

2023 *State of the* **RODENT CONTROL** *Market*

From which rodents
are of most concern
to where they're being
spotted, here's how
food facilities are
handling the pests now.





Public Enemy No. 1 — *Rodents*

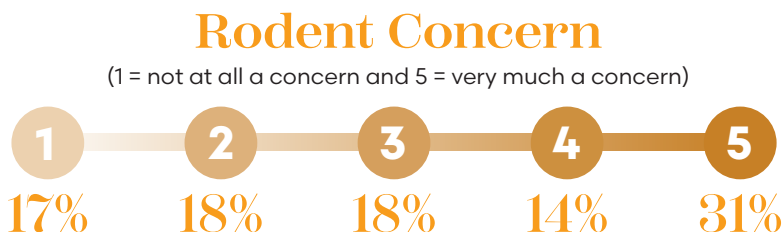
The pest of greatest concern for food processing facilities is also smart, stealthy and tricky to track.

It's an unappetizing thought for consumers and any facility that handles food products — the pitter-patter of paperweight feet above ceiling tiles, rub mark deposits along a miniscule crack, droppings. Then there's the outright sighting — eek, a mouse!

Rodents are the No. 1 pest of concern among quality assurance professionals who participated in QA magazine's annual State of the Rodent Control Market survey, sponsored by Xcluder. When asked to rate from 1 to 5 how much of a worry certain pests are, rodents and flies tied for first, ranking 3.2. And 67% have seen a rodent inside or outside of their facility.

The last thing any player in the food supply chain wants to invite into their facilities is rodents. "They can make products not sellable, and they can spread disease," said William Hoffman, president and CEO of Hoffman's Exterminating Co. in Mantua, N.J. "Plus, there is brand protection."

Beyond food products, supplies and packaging are also at stake. "We've seen rodents get into non-food items, and with the cost of goods, you can't afford to have sup-



Source: Readex research; Respondents: 175

plies damaged or spoiled because of pests," Hoffman said.

The souvenirs rodents leave behind are a substantial threat to food safety — excrement packed with microbes, viruses, bacteria and fungal spores that stay active for weeks, even months. "As they go about their days, they spread the potential for disease," said Emory Matts, B.C.E., North American rodent technical manager at Rentokil, Carrollton, Texas.

It's not a pretty thought.

"If a rat lives for one year, it can shed 1 million hairs," Matts said. "That's a lot of hair getting into the environment and food packaging and preparation surfaces."

So, no wonder rodents are public enemy No. 1 and a palpable risk to the food supply chain — if there is not

a stopgap rodent control and monitoring plan in place, that is.

Rodents, Behave

By nature, rodents are persistent. They exist to survive.

Aside from humans, rodents are the most successful mammal at doing this. "Their instinct is to survive, to feed, and they do nothing but try to figure that out," Hoffman said. "They are not worried about the debt ceiling, taxes or going on vacation. We spend eight to 10 hours a day on how to get rid of them, and they spend 24 hours a day on how not to get caught."

We know an awful lot about rodent behavior. Consider lab rat testing.

"They are really intelligent compared to most other pests," Matts

In Sight

Did rodent sightings at your facility increase, decrease or stay the same in 2022 compared with 2021?

Increased

14%



Stayed the Same

56%



Decreased
31%



Source: Readex research; Respondents: 118

said. "They can be very secretive, get into areas you might not recognize, and they are nocturnal."

Hoffman calls rodents stealthy. And their survival skills are passed from one fast generation to the next. (Mice breed monthly.) "If their parents are successful at getting into a facility and moving about the walls and ceilings without being caught, that behavior is learned and passed down," Hoffman said. "Within six months, you can have six generations of rodents that have learned how to move about the facility."

Shannon Sked, Ph.D., B.C.E., said, "They are learned animals." As an entomologist, food safety specialist and director of fumigation at Western Fumigation in Parsippany, N.J., Sked has conducted research on rodent movement and population dynamics. "One of the things that is underappreciated with these animals is they communicate through a complex pheromone system using urine. So, if you think about that, they are basically urinating in all the areas they go, and if that happens on food or a food ingredient, consider it adulterated."

