

Title The efficacy of flufenoxuron and azadirachtin against mixed mite and insect populations in small bins of wheat.

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Abstract

Alternatives to the use of organophosphorus compounds for the protection of stored grain against pest infestations were investigated. Batches of wheat (cv. Mercia) were treated with 2 mg flufenoxuron and 75 mg azadirachtin/ kg, transferred into small bins infested with mixed populations of mites and insects (*Acarus siro*, *Lepidoglyphus destructor*, *Sitophilus granarius* and *Oryzaephilus surinamensis*) and stored at 15 deg C and 80% relative humidity for 26 weeks. From the second week, efficacy was evaluated every four weeks based on the ability of the compounds to inhibit the development and survival of the pest species. *A. siro* or *L. destructor* were not detected in the samples treated with flufenoxuron at or after 6 and 10 weeks, respectively. In the azadirachtin-treated samples, mites were not detected at weeks 2 and 26, when *A. siro* were found in one of the bins. *L. destructor* was not detected in any of the untreated samples after week 14, which may have been due to competition from the faster breeding *A. siro*. Adult beetles were caught in the traps throughout the experiment, with lower numbers of *O. surinamensis* trapped than *S. granarius*. The treatments reduced the numbers of *S. granarius* by approximately 75%.