

RK Environmental Services presents:

Integrated Pest Management in Food Plants



Presented by: Edward E. "Tug" Passen, ACE

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Agenda

- Principles of IPM
- Common Pests in Food Plants
- Pest Sighting Log
- Prevention
- Control Methods

Principles of IPM

Integrated Pest Management is a proactive approach to controlling pests in a food plant, when properly utilized it exhausts all other options before using a chemical to control a pest. IPM utilizes 4 basic steps:

Set Action Thresholds → Identification → Prevention → Control

Principles of IPM

- Set Action Thresholds – Insects in a food plant are unavoidable, determination of when to take action is very important. A set threshold must be determined.
- Identification – The pest or pests needs to be properly identified to ensure that the correct course of action is taken.

Principles of IPM

- Prevention – Preventative measures must be taken to keep the pests out, or to deter their development or multiplication. This can be achieved through sealing, cleaning, inspections and proper rotation of stock.

- Control – Control or treatment is the last step once the thresholds have been exceeded. Ideally the control method will be non-chemical.

Common Pests

- House Mouse
- Norway Rats
- Cigarette Beetles
- Roof Rats
- Indian Meal Moths
- Cockroaches
- Warehouse Beetles
- Ants
- Fruit Flies
- House Flies
- Drain Flies
- “Occasional Invaders”

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Rodent Identification

(Information was taken from www.liphatech.com)

House Mouse



Roof
Rat



Norway
Rat



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House Mouse

- House mice are gray or brown rodents with relatively large ears and small eyes.
- An adult weighs about 1/2 ounce and is about 5 1/2 to 7 1/2 inches long, including the 3 to 4 inch tail.
- Mice are vectors for disease
- Mice only travel 10-25 feet from their nest to feed
- Mice are a contributing factor to food establishment audit failure.
- Mice can squeeze through a 1/4" opening!



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Norway Rat

- Norway rats are the most common rat in this area.
- An adult weighs up to 19oz, but have been known to weigh 2 pounds.
- Rats are vectors for disease
- Rats are usually found outdoors, around dumpsters, streams, and live underground.
- A rat can cause extensive, costly damage.
- Rats can squeeze through openings of 1/2" or greater.



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Roof Rat

- 5-9 oz but up to 12oz
- Pointed muzzle, large eyes and large ears (can be pulled over eyes)
- The tail is longer than the body on a Roof rat whereas a Norway's tail is not.
- Roof rat feces are spindle shaped with pointed ends (1/2") compared to a Norway rat feces is capsule shaped with blunt ends (3/4"). Mouse droppings are rod shaped, with pointed ends and hair.

Cigarette Beetle

- Adult Cigarette Beetles measure approximately 2 to 3 mm in length. They are reddish brown in color.
- The Cigarette Beetle prefers warmer climates, which also assists in their reproduction. Their lifespan is reduced when in cooler climates.
- Female beetles may lay between 10 to 100 eggs, with larvae emerging after 6 to 10 days. Pupation then takes from 1 to 3 weeks. Adults live from 1 to 4 weeks.



Cigarette Beetle

- The Cigarette Beetle will infest or feed on a wide variety of dry foods and grains such as flours, seeds, spices, dried fruits, tobacco etc.
- The Cigarette Beetle is a strong Flyer
- Adults fly during the late afternoon and on dull, cloudy days.
- The beetle is attracted to light.
- Cigarette Beetles can be monitored through the use of non-toxic Pheromone traps.



Flour Beetles

Red Flour Beetle



Confused Flour Beetle



Flour Beetles

- Both flour beetles are attracted to light
- The adults are each about 1/8" in length and are reddish brown in color.
- The biggest distinguishing difference is the antennae shape
- Adult Red Flour Beetles can Fly, Confused Flour Beetles can not.
- Neither flour beetle can eat undamaged grain or kernels.
- Both beetles can easily be introduced into a facility through infested flour shipments.
- Flour Beetles can be monitored through the use of non-toxic Pheromone traps.
- Although humans cannot be injured by it, the beetles do create a disagreeable odor and taste in the flour that they may infest.

Indian Meal Moth

- The Indian Meal Moth will infest or feed on a wide variety of dry foods and grains such as flours, seeds, spices. The moth prefers coarser grades of flour such as whole wheat, graham flour and corn meal.
- The adults do no damage.
- The moth is pale gray with two thirds of wing a copper color.
- The moth is attracted to light.
- Indian Meal Moths can be monitored through the use of non-toxic Pheromone traps.



