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# FOOD PROCESSING

SPECIAL REPORT

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## Pest Control's Critical Role in Food Safety



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# FSMA Changes Pest Control for Food Manufacturers

The Food Safety Modernization Act and Global Food Safety Initiative audits make processors rethink their pest management programs.

By **Dave Fusaro, Editor in Chief**

▣ Pest management programs in the food and beverage processing industry are increasingly influenced by food safety audits and government regulations. Between the Food Safety Modernization Act and third-party audits that comply with the Global Food Safety Initiative (GFSI), there are more rules and more prescribed steps to follow. And a lot more record-keeping.

FSMA applies to virtually every food & beverage processor in the country. In a 2013 note in the Federal Register, the FDA noted that problems with both pests and pesticides were contributors to food safety incidents in the recent past.

Pest control has always been a part, although largely implied, of federal food safety requirements, at least since the 1938 Federal Food, Drug & Cosmetic Act. In a reading of the January 2013 expansion of FSMA, “Pest management in the future will pay heightened attention to product transport vehicles, loading dock and non-food storage areas, facility maintenance

deficiencies that create pest and microbial harborages and utilization of pest-sighting logs as part of pest management trend analysis,” says Jerry Heath, product manager and staff entomologist for Industrial Fumigant Co., Lenexa, Kan.

Rodent management is one of those areas that has seen some significant changes. Rodent bait packaging, distribution and labels were revised in 2011 in response to concern for exposures to children and non-target animals.

“Mitigation of non-target animal exposure had the most impact on the food processing industry,” Heath continues. “Label revisions in 2011 limited most outdoor rodenticide placements to within 50 ft. of buildings. A number of shortcomings were identified in EPA’s directive and, in remarkably fast action, the labeling directive was revised to within 100 ft. of broadly defined structures. Rodenticides with this new labeling were on the market by late 2012.

“Old-fashioned fence line baiting is prohibited unless within 100 ft., but the current labels have sufficient flexibility to allow rodenticide protection for the diverse kinds of facilities and outdoor storages food processors utilize,” he says.

GFSI-recognized programs are another huge motivator for better pest management programs. In some ways, GFSI may have more impact on pest control than FSMA. While FSMA considers pest control a general recommendation of a HACCP program, all the GFSI-recognized programs have very specific requirements for pest control.

One change, thanks to most programs certified by GFSI, is the placement and spacing of rodent devices. Most pest management programs prior to the 2013 changes followed a formula, placing them every so many feet, but most popular audit standards compliant with GFSI now allow for more flexible device placements based on known threats, ongoing inspection and history of activity.

“There have been examples where numbers of rodent control devices have been dramatically reduced, and pest management service has evolved to a more general inspection routine,” says Heath.

But many facilities in the food and beverage industry are still governed by audit standards requiring a formula-based device placement

scheme — or the plants lack trending data to support a reduction in device numbers. So it's best to check with your auditors for what is allowed. Also, many facilities are just more comfortable with a conservative program.

Correct and efficient identification of pests is the first step to solving any pest challenge. Today, pest control experts are turning more and more to digital technology, specifically digital microscopes and digital photos as a reliable means for pest identification.

For widespread pest control inside the plant, processors should consider the debate between fumigation and fogging. Both approaches have their proponents. Neither leaves any residual chemical on surfaces, which in most cases is a benefit but does not provide long-term killing power.

Fumigation probably is a more effective method, but it requires a

shut down of whatever work area is being fumigated. Fumigation penetrates all cracks and crevices and provides a high degree of certainty that every bug in the room is dead. But it also penetrates packaging and machines. Fumigation also has been dealt some setbacks by the EPA, which de-listed methyl bromide, probably the most popular fumigant, a few years back. Other effective chemicals also have been removed.

For fogging, chemicals are sprayed in controlled areas. There is less penetration. The chemicals provide a quick kill, but dissipate more rapidly than fumigation, so downtime is greatly reduced. Sequential fogging treatments can eliminate or reduce the frequency of fumigations.

Heath notes that fogging can be done by pest control personnel or by a fixed fogging system. □

to be sure management notifications and appropriate responses are taken if there are multiple rodent captures or risks of rodents gaining a foothold.

There is common knowledge about many aspects of rodent biology that contributes to our management techniques for these pests. We know they can enter through small holes of only ¼ - ½ inch in size, so doors need to close tightly and holes leading into potential harborages need to be sealed. We know rodents tend to travel along floor-wall junctions which dictates many trap and bait station placements. We know that mice are more curious than rats and thus easier to trap.

