or Project Activities

1. Outputs

<i>Objectives</i>	<i>Achievements</i>
<p>1. To collect (in conjunction with the SprayPak launch in all cotton growing valleys) detailed data on the current level of operator skills and equipment set-ups across the industry.</p> <p>Responsibility: Bill Gordon & Peter Hughes (QDPI) &</p> <p>3. To identify and improve the current level of skill of spray operators in the cotton industry.</p> <p>Responsibility: Bill Gordon, Peter Hughes(QDPI), Graham Betts (ASK GB).</p>	<p>Bill Gordon Consulting, with assistance from Graham Betts (ASK GB) have collected information on the current level of skill and some details on equipment setups from 110 ground rig operators in cotton from areas Emerald through to Hillston about the current level of skill and knowledge.</p> <p>It was intended that the QDPI would also contribute to the data collection process to provide a sample greater than 200 individuals, however this did not occur.</p> <p>Workshops and Field-days conducted by various contributors are detailed below.</p>
<p>2. To promote greater awareness of the importance of calibration,</p>	<p>A Sprayer Field Day and Calibration Competition was conducted by Conservation</p>

<p>appropriate equipment setups and spray controller usage for improved application and to minimise the incidence of spray drift (through extension activities, and one-of 'novel' events such as the 'calibration competition').</p> <p>Responsibility: Peter Hughes (QDPI), Bill Gordon, with assistance from CFI.</p>	<p>Farmers Inc at Goondiwindi on 05/12/02. Attendance was limited to approximately 45 participants due to poor seasonal outlook.</p> <p>Bill Gordon presented at the McIntyre Field Day 26/02/03 - topics included Controller use, calibration, nozzle setups and drift control.</p> <p>A shielded sprayer field day conducted by CFI, with GB and BG presenting was conducted at Norwin promoting drift reduction techniques was conducted on 07/02/03. Attendance was > 50 participants.</p> <p>Bill Gordon presented information at 2 QDPI field days on application technology and drift reduction techniques for shielded spraying During Sept 03 at Macallister and Norwin (D.Downs). Attendance > 60 for 2 days.</p> <p>Peter Hughes (QDPI) conducted 2 fluorescent dye field nights. One at Ballone with 25 participants, the second at Mungindi with 45 participants.</p>
<p>4. To produce, and release through various formats, a series of publications (at least five) identifying key spray activities and issues during the season, working towards the development of a 'spray planner' for the cotton season.</p> <p>Responsibility: Peter Hughes (QDPI)</p>	<p>QDPI publications – Peter Hughes</p> <p><u>SPRAYpak Calculator</u> <u>A computer based calibration calculator was developed based on SPRAYpak. It is currently being reviewed by external agents and potential users. A copy is attached. The aim is to convert this to Palm® operation.</u></p> <p><u>Shielded Spraying</u> <u>An article on shielded sprayers has been prepared and will be inserted into publications as per the IDO media roster developed by CRC National Extension Co-ordinator. This work was based on research carried in conjunction with funding from other sources. The summary of the findings appears in the attached file (Result Summary.pdf)</u></p> <p><u>Band Application</u> <u>An article on shielded sprayers has been</u></p>

