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Technology Reshapes **Pest Control**

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By Kevin T. Higgins, Managing Editor

Extermination of rodents, insects and other pests drawn to food & beverage facilities seems like a low-tech exercise. But make no mistake: Technology more closely associated with NASA than pest remediation is beginning to reshape the way these prerequisite programs are executed.

Technology's impact already is being felt, but bigger changes are coming. "Better monitoring through electronics was being talked about five or six years ago, but the sensors and other hardware were too cumbersome and expensive," notes Ron Harrison, director of technical services at Orkin Commercial Services (www.orkin/commercial.com)

in Atlanta. "More affordable electronics and the ability to store data in the cloud is driving down costs and leading to greater acceptance of technology."

The biggest changes are still five years out, agree Harrison and Judy Black, vice president-technical services for Charlotte, N.C.-based Steritech (steritech.com). "Software improvement is an area where there is a lot of development in putting trend data in an understandable format," says Black. "Information technology is going to allow us to digitize the traditional (pest-control) log book. Five to 10 years from now, I'm not sure if there will be anything on paper."



An attitude change by auditors and regulators will be necessary before paper documents will cease to be, but that is slowly happening. The change can't happen fast enough, Black believes: Her organization tracks 37 different audit schemes for food-plant pest control, and meeting the specific requirements and subtle differences between each of them can turn service technicians into bureaucratic functionaries and distract them from designing a program that meets the specific needs of a facility.

McCloud Services (www.mccloudservices.com), South Elgin, Ill., a member of the Copesan network, recently armed its technicians with tablet computers that put all documentation at the technician's fingertips, replacing a hybrid electronic/paper-based system, according to Patricia Hodell, technical manager. Now the firm is issuing iPads to select clients to give them immediate access to trending and tracking information. Facility maps that used to reside only in a binder can now be overlaid with data pinpointing hot spots in the plant and the degree of activity at each one.

Rodent traps should be monitored daily, but service technicians only visit weekly, at best. Heat sensors could wirelessly relay capture data in real-time, with battery-power monitors providing assurance that the trap itself is still functioning, Orkin's Harrison points out. As hardware reliability increases and cost comes

When it comes to rodents, zero tolerance is the rule, and most plants opt for rodenticide to eliminate them. However, the forensics of pest control are best served with traps.

down, pest professionals will be able to precisely monitor and pinpoint problem areas. "It will introduce a scientific, rather than a robotic, approach to decision making," he predicts.

Data accessibility is important in every business and every function, and software programs for pest management have grown in robustness and functionality over recent decades, just as they have in other areas. Service providers derive most of the value from those programs, but adding value for clients is a trend that should improve sanitation practices in food facilities.

An example is the capability of email alerts sent by In-Quiz-It Software's U-Trap-It software program (www.utrapit.com). When breeches such as food spills or broken screens are noted by service technicians, an email to the sanitation supervisor or maintenance manager can be automatically generated. If corrective action is not taken by the next visit, follow-up emails are sent to people



Adorable, yes, but rodents and food production don't mix. Some pest-control specialists report great success with soft baits that outperform conventional block bait in attracting and eradicating rodents. Photo: Rentokil


further up the chain of command, according to Bruce Achterman, director-marketing & sales at the DeSoto, Texas-based firm.

The latest version of the 21-year-old firm's industrial software is geared more toward in-house use than earlier iterations, Achterman adds, to cater to the desires of food companies with multiple plant locations who want to own the data, regardless of who actually performs the service.

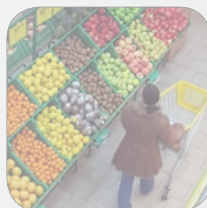
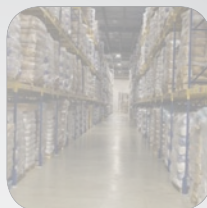
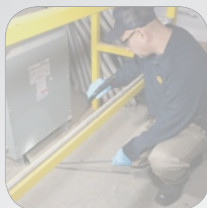
Charles Dixon was an early adopter of In-Quiz-It's program. His firm, Dixon Pest Services (dixonpest.com), Thomasville, Ga., is beginning to implement the email module. "Once you determine the plant's threshold levels (for tolerable pest activity), you can set that up to start nagging (the appropriate manager) with emails," he says.

When it comes to rodents, zero tolerance is the rule, and most plants opt for rodenticide to eliminate them. However, the forensics of pest control are best served with traps.

