

Donahaye, E.J., Navarro, S., Bell, C., Jayas, D., Noyes, R., Phillips, T.W. [Eds.] (2007) *Proc. Int. Conf. Controlled Atmosphere and Fumigation in Stored Products, Gold-Coast Australia. 8-13th August 2004.* FTIC Ltd. Publishing, Israel. p. 623

THE DEVELOPMENT OF RESISTANCE IN THE NORTHERN REGION OF THE AUSTRALIAN GRAIN BELT

P.M. TAYLOR, AND P.J. COLLINS

DPI&F80 Meiers rd Indooroopilly, Queensland 4068, Australia
E-mail: Phillip.Taylor@dpLqld.gov.au

ABSTRACT

Throughout central and south-east Queensland, farms, grain merchants and central storages were visited to collect samples of the stored grain insect pests, *Cryptolestes spp.*, *Oryzaephilus surinamensis*, *Rhyzopertha dominica*, *Sitophilus oryzae*, and *Tribolium castaneum*. These samples were collected as part of an ongoing resistance monitoring project designed to monitor the spread and occurrence of resistance across the northern region of the Australian grain belt. The insects were tested for phosphine resistance using the FAO method and from the results, classified as susceptible, weak resistant or strong resistant. Since monitoring began in 1992, the frequency of weak resistance detected in each species has increased to high levels and strong resistance has been detected in 7 samples of *Cryptolestes spp.*, 1 sample of *O. surinamensis*, 14 samples of *R. dominica*, and 3 samples of *T. castaneum*. Strong resistance has not been detected in any samples of *S. oryzae*. Resistance appears to be widespread in this region, showing no obvious trends in distribution. The increase in weak resistance and the occurrence of strong resistance suggests that phosphine is not being used as directed on farm and due to resistance may become less effective at controlling stored grain insect pests in the future.