



**AN IMPORTANT TOOL IN
YOUR FACILITY PEST
MANAGEMENT PROGRAM.**



**DOUGLAS
PRODUCTS**

Manufacturers of ProFume® Gas Fumigant
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ProFume® IPM and Fumigation

Fumigating with ProFume® gas fumigant has an important place in the integrated pest management (IPM) toolbox. When fumigation is integrated with other pest management tools, facility staff can spend more time focusing on production and less time on pests. Creating a proper IPM program includes coordination of different components to keep the business functioning in a clean and safe environment, as described below. Appropriate implementation of these tools in the IPM toolbox will remove the potential for pest infestation.

Sanitation and exclusion are generally considered foundational components of any IPM plan. Sweeping, wiping down equipment and other practices remove debris which can serve as food and harborage for pests. Wind curtains on entrances, screening of vents, sealing of cracks and crevices, and other procedures reduce pest access into the facility. Because sanitation and exclusion cannot absolutely prevent or eliminate pest infestations from facilities, insecticide treatments such as fogging and fumigating are part of IMP programs.

Fogging is the “dispersal of insecticides into the air by foggers, misters, aerosol devices, or vapor dispensers to kill exposed adults or crawling insects.”⁸ Fogging can handle small pest infestations but will not take care of infestations that are widespread or hidden in structural components, equipment and other contents. Unlike fumigants, fogging does not penetrate deep into machinery or through food debris to control the target insects. Fogging is a good tool to treat a small, localized, immediate insect infestation.

ProFume is a priority tool in the toolbox. ProFume penetrates into the areas that the other control measures cannot thus eliminating the infestation. Food debris in cracks and crevices may not be removed by sanitation. Research has documented that ProFume can readily penetrate through food debris like flour to effectively control insects.^{5, 9} Fumigating with ProFume is the best way to eliminate all the pests and rodents that are in the facility allowing you to restart your IPM program from a pest free state. Monitoring pest populations and fumigating before pest populations reach high levels prevents unacceptable product damage and saves the business money.

Using all these tools properly will create a better environment for the products and keep production running smoothly. Including fumigation with ProFume as part of an IPM program will reduce the likelihood of a recall or costly emergency fumigation.

- Sanitation is not the only answer to relieve pest pressures:
 - Full time sanitation could lead to hiring more staff to get the job done properly.
 - » Additional headcount cost could lead up to \$80,000 or more a year
 - Keeping a clean area is only the first step to battling infestations.
 - What is the cost of a recall if insects infest a facility?
 - » EY reported: “For companies that have faced a recall in the past five years, 77% of respondents estimated the financial impact to be up to \$30 million dollars; 23% reported even higher costs.”
 - » Food Sentry reported seven food recalls in 2014 due to insects.
 - » If not taken care of properly, rodents and cockroaches could transmit diseases that lead to a bacteria-related recall.
 - If you could sanitize every micro-environment, you could eliminate other IPM tools, but it’s nearly impossible to clean every environment that an insect could live.
- Fogging as the only insecticide treatment regime can be inadequate to obtain the desired control of target pests:
 - “Aerosol treatments can reduce the need for fumigation through improved insect pest management, but may not necessarily replace all fumigations.”²
 - Fogging has limitations:
 - » Aerosol droplets from fogging treatments do not evenly distribute or penetrate like a gas fumigant:
 - › Insect mortality varies based on location of insect from the spray nozzle³ and tends to decrease as distance from the spray nozzle increases.^{6,7}
 - › Aerosol droplets tend to settle downward, so horizontal obstructions such as equipment, pallets, and shelving can prevent aerosol insecticides from contacting target insects.¹¹

- › “Aerosols primarily affect that portion of the insect population that is active or moving so that they are exposed; hence, populations in hidden areas might not be exposed to the aerosol.”²
- › “Aerosols do not penetrate through packaging materials, bulk food products, or deep into machinery, and should not be confused with fumigants, which are toxic gases that have excellent penetrating ability.”⁴
- » Insect mortality rates from fogging treatments decrease in the presence of a food commodity:
 - › The presence of food material, either during or after exposure to pyrethrin aerosol, greatly increases survival of exposed adult flour beetles.^{1,3}
 - › As food deposits increase, mortality of larval and adult red flour beetles decrease following application of aerosol pyrethrin or pyrethroid insecticides.¹¹
- » Efficacy of fogging treatments varies by insect species, life stage, and insecticide active ingredient:
 - › Mature larvae of the Indian meal moth can be difficult to control with aerosol formulations of pyrethrin or pyrethroids.^{6,7}
 - › Confused flour beetles are less susceptible to pyrethrins and methoprene compared to red flour beetles.^{1,10}
 - › Larval flour beetles are easier to control with aerosols compared to adults.¹⁰

Things to remember:

- Sanitation, exclusion, monitoring, fogging, and fumigation together create an ideal toolbox for IPM.
- This system will reduce the potential of insect infestations and recalls.
- Implementing this system will reduce costs of emergency fumigations.
- Using all these tools will allow more time to focus on product quality and production efficiency.

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