

AN IPM APPROACH TO METHYL BROMIDE REPLACEMENT

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As the available methyl bromide CUEs continue to decrease, food manufacturers and warehousemen are struggling to find a viable fumigation option. Recent experience shows that even though an alternative fumigant gas is available with sulfuryl fluoride, it is by no means a perfect one-for-one replacement for methyl bromide. From the perspective of food suppliers, clearly what is needed is not another “me too” toxin to fill the void in the food protection program left by the escalating demise of methyl bromide.

Mass fumigation of an entire manufacturing plant or food distribution warehouse in and of itself is an expensive undertaking. This is especially true since there are numerous intangible costs associated with fumigation that are extremely important to the customer. These hidden expenses, which rival and often exceed the actual fumigation cost, include production losses during the shutdown phase of the fumigation and disruption of the supply chain. Couple these costs with the fact that in the absence of post fumigation operational changes, pest population rebound is probable.

There are additional concerns with the sulfuryl fluoride label which makes that potential methyl bromide replacement very restrictive, particularly in regards to the fumigation of pet foods and their ingredients. And finally, the ongoing dilemma over fluoride residues in food remains an open talking point. All things considered, everyone concerned in the food supply chain is looking for an environmentally sound and cost effective option for the demise of methyl bromide. That optional strategy is Integrated Pest Management (IPM), which includes:

- Sanitation to reduce pest-supporting resources (food, water, and harborage).
- Exclusion: tightening up structures to deny pest access (pest-proofing), and developing viable incoming goods inspections to disallow infested goods.
- Continuous inspection and monitoring to identify pest access points for corrective action and to locate sites of pest activity for precision treatment, to determine the level of activity (population size) so that proportionate corrective action can be undertaken, and to systematically eliminate pest-supporting conditions in the facility.
- Judicious use of pesticides to supplement the other elements of the IPM program.

While chemical manufacturers continue to look for the “silver bullet” methyl bromide replacement, food processors are moving forward with self-imposed pest prevention programs. I want to share some of those pest reducing alternatives with you that are in actual use today. Some of these are operational; many simply involve utilizing chemical tools to their fullest.

It is critically important for food plants to maintain a sanitary environment, not only for the prevention of insect pest infestation, but also to prevent the introduction of pathogens into their finished product. Several recent and highly publicized food product recalls highlight the importance of sanitation in the food plant. As far as insect control, a cleaner plant leads to fewer pests through the elimination of pest breeding and harborage areas both inside and outside. Pest exclusion through the use of screens, air curtains, and other devices, should also be utilized to prevent the introduction of insects to the facility.

Inspections and monitoring of food plants go hand-in-hand. The first step in any IPM program is to correctly identify the pest *and* to determine the size and location of the infestation. Pheromone lures provide early warning detection of potentially damaging stored product insects such as the cigarette beetle and the Indian meal moth. Traps must be inspected weekly and counts must be recorded for follow-up. If no insects are captured in the pheromone lures, these traps provide verification that no stored product insects are nearby to pose a risk to the products under your care.

When insect populations are discovered, the full range of pesticide alternatives should be considered. Depending on the scope and the location of the infestation, these alternatives could range from contact and/or residual insecticides applied as a crack and crevice treatment for a small area, or applied as a fog to larger volumes; to spot fumigation of specific pieces of equipment using magnesium phosphide. Fogging with contact insecticides is very effective in the control of exposed stages of insects. Insect growth regulators, such as NyGuard® or Diacon® II, may also be utilized in fogging systems to provide lasting residual control. Spot fumigations with Magtoxin® Spot Fumigant may be carried out in as little as 34 hours, on equipment of even very loose or open construction, to control insects which would not be exposed to a fogging treatment. While the time and concentration achieved will likely not be enough to kill the pupae and eggs, adult and larval insect stages can be effectively controlled. For ongoing insect control, a regular program of spot fumigation in conjunction with fogging may be appropriate.

Integrated Pest Management is a systemic approach to insect control. In addition to the techniques described above, food plant employees must receive thorough training, education, and management support. Employees are the food plant's front line of defense against insect infestation. Sanitation of the plant and grounds, recognition of insect harborages, and identification of pests; can prevent the establishment of insect infestation within the food plant. Through these techniques and the judicious use of pesticides when and where they are needed, food plant operators can eliminate their historical dependence on ever more costly and burdensome mass-fumigations to control their insect pests.