



Australian Government
**Cotton Research and
Development Corporation**

TRAVEL & CONFERENCE REPORT

Part 1 - Summary Details

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

CRDC Project Number: DAQ1103T

Project Title: Travel: Fusarium Laboratory Workshop, Bari, Italy, June 2012

Project Commencement Date: 1/6/2012 **Project Completion Date:** 11/7/2012

Research Program: 3. Human Capacity

Part 2 – Contact Details

Administrator:	Helen Kamel
Organisation:	Department of Agriculture, Fisheries and Forestry (DAFFQ)
Postal Address:	PO Box 102, Toowoomba, Qld 4350
Ph: 07 46881286	Fax: 07 46881190 E-mail: helen.kamel@daff.qld.gov.au
Principal Researcher:	Linda Smith Senior Plant Pathologist
Organisation:	Department of Agriculture, Fisheries and Forestry (DAFFQ)
Postal Address:	Level 2C West, Ecosciences Precinct, GPO Box 267, Brisbane QLD 4001
Ph: 0732554356	Fax: E-mail: linda.smith@daff.qld.gov.au
Supervisor:	Malcolm Ryley
Organisation:	Department of Agriculture, Fisheries and Forestry (DAFFQ)
Postal Address:	PO Box 102, Toowoomba Qld 4350
Ph: 07 46881316	Fax: E-mail: malcolm.ryley@daff.qld.gov.au
Researcher 2	(Name & position of additional researcher or supervisor).
Organisation:	
Postal Address:	
Ph:	Fax: E-mail:

Signature of Research Provider Representative:

HELEN KAMEL
PRINCIPAL COORDINATOR
(EXTERNAL FUNDING)

Part 3 – Travel Report

(Maximum two pages)

1. A brief description of the purpose of the travel.

The reason for travel is to attend the Fusarium Laboratory Workshop June 2012 in Bari, Italy. Participation will greatly enhance technical skills as a Plant Pathologist, with emphasis on *Fusarium* identification. The ability to identify *Fusarium* species will assist in the identification of these fungi isolated from boll rots; which are becoming an increasing problem for industry. Enhanced *Fusarium* identification skills will also enable the identification of *Fusarium* species capable of infecting cottonseed. Some *Fusarium* spp. produce mycotoxins; a concern for fuzzy cottonseed intended for feed. Attending a formal Fusarium workshop will add to current knowledge base and aid Fusarium diagnostics, a core component of CRDC funded project DAQ1103.

2. What were the:

a) major findings and outcomes

- 1.) Knowledge and technical expertise to correctly identify numerous *Fusarium* species using morphological techniques as well as molecular sequencing was gained.
- 2.) Traditional techniques including the preparation of single spore cultures, vegetative compatibility grouping, and extensive familiarisation with the morphological characteristic of a range of *Fusaria* grown on specialised media was learnt.
- 3.) Molecular identification of *Fusarium* species including how to extract DNA from the isolate, amplification of DNA using PCR, DNA sequence, and running the DNA sequence through a sequence database was learnt.
- 4.) Increased level of expertise to identify new and emerging pathogen problems in cotton.
- 5.) Meeting 7 international Fusarium experts plus 25 attendees has improved the Cotton Fusarium Teams potential for collaboration. Prof. Daniel Palmero Llamas an attendee at the workshop from the Universidad Politécnica de Madrid in Spain is keen for a student from the university to work in our laboratory on a joint Fusarium project.

b) other highlights

None

3. Detail the persons and institutions visited, giving full title, position details, location, duration of visit and purpose of visit to these people/places. (NB:- Please provide full names of institutions, not just acronyms.)

The training workshop was held at the Institute of Technology, University of Bari, Italy from the 3-8 June 2012. All training was conducted at this facility. There were seven international trainers: Cees Waalwijk, Plant Research International, Netherlands; Antonio Moretti, National Research Council, Institute for Sciences and Food Production, Bari, Italy; Ulf Thrane, University of Denmark, Denmark; Brett Summerell, Royal Botanic Gardens, Australia; David Geiser, Pennsylvania State University, USA; John F. Leslie, Kansas State University, USA; Antonio Logrieco, National Research Council, Institute for Sciences and Food Production, Bari, Italy.

4. a) Are there any potential areas worth following up as a result of the travel?

Potential to collaborate with Professor Llamas, an attendee at the workshop, on a joint student project.

b) Any relevance or possible impact on the Australian Cotton Industry?

Fuzzy cotton seed

We are currently involved in a collaborative pilot study with Rob Annetts (Dow AgroSciences) and Manoj Nayak (stored grains, DAFFQ) to look at the efficacy of Profume against Fov infected fuzzy cotton seed. The USA does not accept fuzzy cotton seed for feed that has been treated with methyl bromide because of residues following treatment. ProFume is a gas fumigant (Dow AgroSciences)

used for control of stored product pests. The effectiveness of this fumigant against *Fusarium* is unknown.

The *Fusarium* cotton pathology team have expertise in Fov identification, but not in other *Fusarium* species. In fuzzy cottonseed a number of *Fusarium* species in addition to Fov may be present such as *F. graminearum* which produces the estrogenic mycotoxin zearalenone which induces hyperestrogenism in swine. Hence attendance at this workshop has enabled the development of skills to identify *Fusarium* species that if present in cotton seed are potentially harmful to animals fed on the seed.

Boll rots

Increasing levels of boll rots have been reported in disease surveys in recent years. The skills gained at this workshop will enable a better understanding of *Fusarium* species causing boll rot in Australia. From the literature we know that *Fusarium* spp. isolated from bolls in the USA include *F. oxysporum*, *F. equisiti*, *F. lateritium*, *F. moniliforme*, *F. roseum*, *F. semitectum* and *F. solani*, however we have not conducted identified *Fusarium* spp. in boll rots in Australia. The improved identification skills will enable identification of *Fusarium* species associated with boll rot in our current CRDC *Fusarium* wilt project, and also in the new proposed boll rot project discussed at FUSCOM 2012 to be led by Dr Paul Grundy.

5. How do you intend to share the knowledge you have gained with other people in the cotton industry?

I presented a brief summary of what was learnt at the workshop and the applications of this learning at FUSCOM which was held recently on the 19th and 20th of July 2012 at the Royal Hotel in Goondiwindi, Qld.

