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RURAL INDUSTRY RESEARCH FUNDS
FINANCIAL YEAR 1988/89
FINAL REPORT - OVERSEAS TRAVEL

AN43C

**Authorised Body:** COTTON RESEARCH COUNCIL

**Organisation:** NSW Agriculture & Fisheries

**Officer Travelling:** Cheryl F. McRae

**Project Supervisors:** Dr. Bruce Auld, Orange — Telephone: (063) 636700
A/Prof. John F. Brown, Armidale — (067) 733333

**Address:** Agricultural Research and Veterinary Centre
Forest Road
Orange, NSW Postcode: 2800

**Reasons for Travel:**

Attend the 5th International Congress of Plant Pathology, 1988, Kyoto, Japan.

Ms. McRae presented a paper titled "Characterisation of enzymes in the spore matrix of Colletotrichum orbiculare". Attending this conference allowed the applicant to discuss her work with leading plant pathologists in that field. Ms. McRae is involved in the Cotton Research Council project on mycoherbicides for Bathurst and Noogoora burrs (DAN 27L). Although considerable success has been achieved in Bathurst burr control, control of Noogoora burrs has been restricted. This may be due to melanization of appressoria or enzymatic production by the fungus during the infection process.

Travel to Japan also allowed Ms. McRae to visit Dr. Kubo, Kyoto University who is researching biochemical aspects of infection by Colletotrichum species and who Ms. McRae is currently communicating.

| **Travel dates:** | Commencement | Completion |
|---|---|---|
| | 18th August 1988 | 3rd September 1988 |

**Itinerary:**

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| 18 August | Fly to Tokyo |
| 19 August | Travel to Kyoto |
| 20-27 August | Attend International Congress |
| 24 August | Visit Kyoto University |
| 29-30 August | Tour of Tsukuba Science City |
| 31 August | Return Tokyo |
| 3 September | Fly to Sydney |

COTTON RESEARCH COUNCIL

FINAL REPORT - TRAVEL GRANT
JAPAN - C.F. McRAE

The purpose of this grant was to attend the 5th International Congress of Plant Pathology, Kyoto, Japan.

Ms. McRae presented a poster, co-authored by Mr. G. Stevens on the "Characterization of enzymes in the spore matrix of Colletotrichum orbiculare". This work forms part of Ms. McRae's Postgraduate Award WIPA-UNE8N on the feasibility of using C. orbiculare as a mycoherbicide against Bathurst burr.

A major Congress session was physiological plant pathology; many of the sessions in this section dealt with the role of enzymes in pathogenicity of the host pathogen interaction. An interesting development in the field of genetic engineering was the demonstration by workers at Cornell University USA that virulence genes can be altered in recombinant fungal plant pathogens; virulence being either increased or decreased. This type of genetic manipulation may play a role in future mycoherbicides. Another new area of research relevant to weed control which attracted discussion was the use of fungal phytotoxins as herbicides.

In addition to attending formal congress sessions Ms. McRae discussed her work at length with Dr. R. Nicholson, University of Purdue, USA (the foremost researcher in the field of fungal spore matrix composition and function) in terms of fungal pathogenicity and manipulating the spore matrix of C. orbiculare to extend the host range of this fungus to include other Xanthium species. Areas of further research were identified.

Lengthy discussions were also held with Dr. Kubo, University of Kyoto, Japan and Dr. Kunoh, University of Mie, Japan on other aspects of the infection process of this fungus.

In addition, Ms. McRae visited the laboratory of Dr. Kubo and associates at Kyoto University (the leading research team in the field of appressorial melanization and fungal penetration of host tissue). Discussions included the possible link between appressorial melanization and host recognition by C. orbiculare and the use of various histochemical techniques relevant to this field.