

Title Population dynamics of stored-product insects at a rice mill in northeast Arkansas
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Abstract

The flight activity, seasonal and spatial distributions, and effects of fumigations on the lesser grain borer [*Rhyzopertha dominica* (F.)], warehouse beetle [*Trogoderma variabile* (Ballion)], cigarette beetle [*Lasioderma serricorne* (F.)], and Indianmeal moth [*Plodia interpunctella* (Hübner)] were examined at a rice mill in Northeast Arkansas from June 2008 to October 2010. Stored-product insect activity was monitored using pheromone-baited glue traps (N = 99) on the exterior walls or fences around the perimeter and each major building of interest on the property. The warehouse beetle was the most abundant species which comprised 72.3% of all stored-product insects captured. The warehouse beetle showed major seasonal peaks between May and August and was primarily captured in the processing, parboiling, and co-product areas of the facility. The lesser grain borer made up 12.3% of all stored-product species collected and showed major seasonal peaks between May and September and was captured in the perimeter traps around the facility and by buildings containing rough rice. Regression analyses showed that populations of *T. variabile*, *R. dominica*, and *P. interpunctella* could be explained by environmental conditions such as temperature. This study demonstrated that outdoor pheromone-baited traps are an effective monitoring technique for determining when rice processing facilities are most susceptible to infestations of these stored-product insects and the areas in which they come from and inhabit.