Let's examine some lesser known aspects of rodent biology and behavior and consider some more advanced strategies. Food facilities are often large, sprawling complexes with potential risks from rodents indoors and out. But rodents will typically only utilize narrow travel pathways and small areas for most of their activity. So, recognizing and inspecting to locate the most attractive travel routes and potential harborages can allow the most efficient placements for traps or outdoor bait stations. The world's foremost authority on rodent management, Dr. Bobby Corrigan, suggests six words to summarize this concept: lines,

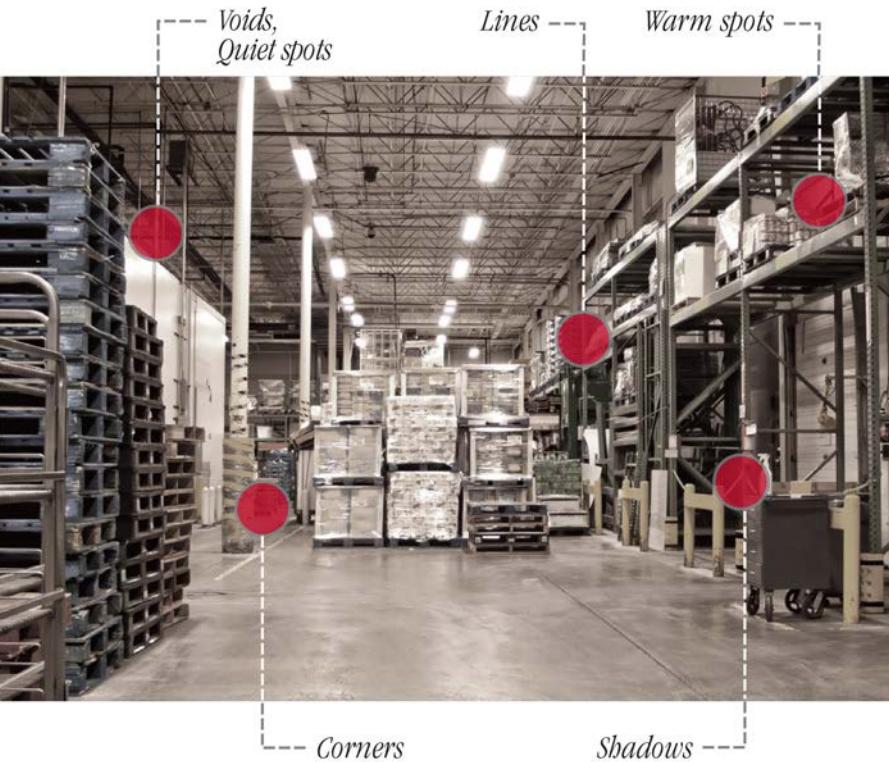
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## Removing Rodents From The Recipe

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□ Pest management should always be approached first with recognition of key pests and consideration of aspects of their biology where management options can be brought to bear. Rodents are recognized as a key threat for every

kind of facility. It is not uncommon to trap an occasional mouse or have some feeding in exterior bait stations, but infestations can never be tolerated in or around food facilities. A number of food companies have escalation protocols in place



shadows, corners, warm spots, quiet spots and voids.

- LINES can be wires, pipes, beams, vegetation lines or other kinds of borders in addition to floor-wall junctions. Remember that rodents are excellent climbers and are active at all levels of elevation.
- Rodents are secretive and will tend to prefer shaded, SHAD-OWY PLACES, or nocturnal activity. So there may be lighting or warehouse arrangement designs that promote brightness, or unavoidable shadowing areas ideal for trap or bait station placements.
- Rodents will tend to pause at CORNERS, so these are efficient places to inspect for

droppings or urine spots, and place traps or bait stations.

- Small animals like rodents are challenged to maintain body heat, so appliances or equipment that produce a little heat above the ambient temperature can be attractive WARM SPOTS and for nesting.
- Sometimes a number of these attractive features accumulate together in the same places that are also more QUIET than other surroundings, or in a VOID.

The best inspection tool for rodent activity is a good flashlight. Rodents will leave droppings everywhere they are active. The best use for UV inspection lights is not for scanning trailers, etc.,

but rather to discern which of the potential travel routes in a facility are actually being used. Regularly used travel routes or holes will often feature grey rub marks from the oils in rodent fur.

Monitoring data proves that rodent activity is not uniform around facilities. Most audit standards, and many food companies allow modification of device placement patterns based on monitoring and risk. Most people can recognize, for example, that a long blank wall with no openings may not require the same density of bait station placements as another area with shipping and receiving or product risks. It may be prudent to reduce device densities in some areas and increase them in others. Exploit differences in rodent species' biology, and behavior. Mice and roof rats have nibbling feeding habits, for example, unlike Norway rats that will eat a lot at one place. Consider how you might interpret and react to chronic, low-level activity in some area. A mouse or roof rat may need to nibble at an isolated station over a number of days to accumulate a toxic dose of bait, but a cluster of closely-spaced stations could encourage nibbles here and there and achieve a toxic dose much faster. Rodenticide baits differ in their palatability also, so selecting the most palatable bait that can compete with other food sources can be a key to success.

Consider the differences in preferred habitats of different rodent species when it comes to sanitation, exclusion, trapping and baiting. Rodent threats can come from below ground to the roof top!