Brave, New World

One behavioral variable that has shifted post-pandemic is rodent curiosity. Some research was conducted where rodent characteristics were observed in an environment

with no "culling activity" or controls — and "environments where there were campaigns to get rid of them," Sked said.

Neophilic (curious) rodents are brazen, more aggressive and not threatened by tools like snap traps. Neophobic rodents are scared of the new and the unknown. Not surprisingly, the rodents in facilities with no pest management plan in place were bold, and the ones in facilities with protocols and a concerted rodent mitigation plan were hesitant. "During COVID, everything was locked down, and those rodents that survived were very aggressive," Sked said. "They survived in areas where there was less pest control activity occurring. So, we are left with a population that is very curious, and we are seeing more

interaction. What that means for food processing companies is more sightings. They are not just staying in the places where pest control companies are used to dealing with them."

This could be why among the QA professionals surveyed, 67% have seen a rodent inside or outside of their facility. Fourteen percent say there was an increase in rodent sightings in 2022 over 2021, 56% saw no change and 31% noted a decrease.

Another contributing factor: "Rodents move farther faster," Sked said.

So does cargo when you consider same-day online ordering and the rapid transportation system that has evolved during the last decade. "Having an import of perishable mangos to Indiana in 24 hours is not unheard of," Sked pointed out.

Climate change is spurring more rodent activity across the country. "We are seeing more humid, warm parts of the country that would be cooler and dryer in years past," Sked said.

Well, rats! What does that mean for quality assurance professionals, aside from the reality that it's likely they will have a rodent sighting?

"A pest control professional needs to work with the food safety team," Hoffman said. "It's like looking at an X-ray. You look at the image and don't see anything, and the doctor looks at it and says, 'Here's the problem.' That's what pest control professionals do." ■

About This Survey

Sponsored by Xcluder, QA's 2023 State of the Market Report: Rodent Control in Food Facilities survey was conducted by Readex Research, a privately held research firm in Stillwater, Minn. The April 2022 survey sample of food and beverage processing facility managers and executives was systematically selected from the circulation file of Quality Assurance & Food Safety (QA). Data was collected from 203 recipients of QA's digital magazine and/or e-newsletter at unique U.S. company locations. Of these, 175 work for a company with at least one food/beverage facility and are the basis of this report. The margin of error for percentages is ± 7.3 percentage points at the 95% confidence level. Specific results may not add up to 100% due to rounding or the ability to select multiple responses.



Invitation Only

Exclusion is an integral part of a multi-pronged rodent prevention and control program.

A truck backs into the bay and the loading dock doors roll up, exposing roughly 9-by-8 feet of wide open “welcome mat” if you’re a rodent.

From deliveries to employee locker rooms and trash receptacles, there are many ways rodents are introduced into the food processing environment. Then, you have structural invitations: cracks, crevices, coolant and utility lines, mazes of old piping — anyplace where they can hide, feed and survive.

Let’s face it. Your plant is not like a bank vault.

“Food facilities are often 24-hour

operations and move at alarming rates,” said William Hoffman, president and CEO of Hoffman’s Exterminating Co. in Mantua, N.J. “You can’t stop the wheels of motion or product to see if someone shut a door or find out where the truck that backed in was yesterday. Maybe parked next to a dumpster, and now that truck is backing into your facility and you’re opening your doors.”

Exclusion is a critical aspect of rodent control and pest control in general. The entry points rodents can manipulate to access a facility are considerable. When asked where rats have been seen on site, respondents to QA magazine’s annual State of

the Rodent Control Market survey pointed to interior and exterior trash cans, dock areas, incoming goods, processing areas, in and around employee lockers, breakrooms and kitchens. Every respondent reported more than one “hot spot.”

“Exclusion is the foundation,” said Emory Matts, B.C.E., North American rodent technical manager at Rentokil, Carrollton, Texas. He has used thermal cameras to identify hard-to-find holes and gaps, especially on rooftops. “We’ll open up walls, drill a little hole and use an endoscopic camera to see what’s inside.”