	<p>prepared and will be inserted into publications as per the IDO media roster developed by CRC National Extension Co-ordinator. This work was based on patternator pictures conducted at the IDO / Consultant workshop and also links into some confidential survey data indicating a number of growers using 25% bands for early spraying.</p> <p>QDPI provided assistance to the Ground rig operators association in the production of their 'Code of Practice' documentation.</p> <p>CFI/CPAS Publication (with contributions from Bill Gordon and ASKGB)</p> <p>'Shields ain't Shields'' booklet was produced by CFI / CPAS with over 250 copies distributed throughout the cotton industry.</p>																																	
<p>5. To provide access for operators (and other industry personnel) to in-depth training (1 day workshops) on calibration, appropriate nozzle selection & equipment set-ups and the use of spray controllers conducted by ASK GB (Graham Betts) to be conducted in each of the cotton growing valleys.</p> <p>Graham Betts (ASK GB), Bill Gordon.</p>	<p>Workshops were co-ordinated with initial SprayPak Launch activities, Graham Betts and Bill Gordon organised and delivered 9 in-depth one-day workshops for ground-rig operators in cotton at the following locations:</p> <table border="1"> <thead> <tr> <th><u>Date</u></th> <th><u>Venue</u></th> <th><u>No. of Participants</u></th> </tr> </thead> <tbody> <tr> <td>18-11-02</td> <td>Emerald, C.Qld</td> <td>15</td> </tr> <tr> <td>19-11-02</td> <td>Via Springsure, C.Qld,</td> <td>16</td> </tr> <tr> <td>20-11-02</td> <td>Theodore, C. Qld,</td> <td>16</td> </tr> <tr> <td>26-11-02</td> <td>Nandi, D.Downs,</td> <td>22</td> </tr> <tr> <td>28-11-02</td> <td>Jimbour, D. Downs,</td> <td>18</td> </tr> <tr> <td>29-11-02</td> <td>Cecil Plains, D.Downs,</td> <td>11</td> </tr> <tr> <td>06-12-02</td> <td>Moree, NSW</td> <td>18</td> </tr> <tr> <td>16-12-02</td> <td>Warren, NSW</td> <td>17</td> </tr> <tr> <td>17-12-02</td> <td>Hillston, NSW</td> <td>15</td> </tr> <tr> <td colspan="2" style="text-align: right;">TOTAL</td> <td>148</td> </tr> </tbody> </table>	<u>Date</u>	<u>Venue</u>	<u>No. of Participants</u>	18-11-02	Emerald, C.Qld	15	19-11-02	Via Springsure, C.Qld,	16	20-11-02	Theodore, C. Qld,	16	26-11-02	Nandi, D.Downs,	22	28-11-02	Jimbour, D. Downs,	18	29-11-02	Cecil Plains, D.Downs,	11	06-12-02	Moree, NSW	18	16-12-02	Warren, NSW	17	17-12-02	Hillston, NSW	15	TOTAL		148
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<p>6. To deliver a series of simple messages on how application may be improved through 'user friendly' formats that can be easily accessed and used by spray applicators. Responsible:</p> <p>Peter Hughes (QDPI), Ian Rankine (FOURT)</p>	<p>The project team produced & distributed 1000 units of each of two stickers detailing suitable conditions for spraying (a stop-go chart based on SprayPak, and a Delta T chart) for use in spraying rigs. (Examples included).</p> <p>The project team also produced 1000 units of each of two 'user friendly tip cards' The first outlines a pre-spray checklist, the second details tips for improving the use of automatic rate controller and appropriate settings.</p>																																	
<p>7. To increase the level of interaction (and understanding) between consultants, growers and applicators</p>	<p>The QDPI Continued to provide support to the Cotton CRC extension team through involvement with the Environment Focus</p>																																	

<p>through support for activities conducted by groups such as GROA and CCA, and through activities such as community forums in various locations throughout the season.</p> <p>Responsibility: Peter Hughes (QDPI), Bill Gordon</p>	<p>Team. Peter Hughes filled the position of Environment focus team leader until June 2003.</p> <p>Peter Hughes (QDPI) also participated in two workshops to discussing the impacts of the new Local Government Planning Acts on the change in land use. Representations were made to facilitate the use of BMP as one means by which cotton growers could overcome the potential requirements to impact assessment studies when starting cotton growing on “new properties”.</p> <p>Peter Hughes (QDPI) conducted a 2-day application workshop for the CRC Cotton Production Environment Residential</p> <p>No workshops were conducted for the Ground rig operators association due to the drastic drop in membership. However assistance was provided by Peter Hughes (QDPI) to the organisation to develop their code of practice.</p> <p>Bill Gordon gave several presentations on equipment set-ups to grower groups on the Darling Downs and to the CCA.</p>
<p>8. To identify what (if any) practice changes operators may have made in relation to information or training they have received during the season to enable future extension programs to focus on activities that deliver the desired outcomes for the industry.</p> <p>Bill Gordon, Peter Hughes (QDPI)</p>	<p>Exits surveys were conducted for most workshops. QDPI recorded participants comments and level of interest in particular subject matters following fluorescent dye field nights.</p> <p>Bill Gordon and Graham Betts recorded participants intent to implement practice change at the completion of workshops, then followed this up with random phone surveys of over 30% of the participants 4-6 months later to determine what changes had been implanted in that time frame. (Summary of evaluation results discussed in outcomes)</p>
<p>9. To seek additional support for project activities (both financial and in-kind) from various sectors of the industry and other funding providers.</p>	<p>With assistance from CFI, we were able to obtain Farmbi\$® support to elligle participants for the delivery of the 10 ASK GB workshops. The total value of which equated to</p>

