Travel Report

Travel details:

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Travel proposal title:	**9th International Congress of Plant Pathology 2008 and Researcher visit INRA France and Rothamsted England**
Project number:	CRC60003
Dates of travel:	22 of August to 17 September 2008
Destination:	Italy, France and England

Travel summary:

The 9th International Congress of Plant Pathology was held in Torino, Italy, 24-28th of August. There were approximately 1,500 attendees. The key theme of the conference was "Healthy and Safe Food for Everyone". Speakers addressed a broad range of recent plant pathology topics but of particular interest to me were the talks on plant biosecurity, modelling, epidemiology, airborne plant diseases and climate change

I presented a poster entitled "Factors affecting short and long distance dispersal of fungal pathogens – Chickpea Ascochyta blight as a model". The poster session was the most beneficial part of the conference for me as I got to discuss my project with researchers from all over the world and obtain ideas for future experiments. This session was a great opportunity for me to represent the CRC for National Plant Biosecurity and the University of Adelaide.

Researcher visit (INRA France and Rothamsted England)

After the conference I travelled with CRC colleague, Bonny Vogelzang, to visit researchers at the French National Institute for Agricultural Research (INRA). INRA is the largest European organisation for agricultural research and there are many INRA institutes, each specialising in different areas of research. We visited the INRA facility in Toulouse, where we met Dr Jean-Noel Aubertot, a modeller in agro-ecology. Jean-Noel's research has focused mainly on phoma stem canker of canola and the methodologies used to assess disease. He has shown that rating varies among assessors and proposed methods to reduce variability. He is also working on an integrated model, assessing the influence of cultural practices on yield and yield loss caused by the main pests of canola. We discussed his modelling system and how models can take into account many aspects of a functioning system including epidemiology, cultural practices and economics. After explaining a few of his other projects Jean-Noel took us to his field sites. Here he showed us his Burkard traps where he collects airborne spores from diseased canola residues placed around the trap. Bonny and I presented 20-minute talks regarding our PhD work to Jean-Noel's group, mainly consisting of modellers. There were many questions regarding the model under development in my project, which I found useful and challenging, requiring me to think more like a modeller than an epidemiologist.

Our next stop was INRA, Rennes in the North of France to meet Dr Bernard Tivoli. His group is conducts research on soil-borne fungal diseases of grain legumes, including Ascochyta blights of grain legumes, which was of particular interest to me. Bernard was kind enough to go through many of his projects with us and explained in detail the epidemiology and spread of disease on peas in the field. He elaborated on how canopy architecture affects splash dispersal of *Mycosphaerella pinodes* conidia. He also explained experiments used to understand the underlying mechanisms in splash dispersal of pycniospores. Bernard introduced us to other

researchers including Christophe Le May, who was working on pea plant architecture and spatiotemporal development of *M. pinodes,* and Hortense Brun, who was investigating a new field method to determine how rapidly a pathogen population is capable of responding to imposed selective pressures, which is useful in increasing the longevity of a resistance gene, avoiding a rapid change in the pathogen population. We also visited modellers and molecular biologists to discuss their projects.

Next we visited Rothamsted Research in England where I experienced some hands-on plant pathology work and modelling practice. On the first day I met the Rothamsted modelling group, including Femke Vandenberg, who was teaching one of her students about matrix systems in modelling. This was fortunate because I was able to spend the day learning matrices and refreshing some of my year 11-12 maths skills. The next day Jon West showed me the Rothamsted wind and rain tunnel on which my project's wind/ rain tunnel is based. The tunnel at Rothamsted is huge, being built in the 1980s with the building. The rain tower was three stories high, or 11m tall, allowing terminal velocity of the rain drops before they hit their intended target. The wind tunnel reached a speed of 8 m/s, however, because of its limited use over the last few years, it was not tested to its limits.

Jon showed us many of his lab procedures, spore traps and trapping techniques. He explained how spore traps worked and gave me a Roto-rod trap to bring back to Australia. I met Bruce Fitt, leader of the pathology group in Rothamsted, who has studied aerobiology, spore dispersal and epidemiology. We discussed my project, the wind and rain tunnel and he was kind enough to give me some papers he thought may be useful for me to read. On the last day Jon gave us a tour of the Rothamsted farm. He showed us Burkard traps set up to catch ascospores from canola stubble and also smut spores in their wheat trials.

Overall, this trip enhanced my skills in plant pathology, modelling and epidemiology. I had the opportunity to interact with scientists from numerous research facilities. The hands-on work and discussions of my project with these researchers were invaluable. It was great to see how other research facilities operate and the focus on different plant diseases in Europe. It was also a great opportunity to explain the role of the CRC for National Plant Biosecurity to researchers abroad.

Me presenting my poster at the ICPP Turin, Italy

Dr Jean-noel Aubertot showing us his Burkard spore traps INRA, France

Dr Jon west (far), and Bonny Vogelzang (near) looking at smut spores on wheat