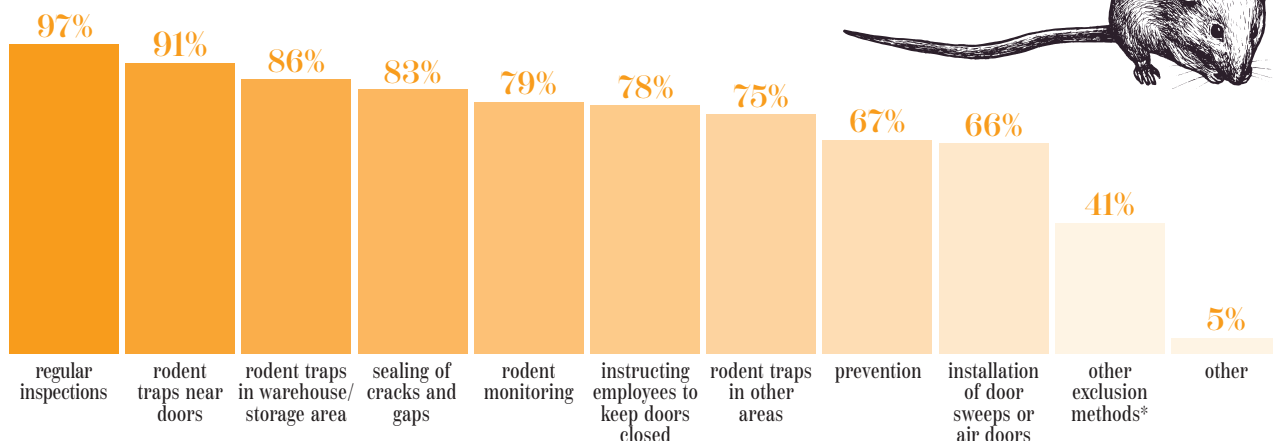
Eighty-three percent of respondents said preventive measures include sealing cracks and gaps, and 66% install door sweeps or air doors. Other exclusion methods (41%) include dock levelers and fabric fill.

“The key is to make sure it’s a long-lasting fix,” Matts said. For instance, sand might be an easy way to fill a hole, “but rodents are burrowing animals, so they tunnel through it.” Pea gravel is more difficult for rodents to work through and can be used to hold sand in place.

While expanding foam is a go-to for exclusion, it’s not always the

Measured Responses

What preventive measures, if any, are taken at your facility against rodent entry/presence?



Source: Readex research; Respondents: 175 (Respondents could select multiple answers); *such as dock levelers, wire mesh, fabric fill, etc.



Tech Track – *Remote Monitoring*

Understanding how and where rodents move around a facility helps inform pest management protocols.

best solution. “Studies show that it has fractal bubbles, so it can hold viral spores and particles that can become airborne over time as the foam degrades,” Matts explained. “So, having that foam blocked off is a good idea, especially if you’re concerned about allergens or food-borne illness.” He suggests steel wool mesh, stainless steel or a sealant to cover expanding foam.

Exclusion even includes lighting.

“We actually do not prefer a big, bright light shining over an entrance door, because when it’s attached to the building, you’ll get bugs that are attracted to the light — and when you have bugs, you have a food source for rodents,” said Matts.

A better illuminating strategy is to position the fixture away from the building and shine light onto the facility. Yellowish, pink and orange lights are less attractive to insects than bright-white or bluish lights.

In a perfect world, a facility is built to keep pests out, said Shannon Sked, Ph.D., B.C.E., director of fumigation at Western Fumigation in Parsippany, N.J. “No architect or engineer is thinking about that part, but a pest control professional always is, so including pest control partners in building design is really important,” he said.

The same is true when carrying out building renovations and addressing exclusion controls. “Have the QA specialist be part of the budgeting process so these ideas are considered,” Sked suggested. “If that person is in the room during budget planning, they can say, ‘We’ve had this pest problem. Maybe this year we should put some capital money aside to get the roll doors updated so they seal correctly.’”

Ultimately, exclusion is the best pest prevention tactic.

As Hoffman said, “We realized a long time ago that keeping critters out is a better control than waiting for them to come in and then kicking them out.” □

Data-driven rodent control can be a game changer for identifying rodent harborages, mapping activity and informing a pest control strategy. These systems monitor traps and bait stations for rodent activity.

“The industry has made some incredible advances,” said Shannon Sked, Ph.D., B.C.E., fumigation director at Western Fumigation in Parsippany, N.J. He has published two papers on the subject and says even in the last couple of years, remote monitoring and its software have become more accurate, accessible and feature-packed.