"There's some reluctance because one size trap won't control both rats and mice," allows McCloud's Hodell, but they permit a more targeted approach. Speaking of her firm's experience, she adds, "It's been eye-opening to us to know what species are being trapped around the facility."

More humane traps are starting to come into the market, says Steritech's Black, though devices currently available lack the ruggedness necessary for use in an industrial setting. When rodenticides are necessary, the trend is away from block bait and toward soft bait, which allows the odor of the food to waft over an area to attract hungry pests. "Soft baits are very effective, in my experience," she says, though some audit standards still require conventional block bait. 

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Pest Management Trends in the Food Industry

By Patricia Hottel, McCloud Services

As pest pressures around food facilities continue to increase, the ability to manage pests will require innovation, new technologies and change. Some of the current issues affecting food facilities include:

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.

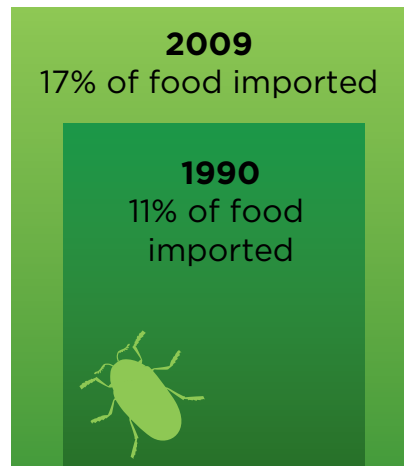
In addition to the true bug invasives, there have been some new invasive ant species introduced in the south like the Caribbean crazy ant and the Asian needle ant. The quarantined, stored product pest, the Khapra beetle continues to show up in the ports of the United States in increasing larger numbers. 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 Initiative (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.

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.



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

Commit to Sanitation Programs and Structural Integrity

In addition, the economics of performing some tasks like cleaning, and structural repair are being cut in food plant budgets. These budget cutting measures can 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.



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 the development 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

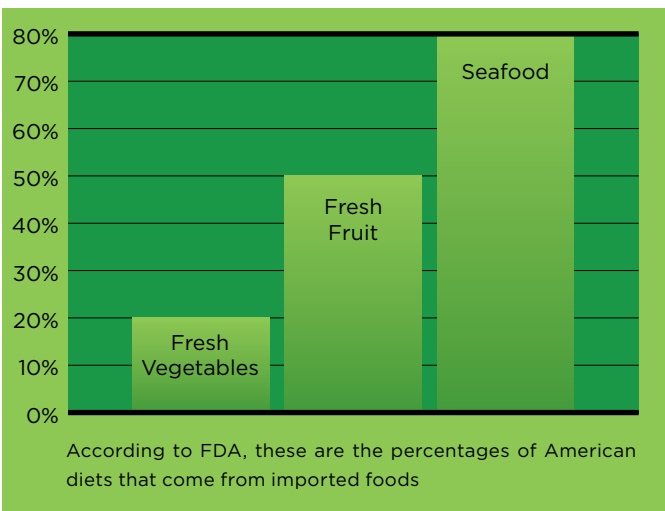
Other technology related changes include the continued expansion of electronic documentation. Several firms are turning completely to a system where all documents are housed electronically. The recording of the pest management service in electronic form is not new. Pest management firms have been recording 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.