Cockroaches

- German Roach – The most common roach in this area, heaviest infestation, smaller of the 3 common roaches. Can be difficult to control, often introduced by employees, identifiable by the stripes on the head.
- American Roach – Larger roach, prefer warm, moist areas, typically found outdoors but can easily find their way in through drains, open doors, or areas where pipes etc. pass through walls.
- Oriental Roach – Often referred to as a “Water bug”, Typically found outdoors, prefer damp, dark areas, easily enter buildings through sewers or drains.



Warehouse Beetle

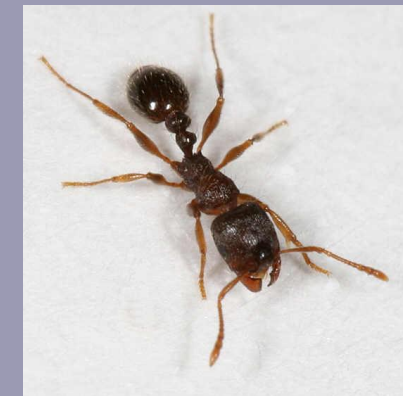
- Adults are dark brown and oval in shape with varying patterns of tan and yellow markings on wing covers.
- Often mistaken for the cigarette beetle at first glance.
- Can be very destructive.
- It is more common in northern states.
- Warehouse Beetles can be monitored through the use of non-toxic Pheromone traps.



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Ants

- The most diverse and widely spread insect.
- Ants have colonized almost every landmass on earth except Antarctica.
- A well developed ant colony can be difficult to control.
- Ants can enter a building through the smallest openings.
- Proper identification of the ant species is crucial to proper control methods.



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Fruit Fly & House Fly



- Fruit flies are small pests that are commonly found where food is processed. They are found on moist, decaying matter that has been stationary for several days.
- Easily controlled through sanitation



- These insects have been known to carry over 100 different kinds of disease-causing germs, which makes them very bad house guests.
- Get their name from being the most common fly found around homes. Adult house flies can grow to one-quarter of an inch long and usually live between 15 and 25 days.

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Drain Fly



- Also called moth flies, sewer flies or filth flies
- The flies are commonly found around drains.
- Good drain cleaning prevents.

& Occasional Invaders



- Occasional Invaders are insects that come in through open doors or are seasonal with no true interest in being in the building.

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Monitoring

- Pheromone traps are used to help identify insects prior to control and are a great tool for monitoring levels of activity and for setting thresholds.
- Pheromones are a secreted chemical that insects use to communicate, there are a variety of pheromones used including sex pheromones, trail pheromones, and territorial pheromones.



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Pest Sighting Log



RK Environmental Services Pest Sighting Log

| Date | Location | Type of Pest | Reported By: | Comments | Action Taken | Date | Initials |
|------|----------|--------------|--------------|----------|--------------|------|----------|
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

- A pest sighting log is available to allow employees to report any insect activity that they may see. During the routine service, the Pest Management Professional will follow up on the reported sightings.
- The more details, the better!

