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Pest Management Trends in the Food Industry

Technical Paper

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As pest pressures around food facilities continue to increase, the ability to manage pests will require innovation, new technologies and change.

Control Challenges with New Invasive Pest Species

The percentage of food imported in the United States is on the rise and that trend is expected to continue. With imports, can come pests. The challenge of controlling new invasive species will continue with the expansion of imports. Invasive pest species such as the brown marmorated stink bug and kudzu bug provide new control challenges. Both of these insects are agricultural pests and will overwinter in structures in large numbers causing problems for both farmers and food processors. They are not native species and are spreading rapidly. In addition to the true bug invasives, there have been some new invasive ant species introduced in the south like the Caribbean crazy ant and the Asian needle ant. The quarantined, stored product pest, the Khapra beetle continues to show up in the ports of the United States in increasing larger numbers. This pest can be imported on products such as rice, flour and spices from Asia and Africa and it is a particularly devastating stored product pest. With global commerce, the risks from invasive species are likely to continue.

Regulations and Third Party Audits

Food safety regulations and third party audit changes are driving change in food facilities. The Global Food Safety Initiatives (GFSI) based audits are particularly focused on the documentation facets of the pest management process and program. Likewise, strong documentation to verify an effective pest management program will be needed for food safety regulatory compliance under the Food Safety Modernization Act (FSMA). Strengthening the food safety programs of imported food will also be targeted under FSMA.

Food Import & Pest Connection

The percentage of imported food, and the potential for pest introductions has steadily increased in the United States.

1990 - 11% of food was imported

2009 - 17% of food was imported

According to the FDA, the following percentages of American diets come from imported foods

Fresh Vegetables	20%
Fresh Fruits	50%
Seafood	80%

Protection of Environmental Initiatives

The ongoing protection of environmental initiatives will continue to have an impact on the pest management industry. A recent example of this can be seen in regulations designed to protect pollinating insects. Although we applaud the protection of the environment, there can be consequences. Some of these same pollinators can provide sting hazards to food plant staff and food contamination concerns in sugar and corn syrup processing facilities. Innovative techniques are required to protect employees, food products and the environment.

Commitment to Sanitation Programs and Structural Integrity

The economics of performing some tasks like cleaning, and structural repair are being cut in food plant budgets. These budget cutting measures can directly impact pest management. Sanitation and structural integrity are all critical elements of pest management which are needed for control success. For some groups of pests like the stored product insects or small flies, elimination of the food source is essential to control. If we do not eliminate the source, there are limited alternatives for long term management of the problem. Pest populations can prosper from these budget cuts.

Pest management includes reducing the conditions that contribute to pest survival. Yet the costs for services such as cleaning, which help remove pest food sources, have consistently risen. Many facilities have reduced budgets in housekeeping staff. Improved sanitation is especially important when stored product pests are found inside food processing equipment where pesticides use may be restricted. In addition, it is important to remove evidence when pest activity occurs. Checking for reappearance of pest evidence can help the pest management professional determine the effectiveness of the control plan. With budget constraints, we will likely see more pest removal and pest evidence removal included as part of the pest management program. Since another critical element for pest survival is harborage we will also see more and more pest management firms offer sealing. Some firms are now offering minor pest proofing to deny pest building access and harborage. Stainless steel mesh such as Xcluder can be used to seal small openings and these services are offered by pest management professionals. Many pest management firms will also offer door brush or door seal replacement to exclude pests like rodents.

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New Technologies in Pest Management Programs

The first step in pest management is inspection. Inspections are important in determining pest type, size of the infestation and to develop an action plan. Current pest management programs rely heavily on monitoring in order to detect and respond to pest activity. The necessity of monitoring will not change. However, future technology will likely change our ability to monitor a wider variety of pests and monitor remotely.

Remote Pest Alerts and Electronic Systems

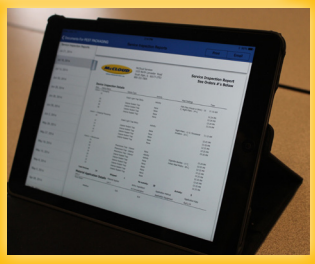
The wildlife industry and companies monitoring bulk grain storage have been able to monitor pest activity in traps remotely for several years. Electronic grain probes for grain bins are one example where technology can be used to count pests and send numbers electronically to a computer. In the near future these grain probes will be able to detect specific species and numbers of insects in bins. Wildlife professionals have been able to utilize electronic systems based on cell phone technology to notify them when live traps have captured an animal. Several trap manufacturers have looked at similar technology for the structural pest management market for rodents. Although such remote monitoring and notification systems have not been perfected for the structural pest management industry, we expect availability sometime in the near future. Having the ability to determine exact date and time of capture can be beneficial in analysis for developing control plans. There may also be some potential long term savings costs.

Video Cameras

One technology improvement that is available for capturing pest activity is through the use of video cameras. This technology upgrade is being driven by both the commercial and residential markets. Trail cams and "nanny" cams can be used by pest management professionals to capture time, date and images of vertebrate pests. Some of the cameras will send images to a cell phone at the time the pest movement is detected. These cameras can be used for wildlife and rodents. Some systems will tie in multiple cameras into one receiver, making it more economical to monitor several areas. They can be useful in elusive rat type problems in determining travel pathways and equipment placement.

Next Generation and Electronic Communication

Other technology related changes include the continued expansion of electronic documentation. Several firms are turning completely to a system where all documents are housed electronically. The recording of the pest management service in electronic form is not new. Pest management firms have been recording their service on PDA's for many years. However, the trend to have all records electronically based and the removal of paper records is a fairly recent development. One such program, LogIt is used at McCloud Services. The client is given an iPad for record viewing and interaction. Documents which were kept as paper copies such as maps, pest sighting reports, service reports, and pesticide labels are now retrieved using the tablet. This electronic format enables users to easily evaluate results of the pest management program and react quickly to make measurable adjustments. All documentation is stored in one location and eliminates the need for searching for some documents electronically and some in a paper based binder. The storing of documents in one location will also facilitate the review of documents during third party and regulatory audits. All of the necessary paperwork will be in one location.



There is a trend towards more customization of pest management equipment programs to fit the specific needs of a facility and this movement will continue. For many years, food plants and warehouse programs have utilized set distances for installation of monitoring and control equipment like multi-catch rodent traps and exterior rodent bait stations. Although standard distancing offers some benefit from an auditing system, it doesn't always equate to a program in the best interest of the food facility. Facilities with low rodent pressures may end up with the same amount of equipment as a facility with heavy pressures. In addition, some facilities may have heavy pressures on one side or area of the structure and little to no activity on another side of the building but have the same amount of equipment coverage in all areas. A newer concept utilizes equipment where it is needed and is not based on a cookie cutter program for all sites. It is commonly called, Next Generation pest management. The focus shifts from a set number of traps to an analysis of the facility and a customized program, placing equipment where needed. Visual inspections are still performed in all areas for pests but monitoring and control equipment is used where history and conducive conditions dictate. Additional services, with specific value to the facility, are substituted for the equipment removed. Services may include items like web removal, fecal pellet removal, pest proofing, or other monitoring programs or services. Next Generation pest management fits well with the GFSI based auditing standards which do not require set pest management equipment spacing.

We will see expanded pest management services offered in the food plant of the future. The trend for customization of programs to reduce unnecessary equipment is also likely to continue into 2015. As pest pressures change with new invasive species, the pest management industry will respond with new techniques and materials to control these pests and support food safety and a safe working environment.

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