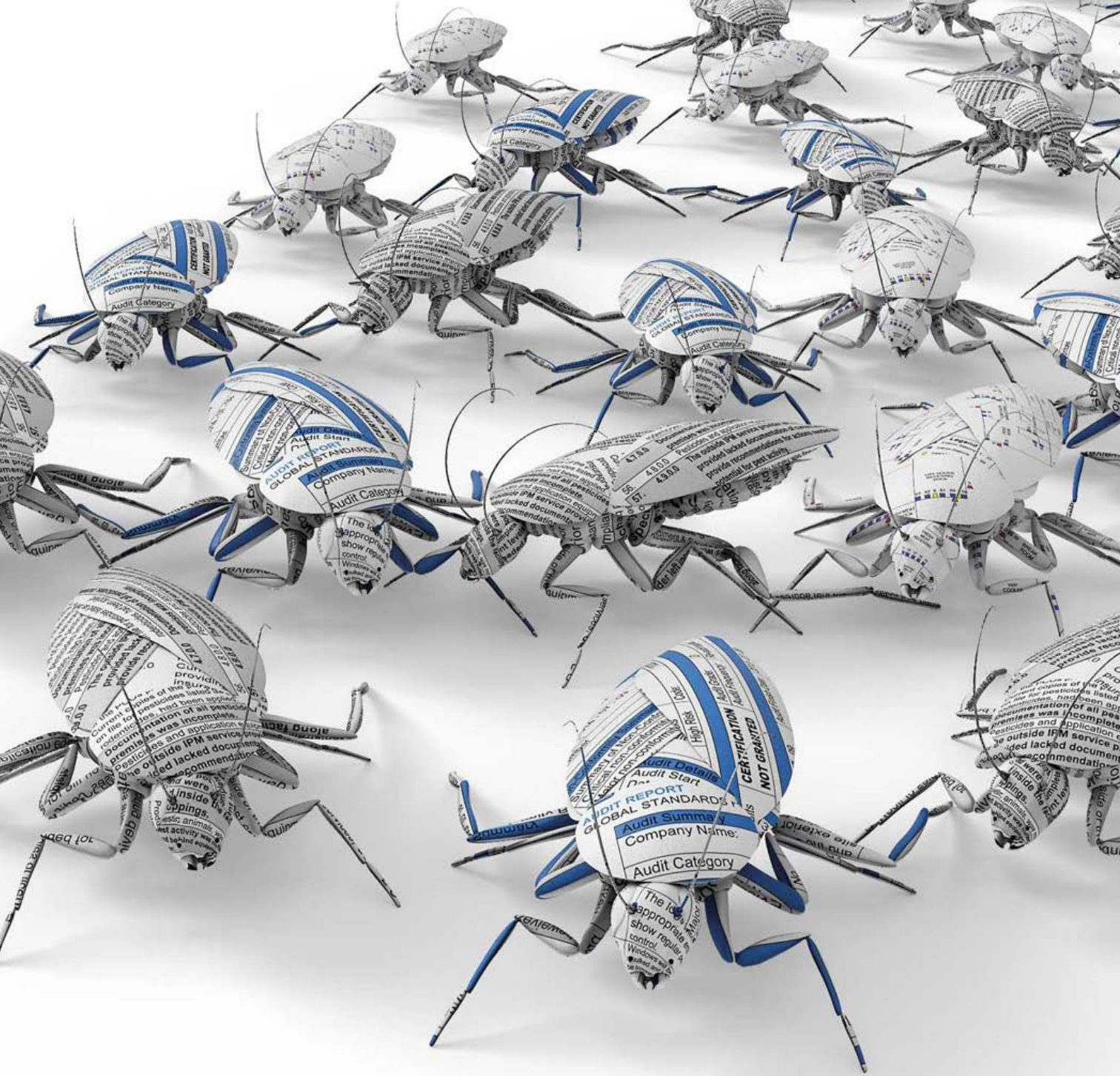
One such program, Logit is used at McCloud Services. The client is given an iPad for record viewing and interaction. Documents which were kept as paper copies such as maps, pest sighting reports, service reports, and pesticide labels are now retrieved using the tablet. This electronic format enables 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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FSMA: Driving Partnerships Between Producers and Pest Management Providers

By Judy Black, VP, Technical Services, Pest Prevention Business, Steritech

It has often been said that many companies view pest management kind of like many people view car insurance: to many, it's a necessary evil that they begrudgingly spend money on. But, just like cut-rate car insurance, not putting the due diligence into selecting your pest management provider can come back and bite you.

That bite could get a lot worse under the new parameters of the Food Safety Modernization Act (FSMA). Many of FSMA's provisions have already gone into effect, and although some are still forthcoming, it is in the best interest of producers to ensure they know how FSMA affects their specific facilities.

Section 103 of FSMA is a key section for producers. This section clearly outlines the requirement for production facilities to evaluate their facilities' unique hazards and risks. It is, essentially, an evolution of the Hazard Analysis and Critical Control Points (HACCP) philosophy that has been a key part of industry for many years.

The result is Hazard Analysis Risk-Based Preventive Control, or HARPC. The logic behind HARPC is that preventive controls are based on science and risk for each unique operation. HARPC requires that facilities evaluate their risks, identify and implement controls to reduce or eliminate them, verify that the controls are ad-

equated to address the hazards and risks, perform corrective actions to maintain the preventive controls as needed, and have written plans and documentation of all efforts related to those controls. The written plan must reflect all of these; while the Aug. 30, 2015, deadline for this portion of FSMA isn't for another year, now is the time to start preparing.