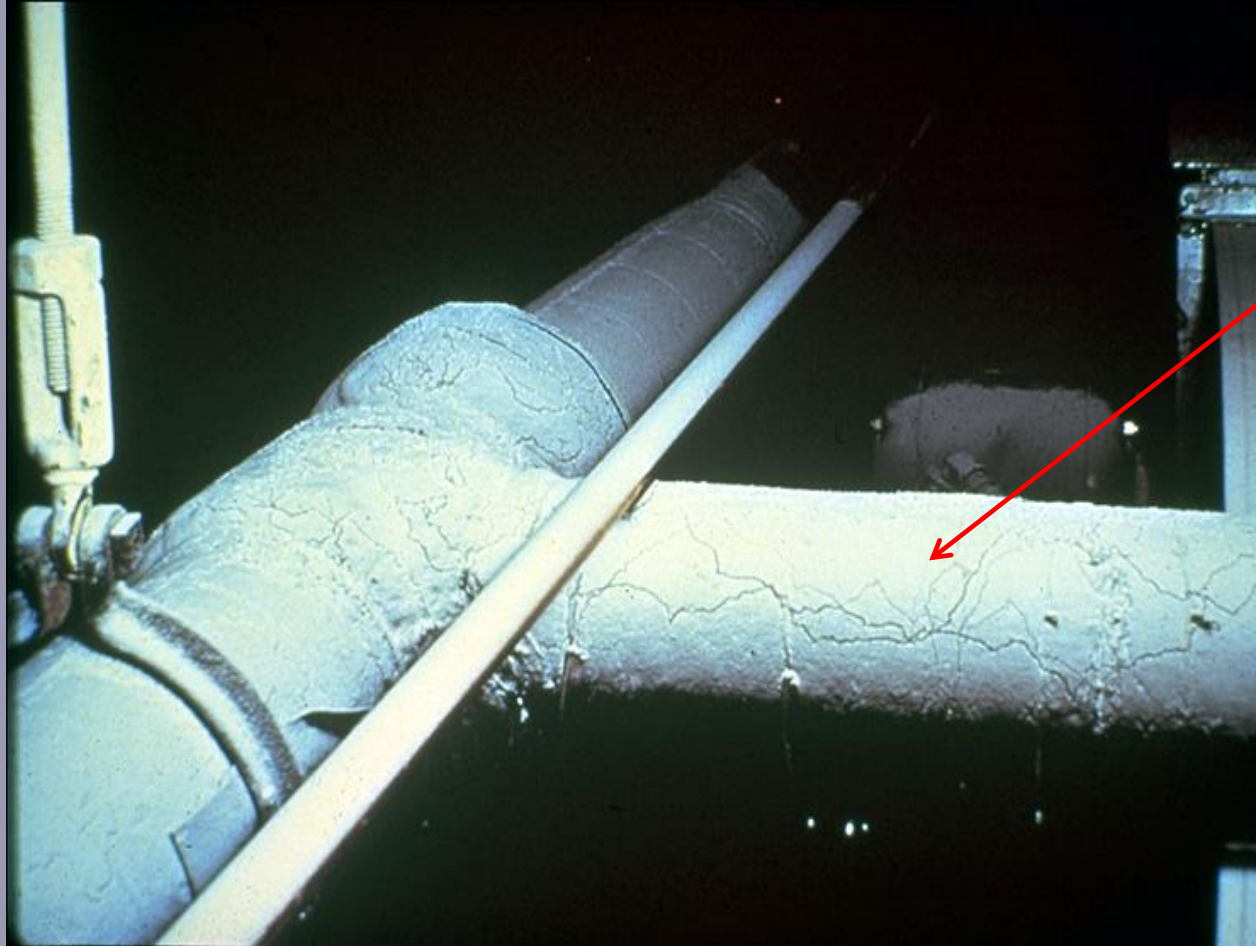
Prevention tips for the client

. Prevention is Key!

- Keep doors closed
- Empty trash often
- Maintain a sanitary work area
- Remove excess product related dusts such as flour and crumbs
- Report pest sightings
- Seal cracks and crevices in walls or floors
- Remove standing water immediately
- Develop or maintain a drain cleaning program
- Keep outside grounds free of pest attractants
- Crushed rock perimeters deter rodents from burrowing along building

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Prevention



Insect
trails in
flour
build up

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Prevention

Stock Rotation



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Prevention



Ideal harborage,
feeding and
breeding location.
Difficult to clean,
should be sealed.

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Prevention

Keep Doors closed and sealed.



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Control

Once a pest is introduced into a facility and the pest is properly identified control methods must be utilized to eradicate the pest. There are two methods:

✓ **Non-Chemical**

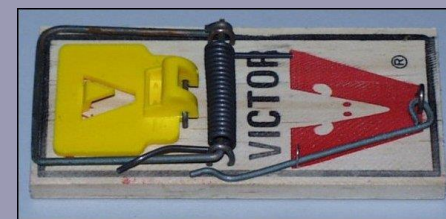
✓ **Chemical**

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Non-Chemical Control

In a food facility toxic chemicals are the last thing that should be introduced. Various Non-Chemical Control Methods can be used:

- Exclusion of the pest must be completed first by sealing any potential entry points and/or removing attractants.
- Trapping through the use of devices such as mechanical traps, snap traps or glue boards for rodents. A variety of sticky traps are useful for some flying insects and “Bee Jars” can be used to reduce the population of bees.



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Non-Chemical Control

- Mating disruption involves the utilization of synthesized sex pheromones to disrupt the reproductive cycle of insects. Has been proven very efficient in controlling Indian Meal Moth populations and is non-toxic



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Chemical Control

There are a variety of pesticides in use to control pests with toxic chemicals, this is always a last resort. Pesticides include:

- Insecticides – for controlling insects
- Rodenticides – for controlling rodents
- Herbicides – for the control of nuisance vegetation
- Avicides – for the control of nuisance birds (this is a very risky, inhumane method that is not used by any reputable pest management companies)

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Chemical Control

Exterior rodent control is maintained through the use of secured bait stations using a toxic monitoring block, which will indicate rodent activity, when activity is present the monitoring block will be replaced with a poisonous bait for control. The poisonous bait maybe used on an ongoing basis to help maintain a rodent free exterior perimeter.

