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# EVALUATION OF AEROSOL TREATMENTS AS METHYL BROMIDE ALTERNATIVE FOR STRUCTURAL FUMIGATIONS

James F. Campbell* and Frank H. Arthur
USDA ARS, Grain Marketing and Production Research Center, 1515 College Ave, Manhattan KS USA 66502

The use of aerosols insecticides in food facilities is increasing, and it has been proposed that this type of management tactic could, as part of an IPM program, serve as an alternative to using methyl bromide for structural fumigations to control stored-product pests. Fumigants, which are toxic in the gaseous phase, have the ability to penetrate into hidden areas in the structure of the building or inside equipment that can be important refugia for pest populations. Aerosol treatments involve applying pesticides as small droplets in a mist or fog and many compounds used in aerosol formulations such as synergized pyrethrins, pyrethroids, and insect growth regulators can be considered reduced risk compounds. Aerosol applications, however, have limited ability to penetrate and therefore do not function in the same way as fumigants. As a result, aerosol applications are most likely to impact exposed insects, not those in hidden refugia. However, aerosols have a number of advantages because they are relatively inexpensive to apply, require a short facility shut down time, and applications can be targeted to problem areas and times.

The impact of these regular aerosol applications on pest populations is unclear because there has been little field evaluation of their effectiveness. We have undertaken a series of studies in different commercial food facilities to evaluate the influence of aerosol applications on pest populations and to determine if the use of aerosol treatments reduces the need for, and frequency of, fumigations. This work is being done using pheromone trapping to evaluate pest populations and comparing pest population trends where possible before and after the installation of a regular aerosol application program. To complement this research, we are also conducting pilot scale studies using replicated sheds to evaluate the impact of aerosol treatments under conditions where both pheromone trapping and direct sampling of the population can be performed. Both of these studies are ongoing, but a progress report on the approach that we are taking and the preliminary findings will be presented. Preliminary findings suggest that while aerosol treatments do not eliminate pest populations, they contribute to reducing population growth rates and as a result could reduce the need for, and frequency of, structural fumigations; perhaps making alternative structural treatments more economical.