Support for successful storage

Management of insect resistance to phosphine, the most widely used chemical associated with insect control, is a looming biosecurity and grain-hygiene issue for the industry. If the Australian grains industry is not able to control the spread of phosphine resistance to many of the common pests of stored grain, it runs the risk of damaging its reputation as an exporter of high-quality, insect-free grain, effectively reducing bargaining power for our produce.

The Grains Knowledge Network project is a new initiative from the Cooperative Research Centre for National Plant Biosecurity to develop a strategy to improve awareness of this issue and contribute to the management of phosphine resistance. This two-year project, which started in August 2008, aims to assess methods for delivering information to growers, including the impact this work has on changing the way growers manage phosphine resistance.

"In order to retain market access, in many situations on-farm practice needs to change and improve," says Plant Health Australia program manager Dr Sharyn Taylor.

"This project aims to quantify adoption of best management practice in relation to grain storage to identify if there are limitations in current knowledge-delivery programs and help demonstrate to the market that the Australian grains industry takes the issue of grain hygiene very seriously through the whole value chain."

This project will link with another new initiative from Plant Health Australia and the Grains Council of Australia called the Grains On-Farm Biosecurity Program. Within this program, grains biosecurity officers based in Western Australia, South Australia, Victoria and Queensland will deliver information to growers on the risks associated with the introduction and spread of new pests. These officers will also provide information on practical methods for improving farm biosecurity.

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Delivering information to growers on managing all aspects of grain storage is part of the objectives of the Grains Knowledge Network project.

visual detection of adult pests provides a very limited view of the whole storage. Coupled with ineffective and/or often inherently dangerous wired monitoring systems to measure fumigation levels in storages, the problem has been further compounded.

To address the use of prophylactic treatments as a means of risk mitigation, a new project has been initiated by the Cooperative Research Centre for National Plant Biosecurity (CRCNPB). The aim of this project is to develop wireless hardware systems and technology to monitor the presence of grain insects and fumigation levels within grain stores.

Acoustic, light, reflectance, temperature and pheromone sensors will be investigated. Embedded sensor networks and robotic samplers, which are potentially more cost-effective and likely to be able to penetrate large grain bulks, will also be investigated.

All these systems are innovative for the post-harvest grains industry and have the potential to remotely deliver accurate and safe information on the presence of grain storage pests and fumigant levels within grain bulks. The project runs until 2010 and progress will regularly be reported back to industry.

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