University of Western Sydney

Research Directions

Office of Research Services

Combating Citrus Disease in China

Professor Andrew Beattie, Associate Professor Robert Spooner-Hart, and Associate Professor Paul Holford from the Centre for Plant and Food Science are collaborating with Professor Liang Guangwen and a team of scientists from the South China Agricultural University Laboratory of Insect Ecology to protect Australia from invasive pests and diseases and improve opportunities for ecologically sustainable citrus production in China through a Department of Education, Science and Training Australia-China Fund project. The project is supported by the *International Science Linkages* and established under the Australian Government's *Backing Australia's Ability* innovation statement.

'In China, the major impediment to citrus production is a devastating disease called huanglongbing, which can destroy entire orchards within five years of planting' says Professor Beattie. 'Current detection methods for huanglongbing are difficult to use for farmers and field technicians and the most accurate methods are laboratory based and costly. This limits the number of samples that can be assessed. Furthermore, control of the disease and the insect vector that transmits it is difficult and reliant on environmentally unsustainable and potentially unsafe synthetic pesticides.'

This project, which builds on international collaborations commenced in 1979 and on other work by University of Western Sydney researchers throughout Asia, will focus on determining transmission rates of huanglongbing and improving simple, cost-effective microscopy and other detection methods that can be used in the field by farmers and regional technicians. Organically acceptable methods for control of the disease and its vectors, such as crop rotation, planting density, disease resistant hybrids and mineral oil and plant-derived pesticides will also be evaluated and tested.

The knowledge gained through this research project will enhance the prospects of a reduction in the economic impact of huanglongbing on citrus production in China and South East Asia. The research will also assist with development of pre- and post-incursion management plans for Australian citrus producers. The economic benefit of the work on the control of this disease will be the potential to increase yields and reduce reliance on synthetic pesticides, therefore, increasing profits for Chinese citrus farmers, and providing health and safety benefits for both citrus fruit producers and consumers.

Project Title: Developing Ecologically Sustainable Pest and Disease Management Strategies for Citrus, with Emphasis on Huanglongbing

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Contact Details:
a.beattie@uws.edu.au
http://www.uws.edu.au/pafs