Catching rodent issues early is important to help prevent an infestation from occurring. It can take time to treat for rodents, so the

earlier the process can begin, the better. Consider upping your Integrated Pest Management approach if you have frequent rodent sightings, as this proactive approach is the best way to reduce your risk.

*Jerry Heath, Board Certified Entomologist, is Staff Entomologist serving a broad range of technical service needs for IFC's food industry clients.*

*With nearly forty years of experience, Jerry's career has focused exclusively in the fields of entomology and pest management in academic and several industrial settings. Since 1937, IFC is the only national pest management company focused solely on the food industry. For more information, visit [www.indfumco.com](http://www.indfumco.com) or call 800-477-4432. □*

## IPM-BASED PREVENTION TIPS FOR SANITATION AND MAINTENANCE

Emphasis for pest management is increasingly focused on prevention rather than reaction measures. Of course, one will still need to react if some level of infestation is discovered, and it will be best to discover and correct situations as early as possible. Sanitarians often have lead responsibilities for pest control and interface with pest management contractors. Whereas pest management is inter-disciplinary, however, some coordination is needed between sanitation managers and their counterparts in maintenance, production, and other departments. Teamwork with maintenance, especially, has often been the attribute that contributes to excellence in pest management. Harborage elimination and exclusion are two fundamental elements of Integrated Pest Management (IPM) where maintenance involvement is likely to be necessary.

### 5 PEST PREVENTION TIPS FOR SANITATION

1. **Inspect and document.** Create a "Master Inspection Schedule" if you don't already have one. Better yet, assemble the management team periodically for some of the inspections – perhaps monthly. The value will be to have all the players involved to prioritize needs for corrective actions and downtime.
2. **Proactive treatments.** You probably already know when certain pests will be a challenge – certain invaders in the spring, and others in the fall; stinging insects and Indian Meal Moth (IMM) in the late summer and fall; and so on. Get ahead of the cycles! Schedule outdoor barrier treatments with residual before pressure develops. Get pheromone mating disruption devices in place before IMM populations explode. Consider use of grain protectants instead of waiting for inevitable infestations and fumigating. Versatile insect growth regulators (IGR's) should always be positioned as preventative treatments.
3. **Be prepared for immediate response to pest discovery.** Service providers do their best to respond as soon as possible to calls, but why wait even an hour? Nip little problems in the bud before they escalate. Assemble an emergency kit of certain products that can be used in-house to respond immediately to common issues:
  - Mist net for interior bird capture. Virtually invisible to birds, these can be positioned in bird flight paths to quickly entrap birds that get indoors and resist going back out through a door.
  - Rodent glue paper. Ideal for quickly isolating pallet(s) or an open trailer where a mouse has been spotted or suspected, and trapping when it tries to escape.
4. **Make the best use of available down time.** Down time for deep cleaning is precious! Sweeping floors might not be the best use of your labor resources when these opportunities present. Use your monitoring data to identify the trouble spot that needs attention and take action during down town.

**5. Train employees to keep an eye on the facility.** The more eyes you have looking for pest activity or conducive conditions the better. This is an important benefit of having a pest management service contractor. But, who could be better for taking note of insect or rodent activity than employees positioned throughout the facility at all times? Provide sighting logs where they will be readily accessible to employees. Make it a part of routine pest management service expectations to review sighting logs and respond appropriately.

## 5 PEST PREVENTION TIPS FOR MAINTENANCE

The value of a maintenance person with some sealant and simple hardware cannot be overstated. Consider the tradeoff between a pest management technician that makes treatments routinely and has certain chronic challenges, and some simple maintenance work that could solve an exclusion or harborage issue once and for all.

- 1. Fix doors that don't close properly or have gaps.** A tremendous number of insect and rodent issues can be traced to simple openings to the outdoors. Door openings are the most common culprit, but other openings can be anywhere from ground level up to the roof.
- 2. Seal cracks. Most of the important insect pests spend most of their lives in cracks and crevices.** These may be expansion joints in concrete floors, floor-wall junction cracks, or cracks at the edges of various panels or sheeting materials. Clean cracks out as well as possible, treat with residual insecticide and fill with sealant.
- 3. Seal wall penetration holes.** Oversized holes where pipes, wires or other utilities pass through walls create harborages in their own right, and sometimes pathways into wall voids.
- 4. Attend to proper storage of dead equipment and hardware supplies.** Hardware supplies and dead equipment – often dirty and in a heap somewhere, is great harborage for insects and rodents. Clean these and cap pipes, etc. Store hardware and equipment in an orderly manner and off the floor or ground.
- 5. Inspect. Think like a bug!** Create a list of cracks, holes, and other deficiencies, and track your progress in getting them fixed. Make this an exercise in accomplishing great things with minimum expense rather than a daunting challenge. It may be helpful to prioritize areas by zones.

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