Basically, remote monitoring systems consist of sensors mounted on devices that identify when a critter is present or a trap closes. The data is transmitted via an app, and PMPs are alerted.

It’s not a mainstream concept for many QA specialists — 53% said they are familiar with remote monitoring, and only 17% are very familiar. Forty-seven percent had no idea.

William Hoffman explains how his company uses the technology. “Before, pest control was more of a reactive business, but

now we have this information maybe even before someone sees activity,” said the president and CEO of Hoffman’s Exterminating Co. in Mantua, N.J.

“In the past, service time was spent checking traps or some type of device, but now we can use this technology to pinpoint problem areas,” Hoffman added.

For instance, if two facilities are experiencing the same pest problem and they are in the same geographic area, “maybe it’s stemming from a supplier, a delivery, the way they are receiving deliveries, their best practices,” Hoffman said.

Sked added that these systems now include features allowing you to extract data and create heat maps. “That’s where the value is,” he said.

Remote monitoring is not a stand-in for pest management. It is a data collection tool.

“But if you look at remote monitoring as a way to reduce labor requirements or contract costs, you will fail,” Sked said. “That is not what the technology is intended for. It’s designed to give real-time feedback and information to pest management professionals so they can make informed decisions.” □

Take Control

At the end of the day, rodent control is an essential component of your food safety program — and it requires partnership, education and commitment.

Does your pest control provider really understand your needs? Controlling and preventing rodents involves so much more than setting traps and foam-filling mouse burrows. Effective pest management requires a multi-pronged approach including spotting, tracking, trapping, exclusion and data-collection.

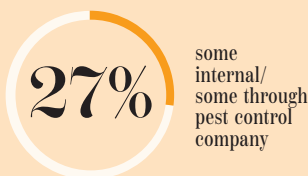
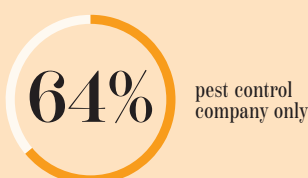
When William Hoffman meets a new food processing client, he starts with this conversation: “I say, ‘Tell me about your facility,’” said the president and CEO of Hoffman’s Exterminating Co. in Mantua, N.J. “Any good pest provider should ask you about your operations — how you bring in supplies, who your customers are, who are your employees and where are they coming from. Those answers can really determine how you set up pest management protocols for inbound potential infestations.”

Essentially, rodent and pest control is a component of your food safety program. It needs to be a partnership between QA specialists, management and the pest professional.

When Emory Matts started his career in the QA industry, he was an intern at Nestle working in the QA department. “Every week, we did a walk around the plant, looking for issues, not just pest related,” said the North American rodent technical manager at Rentokil, Carrollton, Texas. “If we saw a stain, scrape or gnawing, we looked into it to make

Doing the Work

Who provides your facility with rodent control services?



Source: Readex research; Respondents: 175

sure it wasn’t rodents or insects.”

Regular inspections involving a pest management professional are a must.

Of the QA specialists who responded to our annual State of the Rodent Control Market survey, 64% said rodent control is performed by a pest control company only. Six percent rely on an internal department only for rodent control. And 27% take a collaborative approach, involving internal staff and a pest management professional.

Rethinking Rodent Control

Some of the traditional tools pest control companies have relied on to control rodents for decades are at risk of being regulated out of the picture. For instance, second-generation anticoagulant rodenticides (SGARs) that were introduced in the 1970s have been restricted in some states, including California.

“The biggest challenges we are going to be facing is the lack of tools to replace second-generation anticoagulants and glueboards,” said Shannon Sked, Ph.D., B.C.E., fumigation director at Western Fumigation, Parsippany, N.J. “So, the most important question for QA professionals to think about now is, ‘How am I going to plan for this so I can proactively prevent rodents from entering the facility? Because my pest control partner is not going to have all the options they once did.’”

The U.S. Environmental Protection Agency (EPA) issued a proposed

interim decision on SGARs. "Part of that decision is to list them as restricted-use pesticides," Sked shared. "And in doing so, those now require a different level of technician and training, which there are not enough of in the industry."