Another result of FSMA's enactment is that the U.S. Food and Drug Administration (FDA) now has much greater power to enforce policy. From accessing records to an individual inspector's own perception of issues, FDA has more authority to protect the public health by halting the distribution of products that could potentially be harmful – and that is going to put heightened pressure on producers to amplify their risk-based preventive control efforts.

So how does all of this apply to pest management? There are several key areas.

Expansion of Areas Where Preventive Controls Must Be In Place

Prior to FSMA, preventive controls for pest management were focused on "processing areas." Now, that language has changed to



include “manufacturing, processing, packing and holding areas.”

This means that pest management plans may need to be expanded to include additional areas, which can include transport vehicles, loading docks, and non-food storage areas.

Administrative Detention of Foods

Under previous FDA requirements, there had to be “credible evidence that food presents a serious adverse health consequence” for it to be held in administrative detention. However, under FSMA, the bar has been lowered for reasons to hold food from release. Now, there need only be “reasonable belief that food is adulterated or misbranded” for administrative detention to be enforced.

Pests, which could include all insect pests, rodents, and birds, are viewed as a serious adulterant by all regulatory and auditing firms. In recent years, pest issues have been cited as potential causes for serious food safety violations and recalls, in some cases traced back to rodent and bird droppings, feathers, and insects, all of which can be sources of dangerous bacteria.

With greater latitude given to inspectors, conditions merely conducive to pest activity could be enough to halt foods from release. The presence of any living or dead pests, or the evidence of any pest activity – droppings, sightings, feathers marks, or cast skins – will be, without a doubt, enough to trigger administrative detention.

Suspension of Registration

Much like Administrative Detention, this key point basically loosens the requirements for FDA to demonstrate proof that a facility’s product could sicken humans or animals. The FSMA language says that FDA only needs “reasonable probability that a food or product will cause serious adverse health consequences” to suspend registration. What happens when registration is suspended? It effectively shuts down a facility – no imports or exports of food to or from the U.S., no food product from the facility can enter the U.S. interior for interstate commerce.

Again, any condition conducive to, or sign of, pest activity in a facility could be cause enough for suspension.

Access to Documentation and Records

Under FSMA, records for risk-based preventative controls will be required to be kept on file by producers for at least two years. Pest management has always been a risk-based preventative control, but under FSMA, any “reasonable belief” that food or products could be adulterated – in any area of a facility – could lead to a FDA records inspection. Quite simply, that means that any problem at a facility, whether pest related or not, could prompt a review of pest management records.

Pest management is always a preventive control, but it may not be considered a risk-based preventative control in every facility. Despite that, because any reasonable belief of adulteration could prompt a records inspection, documenting your pest management actions is important. This includes not only evidence of service, but application of any products, and other actions taken. Pest management documentation abilities have come a long way in the past decade; identifying a pest management partner that utilizes technology such as bar coding devices, or online management and reporting systems can help ensure that you can generate reliable documentation that substantiates your program’s effectiveness whenever you need it.

The Good News about FSMA

By now you may be grumbling, but there is good news – really good news – about FSMA for facilities. When it comes to a pest management program, FSMA provides a platform for partnership between the producer and the pest management provider.

The increased focused on risk management intersects with pest management in the area of partnerships. If investing in pest management service is in any way like purchasing insurance, it should be in identifying a provider that can help substantiate your facility’s FSMA efforts. Look for a provider that that understands FSMA, as well as other audits you may be facing. Even more important, seek out a pest management partner that understands your facility’s particular challenges. Remember, trained pest management professionals can identify structural, storage, and sanitation issues that can contribute to pest issues.

Having a pest management partner that knows that a certain audit standard requires placement of bait stations every 50 feet and fulfills the standard is no longer good enough. Under FSMA, the producer is responsible for providing risk-based reasoning for the placement of those bait stations, as well as for the recommendations made to prevent pest entry and infestation. Wouldn’t it be optimal to have a pest management partner who knows your facility well enough to provide you with that reasoning, as well as the monitoring, verification activities, and corrective actions that go along with it?

Although FSMA has been slow and clunky in its initial rollout, we’re already seeing instances where FDA is implementing its expanded powers. The time for establishing an FSMA-appropriate pest management partnership is now. Don’t be left with your guard down – an effective, risk-based pest management program can be a big factor in protecting your facility and your brand. 