

Title Prospects for predicting insect mortality in relation to changing phosphine concentrations.
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Citation Advances in stored product protection. Proceedings of the 8th International Working Conference on
Stored Product Protection, York, UK, 22-26 July 2002 (2003); 668-670

Abstract

The effects of varying phosphine concentrations (0.2, 0.4 and 0.43 mg/litre) on phosphine-resistant *Rhyzopertha dominica* (QRD569) and *Sitophilus oryzae* (QSO335) strains from Australia were studied under fumigation (25 deg C and 55-60% relative humidity) and post-fumigation (25-28 deg C and 55-60% relative humidity) conditions to evaluate the prospect of predicting insect mortality under varying phosphine concentrations. The commonly used concentration x time product was unreliable for the prediction of *R. dominica* and *S. oryzae* mortality. On the other hand, the relationship $Cnt=k$ may be useful for *R. dominica*. However, in the case of *S. oryzae*, the relationship $Cnt=k$ proved to be less reliable.