Additionally, several states are considering banning glueboards for ethical reasons, Sked said. The claim is that glue traps immobilize rodents, causing them to slowly dehydrate and suffer. A California CBC News piece called the traps "heinously cruel." Some claim the same about snap traps.

Sked said this is a "big concern for rodent management."

But the flip side is, it forces PMPs and QA specialists to rethink "control" and focus on proactive prevention. "We have talked for decades about the importance of sanitation and exclusion," Sked said. "Sanitation is pest management. Exclusion is pest management."

In the QA survey, 30% of respondents said they were "not interested at all" in reproductive controls including electronic monitoring or exclusion.

Sked added, "[Pending regu-

lations] will force us to develop sanitation prerequisite programs at a higher level, because we are not going to have the other tools to get rid of rodents."

On the Radar

The good news is, with advancing remote monitoring and creative strategies, PMPs and QA specialists can focus on spotting and tracking so they understand the real rodent problem. Then, they can focus their investment and time in those areas.

For instance, Matts uses trail cameras typically seen in deer hunting. "You can see whether a rodent runs by and gather 15-second to 2-minute video clips, even in total darkness," he explained. "The longer videos can be helpful to see where rodents are running. We have gotten good footage showing how rodents can climb and squeeze through tight spaces."

Monitoring baits that are non-toxic can include additives that make rodent droppings glow bright green under black lights. PMPs can identify the species and size of infestation and track movement to nesting areas. They also can see active

burrows using a black light. Talcum powder or cornstarch allows you to see footprints in the dust.

"We look for rub mark deposits where they squeeze into holes and leave behind fur and sebum," Matts said. "Then, we plug up those holes to find out if it changes their pattern, and we dust the runways they use."

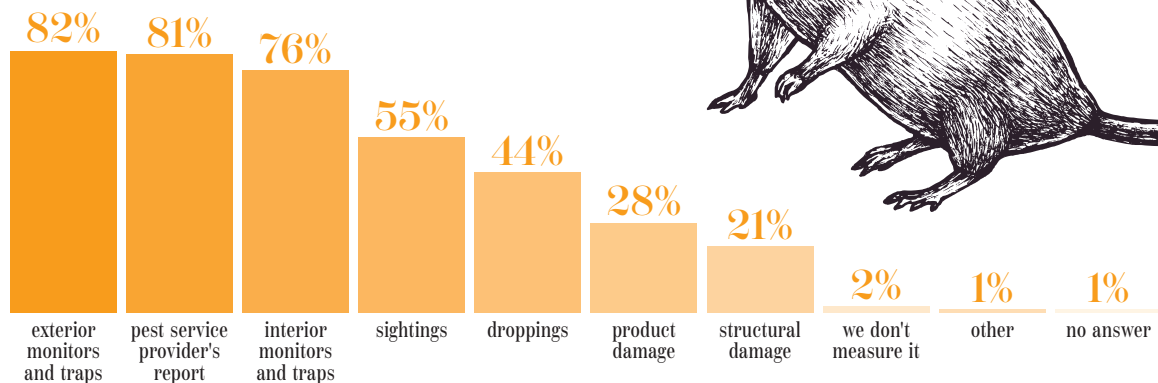
Trail cameras have caught rodents avoiding traps, Matts said. "They see it and learn to jump around it — it's called equipment avoidance where they are avoiding the rectangular snap traps, so we might use other traps that don't look like those or bury the traps in wood shavings or shredded paper so the rodents just walk over them."

Another strategy is to pre-bait traps without setting them for a week. "When they walk over it again, there is a better chance of catching them," Matts said.

Hoffman added, "As technology evolves, our ability to identify, track and trace is becoming more sophisticated. We can use that information to better understand how rodents enter a food plant and survive and how they move about the structure." ■

Taking Note

How is rodent presence at your facility measured?



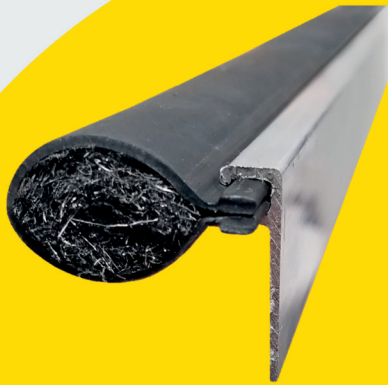
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