<p>Bill Gordon, with assistance from CFI</p>	<p>approximately \$ 19,800.</p> <p>In-kind contributions from the QDPI were estimated at \$ 203,128.</p> <p>In-kind contributions from growers were estimated at \$ 8,000 for assistance with workshop venues, labour and access to equipment.</p>
<p>10. To provide a mechanism for the extension of research findings related to ground application derived from CPAS research projects.</p> <p>Bill Gordon, Peter Hughes (QDPI), Graham Betts (ASK GB)</p>	<p>Bill Gordon Consulting continued to extend CPAS research findings throughout the life of the project (and after completion) and has contributed to, and assisted with reviewing CPAS research findings.</p>

9. Outcomes

<i>Objectives</i>	<i>Achievements</i>
<p>Objectives 1 & 3:</p>	<p>Measured outcomes from evaluation:</p> <p>From a sample of 110 actual spray operators collected from each of the cotton growing valleys, greater than 12% of those individuals could not perform the calculations necessary to fully calibrate a ground rig for use in cotton. (all individuals had completed chemcert or equivalent training).</p>
<p>Objective 2:</p>	<p>Outcomes from some workshops/presentations currently difficult to quantify, refer to achievements for outputs and levels of participation.</p>
<p>Objective 4:</p>	<p>Publications produced, however due to timing of their release feedback is not currently available.</p>

Objectives 5 & 8

Exits surveys from workshops conducted by Graham Betts and Bill Gordon showed that:

- 95% of respondents identified potential problems with their current method of operation.
- 39% still had problems in selecting the most appropriate nozzle setup
- 63% said they would make changes to how they operate immediately, and over 80% said they would make changes before the following season.

Follow-up phone surveys of more than 30% of workshop participants (4-6months after workshop) showed that:

- 90% of those surveyed had made at least one change in how they operated, and over 70% had more than one change in practice.
 - The greatest change in practice was closer monitoring of appropriate conditions for spraying, followed by equipment setups (including controllers) and record keeping.
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Objective 6:	<p>Demand for the user friendly stickers on suitable conditions for spraying has continued – private businesses have expressed interest in paying for further production of the Delta T charts.</p> <p>The User friendly tip cards are currently being distributed through the extension team network and will be released to coincide with early season spraying activities for this cotton season (2003-2004).</p>
Objective 7:	<p>Demand for training in application technology still exists (due to the increased awareness of the issues raised by previous extension activities). Bill Gordon and Graham Betts both continue to provide training in application technology to the cotton industry in a private capacity.</p> <p>The extension team no longer has a permanent member/s skilled in application technology.</p>
Objective 9:	<p>The project was able attract farmbi\$ financial support to the value of \$19,800 and substantial in-kind support from participants.</p>
Objective 10:	<p>CPAS has now established a process for distributing research findings in cotton through its association with the co-operators involved in this project.</p>

10. Were any objectives not met and why?

The sample size for the data collection process was not as large as anticipated (but still sufficient), due to staff changes within the QDPI, however a significant proportion of the funds provided to the QPDI are currently uncommitted and are to be returned to CRDC. Some publications are still to be released, this is because their release has been timed to correspond with activities taking place within the industry this season.

11. Detail any impacts or measures of success.

Those operators that have implemented practice changes will be operating more profitably, with a reduced impact on the environment due to reduced off-target losses of agricultural chemicals.

12. Logic or Evaluation Methods and Results

Observations from previous extension activities have shown that intended practice changes indicated in exit surveys from workshops do not always result in actual practice change, but are more likely to indicate an intent or level of initial motivation to implement practice change. Hence follow up phone surveys of participants (conducted as semi-structured interviews, with very open questions) were conducted 4-6 months after the workshops run by Graham Betts and Bill Gordon to measure what practice change had been implemented and how this related to the participants intentions listed in exit surveys from those workshops.

13. Objectives for the next 12 months – Individual or Project (Not Applicable-project is not ongoing)

Part 3.3 – Extension Focus Team Activities

Please provide details of your contribution towards the Team’s outcomes.

(Not applicable)

Part 3.3.1 – Focus Team Objectives for the next 12 months

(Not applicable)