

Pest Control in Food Facilities

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Q&A and Chat questions

Can you repeat the percentage of people with allergic reactions to roach feces?

- It's typically reported to be about 1/4 of the US population, but the range from one study noted 17-41%. Higher prevalence is reported from urban areas. An academic study that is commonly cited can be [found here](#).

Where would you commonly find fly pupae??

- When larvae are fully grown, they crawl away from feeding sites to find a dry, protected location. It could be anywhere, but usually not more than 5-10 feet from the breeding site. Some pupate much closer – within inches of breeding sites.

In general, how many Norway Rats can be found in each burrow?

- The statistic used by the pest management industry is that there are 8 rats per burrow, +/- 20% depending on food availability. Each burrow has three openings: a main opening and two bolt or escape holes. So, an estimate of the population can be made by counting the total number of burrows, divide that by three and multiply by 8.

What is your recommendation for operators to address a roach infested electrical outlet? How do you recommend to clean it safely?

- One of the best tools for cockroach management is a HEPA vacuum. Cockroaches can be sucked into the vacuum and disposed of. One technique that is used in some cases if they don't have a dedicated vacuum is to put [knee-high stocking inside the end of the vacuum hose](#). When used, the cockroaches get stuck in the stocking and can be discarded without infesting the vacuum. The next approach is to remove feces with a disinfectant wipe (sprays should be avoided near electrical outlets). And finally, they should hire a pest professional to use cockroach baits. The active ingredients of baits can be transferred to other cockroaches and wipe out a large number of insects. At least in the states I'm familiar with, a site owner cannot apply pesticides in a food establishment without a pesticide applicators license.

Can you overview the two mice again, which one is more problematic in that it stays/nests/breeds long term?

- Both species of mice are problematic, but the house mouse more commonly infests food establishments. It nests close to food sources, preferentially in voids of equipment, furniture, or walls. *Peromyscus* mice, including the white-footed mouse and the deer mouse live outdoors most of the year, but enter structures fall through spring for protection against

the cold. They can feed inside buildings too but indicate that there is a pathway from outdoors.

Alaska has a very large Vole population, and we tend to find as it gets colder they are seeking warmth and shelter, do they have any (fun and interesting) additional concerns for animal waste like the rats with the 86 day salmonella life span?

- That is a really good question! I'm not as familiar with voles because they are considered wildlife and not a commensal rodent pest. My educated guess (without searching the literature) is that they are less likely to be exposed to food-borne pathogens because they do not share human foods. But they could carry other pathogens that affect people.

What would be considered a pest infestation? Is the presence of pests regardless of the number? For example you see 2 roaches vs. 10 roaches.

- Usually an infestation is defined as the presence of multiple adult organisms that are capable of breeding, or the occurrence of multiple life stages indicating that the pests are reproducing.

Recommendations for saving a rice cooker after cockroaches have nested in bottom/hinges/etc?

- This is a bit outside my expertise. I would imagine that a deep cleaning according to manufacturer specifications (so you don't do any damage) with soap and water would be sufficient. There are IPM studies showing that deep cleaning of homes in combination with pest management practices to kill cockroaches reduced cockroach allergens present.

At some point, I read that it can be dangerous to sweep up or vacuum dry pest droppings. Are there any recommendations we can give to operators to ensure they stay safe when they clean up pest droppings or pest urine?

- Definitely! Hantavirus is the main concern with sweeping dry droppings because it can aerosolize pathogen particles. The CDC has guidelines to safely clean up after rodents, which involve wetting droppings first. There are also services that will come in to remove droppings if they are very abundant. Here is the CDC's guidance:
<https://www.cdc.gov/healthy-pets/rodent-control/clean-up.html#:~:text=Step%201%3A%20Put%20on%20rubber,or%20droppings%20and%20cleaning%20product.>

Answered live: Do sebum and urine also contain pheromone markers? Best recommendations for solutions or chemicals to clean sebum?

Sometimes I see what look like smaller, baby cockroaches walking beneath the wings of a larger, American roaches or "water bugs" - is this behavior common?

- I would love to see a picture of this! Please find my contact information [here](#). I am not familiar with that behavior in American cockroaches. Typically, the American cockroach will deposit the egg case in a secure location shortly after it's formed and have nothing to do with offspring. German cockroaches hold on to the egg-case a bit longer, but still deposit it before offspring emerge.

My department issued UV lights but with no instructions. How is this tool best used in pest detection, or is it even feasible to use? Thank you so much.

- Black lights can be used to facilitate inspections. Rodent urine will fluoresce under black light, but unfortunately there are a lot of other things that fluoresce too. Here are two articles on the use of black lights from Pest Control Technology Magazine.
<https://www.pctonline.com/article/using-black-light-to-detect-rodent-evidence/>
<https://www.pctonline.com/article/updates-in-using-black-lights/>

Frequently, staff move traps in order to clean the facility. Is it alright for the staff to replace the traps in the same place once cleaning is complete?

- Yes, that is the ideal outcome. There is a science (and art) to trap placement to enhance device performance. We talk about that in the article below from Pest Control Technology Magazine. If traps are placed randomly, they might not intercept pests as intended.
<https://www.pctonline.com/article/placed-or-spaced/>

Is pest control required in a storage area where finished goods of bottled wine is being stored?

- This depends on your state regulations. Some states require pest management in certain settings, others do not. I would try reaching out to your state Department of Agriculture or other agency that deal with food safety to verify.

What would be a pest control challenge in a mill factory?

- Mills are vulnerable to a number of pests, including cockroaches, rodents and a group called stored product pests that feed on grains. Kansas State University has a wealth of information about stored product pests from their entomology department:
<https://entomology.k-state.edu/extension/stored-product-pests/>, including this terrific book: [Stored Product Protection](#)

Are there other tools available to detect rodent or insect fecal matter, like special flashlights?

- Black lights can be used to detect rodent urine, but there are other materials present in food facilities that will also fluoresce. There are non-toxic rodent monitoring baits that will actually cause droppings to fluoresce under black light, and those are really helpful. For example, if used on the exterior of a property, but fluorescent droppings show up indoors, then there is an entry point rodents are using to get in. If fluorescent droppings are present on the second floor but baits are only found in the basement, then they are actively moving vertically.

Here are two articles about using fluorescent lights:

<https://www.pctonline.com/article/using-black-light-to-detect-rodent-evidence/>
<https://www.pctonline.com/article/updates-in-using-black-lights/>

And this article talks about non-toxic monitoring baits:

<https://www.pctonline.com/article/biomonitoring-rodents-corrigan/>

Chat

Are there different kinds of flies from one area of the US to another?

- The small filth fly species described as pests in this presentation are found throughout the US and most of the world.

Can you overview the difference in the mice? Which one breeds long term?

- Both mouse species will reproduce multiple times each year. However, the house mouse is the species that tends to establish populations indoors close to food sources, whereas *Peromyscus* come indoors fall through spring to nest in more protected environments. They too will consume human food and are considered a structural pest.

How do you know when you have properly excluded the rats?

- The best way to know if rodents are properly excluded is to keep looking for rodent evidence: new droppings, gnaw marks, urine trails, etc. Indoors you can use traps and even non-toxic baits to see if rodents are present.

Links posted in chat

Small Filth Fly ID Chart available on this page:

<https://douglas-sarpy.unl.edu/plants-and-bugs/insects/indoors/small-flies/>

Mouse Entry Point Video (as shared): <https://www.youtube.com/watch?v=r6dDCgX4R5o>

Mouse Entry Point Video (educational version): <https://www.youtube.com/watch?v=HFk2jsGyysM>