

Title The ability of buried PCTM traps to detect stored-product mites in wheat.
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Abstract

Mites are a major pest of stored grain in the UK. Recent interest in mite presence has been stimulated by the potential health effects of ingesting mites and their products and the development of resistance to organophosphate pesticides (Willey, K.B., Prickett, A.J., MacNicoll, A., Thind, B.B., 1998, Proceedings of the Brighton Crop Conference-Pests and Diseases 1:503-510). Although mites are often present in stored products it is not known if mites pass from storage into finished food. Traps exist to monitor beetles in grain bulks and mites in empty stores, and manufacturing premises. It may be possible to use these to monitor mites in bulk-stored grain. An initial study compared the populations of the major UK mite pests (*Acarus* sp., *Glycyphagus* sp. and *Tyrophagus* sp.) in buried PC traps, probe traps and Mite Monitors with populations recovered from grain samples taken from the surface of a 100 tonne managed grain bulk. A second, laboratory-based, experiment assessed the ability of the buriedPC trap to detect three major storage pest species: *Acarus siro*, *Lepidoglyphus destructor* and *Tyrophagus longior*. The ability of this trap was assessed against single and mixed species populations; it was also tested with Mite Monitor bait added to the trap. Results from the initial study showed that there were discrepancies between mite genera found in the grain samples and the traps. In the samples 44% of mites recovered were *Acarus* sp., 23% *Glycyphagus* sp. and 33% *Tyrophagus* sp. However, more than 75% of mites found in PC and probe traps were *Acarus* sp. and 55% of those found in Mite Monitors were *Tyrophagus* sp. Very few *Glycyphagus* sp. were found in traps. Similar proportions were found in the laboratory study. Buried PC traps contained more *A. siro* than *L. destructor* or *T. longior* when either single or mixed species populations (with equal numbers of the different species) were examined. When Mite Monitor bait was present the proportions of *T. longior* and *A. siro* in the traps were equal. The implications of these results on the use of traps to monitor mite populations in grain are discussed and it is concluded that, although currently existing traps may be suitable for monitoring mites in grain, more work is necessary to understand interspecies interactions and the relationship between trap catch and actual populations.