

The slide features a white background with orange decorative wave shapes at the top and bottom. In the top left corner, the 'foodsafety' logo is displayed in a grey, rounded shape. The title 'Rodent Problems' is centered in a bold green font. Below the title is a bulleted list of three points. At the bottom, the text 'Integrated Pest Management' and the number '207' are visible.

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Rodent Problems

- Rats and mice (usually mice are the more common problem)
- Damage/contaminate food and property
- Can spread diseases through their feces and urine or by contact with surfaces

Integrated Pest Management 207

Rodents are another big pest problem in food service areas. They can damage or contaminate food, supplies and property. They can spread diseases through their feces and urine.

Slide 208

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Rodents nest outdoors in areas hidden by tall grass, landscaping, “clutter” or down in sewers.



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Outdoors, rodents frequently nest or hide in areas that are hidden by tall grass and shrubs particularly along building foundations. Garbage and other improperly discarded “clutter” will attract rats and mice. Storm and sanitary sewers provide rodents (particularly rats) with water and a “highway” for moving undetected from one area to another.

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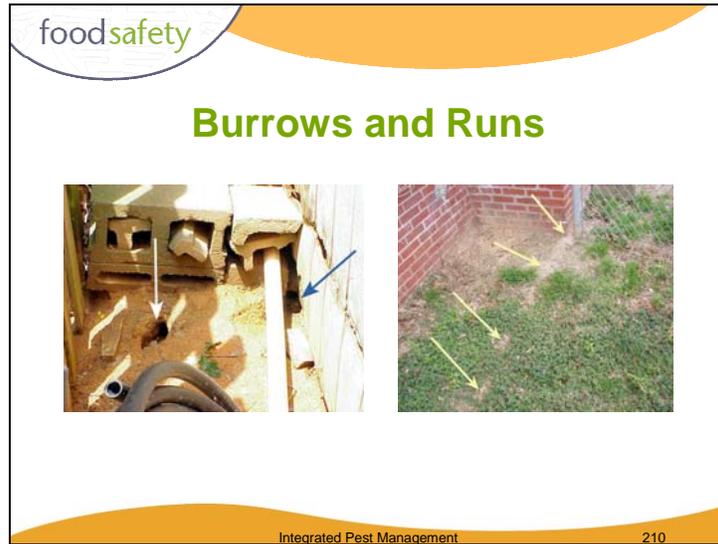
Mouse Nesting Sites



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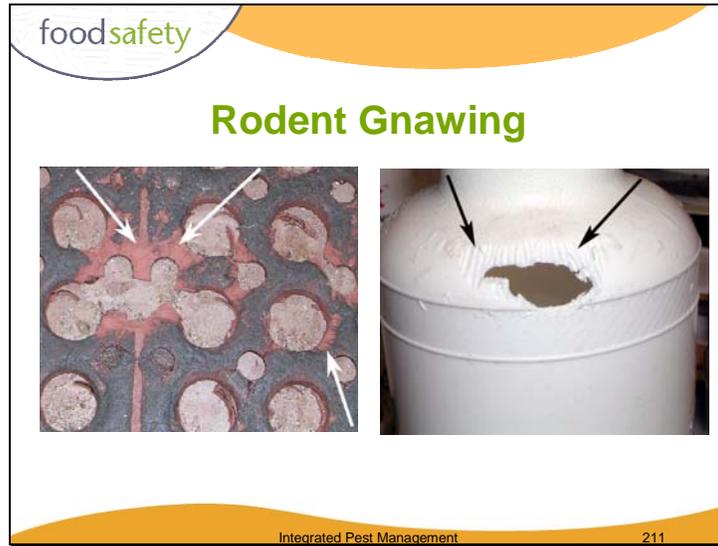
Mice will often nest indoors (more often than rats will). Check boxes, furniture (such as filing cabinets and storage closets), and wall voids for signs of mouse activity.

NOTE: in the picture on the right, the arrows point to areas where mice had chewed into the boxes when they stacked against the wall.



Look for holes in the ground that may lead to their burrows. The examples here are of a rat burrows behind a building (left picture). Rats may wear a trail through grassy areas (as shown at right) where they run constantly between their burrows and food sources.

NOTE: One way to tell if a burrow is "active" is to fill in hole with soil or stuff some newspaper down into the hole. If the soil or newspaper is pushed out, then the burrow is still "occupied."



A rat's teeth constantly grow, so it will gnaw on objects to keep its teeth filed down or to chew its way through boxes or even walls. Look for gnawing marks on wood or other objects.

NOTE: the photo on the left shows damage from rats gnawing on a rubber floor mat in a kitchen.



Rats tend to run along walls (rather than out in open areas) and they will leave “rub” marks (left - arrows) on the surfaces along which they travel. Look for these rub marks along pipes and electrical conduits and at walls and cabinet bases.

Rodent droppings usually $\frac{1}{4}$ " to $\frac{3}{8}$ " long and tapered at both ends. Look for them on the floor or on top of boxes particularly items stacked against walls.

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Excluding Rodents

Foam sealants alone will not stop rodents.



