Part 1 - Summary Details

CRDC Project Number: **CRDC 253**

Project Title: G-Fitt – 63rd Plenary Meeting of the International Cotton Advisory Committee (ICAC) Mumbai November 2004

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Research Program: Capacity & Community

Part 2 – Contact Details

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Part 3 – Final Report Guide

Purpose of Travel

To participate in ICAC Plenary Conference (Mumbai Dec 1-3) and to visit ICRISAT (Hyderabad, Nov 29-30).

ICAC invited me to give a presentation at the plenary meeting of the "Second Report of the Expert Panel on Biotechnology of Cotton" which I Chair for ICAC.

CRDC funded costs of travel and accommodation for the ICAC meeting, ICAC provided free registration which covered all meals and other functions at the plenary meeting. CSIRO Entomology covers all costs associated with the visit to ICRISAT.

Executive Summary

1. Delivered a presentation to the plenary meeting on the "Second Report of the Expert Panel on Biotechnology of Cotton". I chair the Expert Panel and delivered the report to the Plenary. Report received a highly positive response from delegates. Plenary voted to continue activities of the Second Expert Panel and I will be asked to remain as Chair.

2. Several issues developing around Bt crops [chickpea, pigeonpea, sorghum] at ICRISAT. Considerable difficulties with achieving high expression and lack of clear understanding of deployment or management needs. This is particularly significant in an environment where Bt cotton is already grown and likely to be very extensively grown before any further Bt crops are deployed. ICRISAT committed to providing technology and varieties at no cost to producers, but has limited capacity to really engage with producers.

   Delivered a seminar on "Bt cotton in Integrated Pest Management" and stressed the issues of coordinated use of Bt genes across crops.

3. Invitation to co-author a book with Dr. Hari Sharma (ICRISAT) on "GM Crops in IPM".

Details of Travel:

Nov 28	Travel Brisbane-Sydney-Mumbai
Nov 29	Mumbai – Hyderabad
	Visit to ICRISAT, seminar
Nov 30	Hyderabad – Mumbai
	ICAC Plenary meeting, presentation
Dec 3	Mumbai - Sydney
Dec 4	Sydney - Brisbane

Key achievements

1. The main purpose of the trip was to attend the 63rd Plenary Conference of the International Cotton Advisory Committee in Mumbai (Nov 28 – Dec 3).

   ICAC is made up of approximately 40 member countries from cotton producing and cotton consuming countries. The organisation operates at a government to government level on issues affecting production and trade of cotton. Plenary conferences involve participation by official government delegations. The Australian delegation was lead by Michael Tige from DFAT, together with a representative of DAFF and from industry (Australian Cotton Industry Council, Cotton Australia, and CRDC). I was an official member of the Australian delegation. Approximately 157 official representatives were drawn from the 40 member countries, plus approximately 550 observers drawn from both member and non-member countries.

2. My main role was to present the report of the Second Expert Panel on Cotton Biotechnology, which I chair, and to participate in an Open session on Biotechnology of Cotton. The full report was published for the plenary and is now a public document.

   [**Fitt, G.P.,** Wakelyn P, Stewart M., James C, Roupakias, D., Hake K., Zafar Y., Pages J., Giband M. (2004). Global status and impacts of Biotech cotton. Report of the Second Expert Panel on Biotechnology of Cotton. International Cotton Advisory Committee, Washington 72 pp.] A copy has been provided to CRDC. Further copies are available for those interested.

   The report and my presentation were very well received. Several delegations recorded comments to the effect that the report was of tremendous value and will greatly assist developing countries to more clearly consider and adopt GM crops. Key concerns of developing countries are:
   - access to GM traits in their locally developed varieties
   - royalty costs to gain access
   - potential to provide real economic and social benefits for smallholder farmers

3. Following the Open session on Biotechnology of Cotton, a closed Plenary session voted to continue the activities of the Expert Panel and I will apparently be asked to continue as Chair. When the official invitation comes we will need to discuss implications. It is likely that the Expert Panel will be required to prepare another report for delivery in 3 years time, with perhaps some other activities prior to that.

