RESIDUAL EFFICACY OF PYRETHRIN-METHOPRENE AEROSOLS

F. H. Arthur[1], A. E. Sutton[2], and K. Y. Zhu[2]

[1]USDA-ARS-GMPRC
1515 College Avenue
Manhattan, KS, 66502

[2]Department of Entomology
Kansas State University
Manhattan, KS, 66506

Aerosol insecticides can be used inside flour mills as part of an overall insect pest management program. Synergised pyrethrins are registered for use in structural facilities, and they are often combined with an insect growth regulator (IGR) such as methoprene or pyrprixyfen. The red flour beetle, *Tribolium castaneum* (Herbst), and the confused flour beetle, *Tribolium confusum* (Jacqueline DuVal), are cosmopolitan pests of flour mills, food storage facilities, and food warehouses.

. Residual tests were conducted by placing concrete Petri dishes containing flour inside a flour mill and exposing these dishes to commercial applications of 1% pyrethrin + methoprene or 3% pyrethrin + methoprene. These flour dishes were returned to the laboratory, the flour divided into new dishes, and bioassays were conducted every two weeks for sixteen weeks, separate dishes for each species and time period, by placing 10 late-stage larvae on the flour that had been exposed to the aerosol applications. There were 4 separate replications in time for each rate, with six subsamples for each time period. Larvae that were able to emerge as adults were considered to have “survived” on the flour exposed to the aerosol combinations.

Few of the red flour beetle larvae survived that were placed on the flour exposed to either the 1% pyrethrin-methoprne or the 3% pyrethrin-methoprene aerosols,

regardless of the bioassay week. Most of the individuals were arrested in the larvae stage, with few reaching either the pupal or adult stage. Survival of confused flour beetle larvae was independent of bioassay week, with no expected increase of survival as residues aged. However, we did observe a decrease with the 3% pyrethrin-methoprene aerosol, again with no difference with bioassay week. This result was unexpected since it is assumed that the methoprene component is primarily responsible for the residual control. It is possible that some additive effects occurred from the pyrethrin component.

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