Use metal hardware cloth to seal large openings.



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Rats can fit through openings as small as a 25mm and mice can squeeze through 13mm gaps. Foam sealants for keeping out cold (or hot) air, but they will not stop a determined rodent that may be attracted for food odors from your facility. Place heavy metal screening cloth over vents or other openings to prevent rodents from getting indoors.



Mechanical traps are the best choice for indoor rodent control. Lethal traps include sticky traps (right) and regular snap traps (upper left). Mechanical rodent traps include “live traps” as shown here (lower left). Traps must be checked daily and rodents or their carcasses removed as soon as possible.

NOTE: If you are inspecting the traps rather than using a professional, you should wear disposable or washable gloves when handling traps and or dead rodents.



Poison baits can be used outdoors and indoors. However, if baits are used indoors, rodents may die in a wall void, under appliances or in some other inaccessible place. Keep track of rodent feeding activity on these baits. Placement is critical. Rodents prefer to travel along walls, so place the stations where rodents are likely to find them (as shown in the two pictures above). One important point to remember: if you bait in public areas (i.e., accessible to people or animals), then you must place the baits in a secure bait station (i.e., the station cannot be picked, shaken and the bait dislodged). The station in the upper left corner is attached to the wall.

NOTE: Picture at bottom shows the use of block baits that are placed on metal rods within the trap so the baits cannot be removed by a rodent or dislodged if the station is shaken. This is the safer method to bait.

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Proper Use Of Rodent Baits



No **Yes**

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If you bait indoors, NEVER use pellet baits (as shown on the left). Mice may carry the bait away and drop it somewhere else (“bait translocation”) where it could contaminate food or water. Always use the paraffin (“wax”) “bait blocks” as shown on the right. The bait is more difficult for the mouse to remove from a bait station.

NOTE: The bait station on the right shows the blue bait block. The small brown objects are seeds dropped by the mouse. The point is to show that if mice could bring seeds and drop them indoors, they can just as easily carry away the pellet bait in the photo on the left and then drop it somewhere else.

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Common Fly Pests

“Filth” flies -- house flies and blow flies

Others -- fruit flies, drain flies, fungus gnats



U-Nebraska Entomology University of Nebraska Department of Entomology



Univ. of Florida James L. Coats

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Let's turn our attention to flies. “Filth flies” are the most common fly problems associated with food-handling facilities. They include house flies and the green, blue or coppery colored blow flies commonly seen around garbage cans. Fruit flies (lower left) are found near damaged or discarded fruits and vegetables. Drain flies (lower right) breed in floor/sink drain, as well as the drip lines for air conditioners, freezers and ice-makers. Fungus gnats can also be found where indoor plants are overwatered.

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Fly Control



The slide features three photographs. The top-left photo shows a kitchen sink area with a drain. The bottom-left photo is a close-up of a drain on a tiled floor. The right photo shows a Coca-Cola beverage dispenser with a drip line.

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Sanitation is very important to fly control and prevention. Keep food prep areas clean and dry. Clean up spills around beverage dispensing stations. Routine drain cleaning prevents debris from building up and reduces the likelihood of problems with drain flies or fruit flies. Check your refrigeration and icemaker drip lines several times each year and clean them when necessary.

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Exterior Trash Cans and Dumpsters



- Empty trash cans and dumpsters regularly.
- Keep areas around them clean.
- Keep dumpster lids and doors closed.

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Trash receptacles particularly those located in customer areas and near doors (photo at right) need to be emptied regularly throughout the day so they do not attract flies to the building. Keep the areas around trash cans clean. Keep dumpsters and other garbage cans closed. Dumpsters should be emptied regularly (preferably twice weekly). Areas around dumpsters and trash compactors should be kept clean so that you attract fewer flies (and other pests).

NOTE: When dumpsters are cleaned, make sure they're returned with the drain plugs in place (lower left picture).

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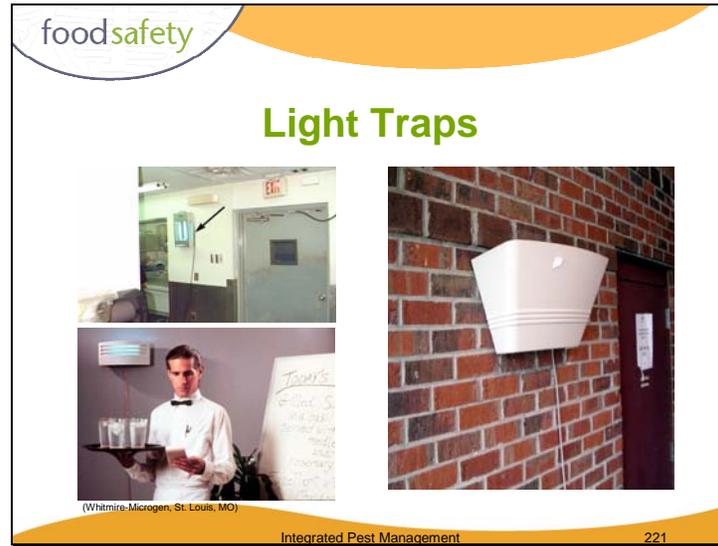
Keep Flies Out



The slide features three photographs illustrating fly control measures. The top-left photo shows a blue screen door installed in a doorway. The bottom-left photo shows the exterior of a building with a screen door. The right photo shows a red door on a brick wall with a fly fan mounted above it.