4. Considerable focus in ICAC on “government measures” [subsidies] distorting world trade. Plenary developed a statement for WTO seeking to remove market distorting measures. The statement was approved with overwhelming majority support [except USA]. Brazil is currently challenging the US in the WTO over its cotton subsidies. Australia is a third party to the Brazilian challenge.

5. I also spent two days (Nov 29/30) at ICRISAT (International Centre for Research in the Semi-Arid Tropics) located at Hyderabad, India.

6. ICRISAT conducts research [breeding and management requirements] for mostly small-holder systems on five mandate crops: chickpeas, pigeonpeas, sorghum, groundnuts and broom millet. Dr. Hari Sharma was my host and is the main contact for the Division's already significant research interactions with ICIRSAT through Dr. James Ridsdill-Smith and Dr. Sheena Cotter [genetic basis of HPR in chickpeas].

   Dr. Cotter is scheduled to spend a month at ICRISAT early in 2005 to conduct research on the genetics of host preference behaviour in hybrids between *H. armigera* [which has chickpea as a host] and *H. assulta* [which does not use chickpea]. Sharma is concerned that one month will be very tight to synchronise all elements of that research.

7. ICRISAT now has a significant biotechnology program [about 30% of total budget] targeted at the legume crops and sorghum. Many traits are being considered and transformation systems have been developed for chickpea, pigeonpea and sorghum. Bt genes are one of the main targets. ICRISAT has obtained access to Cry1Ab and Cry 1Ac genes from public sources through the CGIAR system.

   Bt chickpea and pigeonpea plants have been developed and are in the earliest stages of efficacy testing. Results appear disappointing at this stage, with low levels of expression achieving only growth suppression of *H. armigera* larvae. ICRISAT has developed relatively few transformants of each crop [25 or so] which severely limits the possibility of finding useful transformed lines.

   Field visits also observed the ongoing HPR research with pigeon pea and chickpea, particularly the interesting work with the highly diverse wild relatives of these species.

8. Discussions were held with 7 of the 9 scientists working on aspects of *Helicoverpa* management at ICRISAT, including IPM and HPR research, biotechnology and breeding. These included:

   Dr. GV Ranga Rao (Entomologist) – IPM and ecology
   Dr. Laximipathi Gowda (Global Leader Crop Improvement) – breeding and HPR
   Dr. O.P. Rupela (Microbiologist) – biological pesticides
   Dr. K.K. Sharma (Molecular Biologist) – genetic transformation laboratory
   Prof. Daniel Sullivan (Entomologist) – visiting Professor from Fordham University, NY
   Dr. Hari Sharma (Entomologist) – HPR and IPM

   I also met with Dr. Dyno Keatinge [Deputy DG- Research] who outlined the difficulties of transferring technology to India's millions of farmers and the resistance issues associated with deploying multiple Bt crops. A recent ICRISAT field-day attracted 150,000 farmers! Dr. Keatinge indicated ICRISAT's policy of providing technology free to farmers and dismissed concern about Bt resistance risks claiming that other genes would be available into the future.

   ICRISAT has suffered severe funding cuts [$40 million to $25 million] and most funds are now tied to special projects rather than as core funds. ICRISAT experiences great difficulties in demonstrating impact because all the breeding material is provided to national breeding programs which view ICRISAT as competition and rarely acknowledge their sources of germplasm. The long-term future for ICRISAT appears threatened.

9. Whilst at ICRISAT, Dr. Sharma invited me to co-author a book on “GM crops and IPM”. Sharma has been contracted by a US Publisher (Howarth Press) to produce the book and he is seeking a co-author. A copy of the contract was obtained. No commitment made at this stage. Delivery date is in one year. Time would be a severe constraint, but this would be an opportunity to challenge some of the misguided statements about GM crops in the recent book, “Ecological Engineering for Pest Management”, by Gurr, Wratten and Altieri.

Conclusions and Actions:

1. Ongoing role for GF as Chair of ICAC Expert Panel on Biotechnology of Cotton
2. Ongoing collaborative research interactions with ICRISAT require close scrutiny. Sharma concerned about time available for Cotter to complete her research.
3. Considerable issues with smallholder adoption and management of Bt crops globally and likely to be opportunities for CSIRO to lead or participate in research activities.
4. Invitation to co-author book on GM crops and IPM. Decision required.