

**Plant Biosecurity Cooperative Research Centre Offers Scholarships  
For Ph.D. Study in Grain Protection in the  
Department of Grain Science and Industry, Kansas State University**

The Australian Plant Biosecurity Cooperative Research Center (PBCRC) offers various scholarships to students wishing to complete training in plant biosecurity. Areas of interest include but are not limited to: Biology of Emergency Plant Pests, Diagnostics, Entomology, Predictive Simulation Models, Grain Protection, Risk Analysis, Social Science and Taxonomy.

The PBCRC offers full and top-up PhD scholarships. The annual stipend is \$30,000 AUD, plus a generous allowance for operating, travel, and professional development. For more information about PBCRC scholarships visit <http://www.pbcrc.com.au/education-training/scholarships>.

***PhD Scholarships from the PBCRC focused on Grain Protection at Kansas State University***

Three Ph.D. students will be funded to begin their program as early as August 2013. Applicants must meet the following criteria:

1. Must be citizen or permanent residents of either Australia or the United States
2. Master degree or equivalent must have previously been awarded
3. Exceptional BSc Honors graduates will be considered
4. GPA of 3.0 or higher on a 4-point scale

Research topics and relevant supervisor

1. Phosphine Distribution and Modelling of VaporPhos and ProFume in Australian Grain Bunkers (Professor Dirk E. Maier)
2. Evaluation of chlorine dioxide and ozone for disinfestation of stored wheat (Professor Subi Bhadriraju)
3. New non-chemical technologies to protect grain during storage and transportation (Professor Subi Bhadriraju)

Financial Support for PBCRC Ph.D. Scholarships

1. Stipend \$30,000 AUD per student per year for up to four years
2. Operating up to \$10,000 AUD per student per year for up to four years
3. Travel Total of \$2,500 AUD per student
4. Professional Development Total of \$2,850 AUD per student
5. Tuition including insurance up to \$12,000 USD per student per year
6. Annual travel to the CRC Science Exchange Meeting in Australia will be paid for by the CRC and attendance by the student is compulsory

***K-State Project Descriptions in Grain Protection***

Australia's \$7 billion worth of grain exports were historically protected from insect infestations with chemical insecticides (grain protectants) that leave a residue and with the fumigant phosphine that does not. Insects have developed resistance to the protectants and the fumigant phosphine. With increasing global market sensitivity to insecticide residues, improved pest

management practices are needed to overcome phosphine resistance, and pest management agents are needed that have low mammalian toxicity and high specificity to insects with no adverse environmental impacts. The collaborative research initiative between the Plant Biosecurity Cooperative Research Centre (PBCRC) of Australia and Kansas State University addresses the “Safeguarding Trade” initiative of Australia to ensure that grain exported from Australia is insect- and insecticide-residue free. Through this initiative, three specific projects have been funded in the Department of Grain Science and Industry to improve the protection of stored grains in Australia with results benefiting U.S. grain producers, handlers and processors as well.

*Phosphine Distribution and Modelling of VaporPhos and ProFume in Australian Grain Bunkers*  
Research Scientists: Dr. Dirk Maier, Dr. Subi Bhadriraju, Dr. Kingsly Ambrose

This PhD project aims to train a PhD student from Australia or the United States who will be capable of modeling dispersal of approved fumigants in bulk storages to accurately predict efficacy against insects. Results of this PhD research will generate new knowledge to allow grain facility managers and producers to successfully disinfest grain, prevent phosphine-resistant insects, and preserve biosecurity of stored grains.

*Evaluation of chlorine dioxide and ozone for disinfestation of stored wheat*  
Research Scientists: Dr. Subi Bhadriraju, Dr. Dirk Maier, Dr. Kingsly Ambrose

This PhD project aims to train a PhD student from Australia or the United States who will be capable of evaluating alternatives, such as chlorine dioxide and ozone, for controlling phosphine-resistant insects in on-farm and commercial bulk storages. Results from this PhD research will generate new knowledge in order to enhance biosecurity and ensure the long-term sustainability of phosphine.

*New Non-chemical Technologies to Protect Grain during Storage and Transportation*  
Research Scientists: Dr. Subi Bhadriraju, Dr. Kingsly Ambrose

A PhD student from Australia or the United States will be trained on food protection and food security through this collaborative project. The student’s work will focus on development of fundamental understanding on the inert dust properties that influence its adoption as a grain protectant. Some planned activities include characterizing the physical, mechanical, and flow characteristics of inert dusts; evaluating new inert dust application technologies alone and in combination with other pest management techniques; and develop a model to predict the change in microclimate in grain storage structures due to inert dusts.

***For more information contact:***

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