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Exclusion is an important component of a fly control program. Keep doors closed as much as possible. If doors must be open (e.g., during deliveries or to improve air circulation during hot weather), then use screen doors or air curtains (“fly fans”). Fly fans (right) are mounted above exterior doors (either inside or outside), such as those by loading docks, equipment cleaning areas or rear entrances to kitchens. When the door opens, a switch activates the fan that produces a “curtain of air” that keeps flies from entering. Make sure that your air curtain works properly, i.e., it turns on when the door opens and the louvers direct the air downward (not angled inward).



Lights traps are helpful indoors and outdoors to trap flies. They should be mounted preferably 4-6 feet off the ground, but out of the way of employee activities. Indoors, place these traps where they will *not* be visible from outside. Otherwise, they might attract flies to the building. Bulbs should be replaced yearly and the replacement date noted on the trap.

NOTE: The traps shown here are not the “zapper” type which should not be used indoors where airborne “exploding” insect body parts can contaminate food or food-prep surfaces.

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Stored Product Pests

 <p>Flour beetle</p>	<p>Flour Baked items Spices Pastas Dried fruit Powdered milk Shelled nuts Bird seed Grass seed Rodent baits</p>	 <p>Cigarette beetle</p>
 <p>Sawtooth Grain beetle</p>		 <p>Indianmeal moth</p>

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Other important pests in food service are those that attack stored foods. The Indian meal moth (a small moth with coppery-colored wings) is probably the most common stored products pest found in North Carolina. Flour and grain beetles are other important stored product pests. All of these insects attack a wide variety of foods.

Items such as flour, spices, pasta and cereals are particular favorite foods of these beetles and moths. However, you also need to think about “non-food” items that may be in or near your building. Birdseed is often infested with beetles and moths. Rodent baits use grain as an attractant. Insects can feed readily on these baits without being harmed by the chemicals in the bait. This is not usually a problem unless the bait is placed in storage areas and left unchecked for months (or years).

NOTE: Most rodent baits contain chemicals that affect blood clotting. Insects have very different blood components compared to rodents and other mammals. For that reason, insects are not affected by these chemicals.

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Stored Product Pest Control



Keep food storage, prep and serving areas clean and easy to inspect.

Discard or return infested items.

Store susceptible items in sealable, food-grade containers.

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- Pesticides are rarely needed to control stored product pests if you follow these suggestions:
- Keep your storage areas clean, particularly the floors under shelves or pallets. Spilled food becomes a reservoir for these pests. Clean up spills quickly.
- Inspect your deliveries carefully. Discard (or return) infested or suspect items.
- Store susceptible items in sealable containers.

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Use a Pest Logbook



A means of two-way communication

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Successful IPM programs use Pest Logbooks.

1. The log allows you and your employees to note pest sightings. This helps your PCO deal more effectively with specific pest problems.
2. The PCO can also record the locations of monitoring traps and bait stations.
3. The log also provides you with a record of recurring pest problems. In some cases, this information may allow you to trace certain pest problems back to other problems in the building or to deliveries from a particular supplier.
4. In turn, the PCO can use the log to point out improvements that YOU need to make in your facility sanitation and maintenance programs.



Pesticides Can Be Hazardous

EPA Reg. No. 3125-283

Two 2.5-Gallon Jugs per Case,
30-Gallon Drum
6-Gallon Multi-Use Container

STOP - Read The Label Before Use
KEEP OUT OF REACH OF CHILDREN

DANGER



POISON

PELIGRO

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand the label, find someone to explain it to you in detail.)

PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS AND DOMESTIC ANIMALS

- Liability issue
- Do not let untrained employees apply pesticides
- Preferably - use licensed pest management professionals
- Keep copies of the MSDS for all pesticides used in your facility.

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To summarize this topic, remember a few important points.

Pesticides can be very useful, but they can also be extremely hazardous if they're misapplied. In sensitive areas, such as a restaurant, or cafeterias in schools, hospitals and nursing homes, applying pesticides should be a job for trained professionals.

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Demand a Pest Management Program

- Emphasize:
 - Good sanitation practices
 - Proper maintenance of the facilities
 - Inspection, monitoring, baiting and trapping for pests, such as cockroaches, rodents and ants
- Limit spraying to situations when necessary and *only* when facility is closed.

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Most importantly: Pest Management starts with YOU. A well-maintained, well-organized facility is less like to have serious pest problems. The rest of your pest management program takes a cooperative effort between you and your pest management professional. Your pest control program should emphasize inspection and monitoring, not simply weekly or monthly sprays. Less toxic control measures such as baiting and trapping should be your first line of defense whenever possible. Limit the use of pesticide sprays to situations when they are absolutely necessary and only when customers and employees are not present.