

Food Service IPM

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What is IPM?

- An environmentally sound approach to pest control
- Quality pest control using the least hazardous chemicals and techniques
- Mandatory best management practice for Texas schools
- When, where and what

An IPM Program

- Identify ways to prevent pest entry
- Deny pest access to food, water and harborage
- Monitor all areas of the kitchen regularly
- Identify the pest accurately
- Then assess the best options to control the pest

Ingredients of an IPM Program



The IPM pyramid

Pesticides

Biological controls



Physical / Mechanical controls

Cultural / Sanitation Practices

What Pest's Need to Survive



Pest Prevention Through Design

- Landscape
  - Short grass
  - Neatly trimmed hedges
  - Paved access ways
  - Proper drainage
  - ➢ Rodents will be discouraged to nest if there is an 18” to 24” strip of space between the building and green areas

Pest Prevention Through Design

- Floors
  - Concrete is most suitable, but watch for cracks
  - For wet areas – acid-proof for easy cleaning
  - Asphalt or vinyl tiles can be used – watch for cracks or incomplete bonding for pest harborage areas.
  - Floor drains every 400 sq ft and sloped with check valves to prevent pests
    - Drain flies, roaches and rats

Pest Prevention Through Design

- Walls
  - Pre-cast or poured concrete, concrete block, brick, tile or metal curtain
  - Sealed for easy cleaning
  - Metal curtain walls can be hollow if so, do not punch holes and make sure cracks are well sealed.
    - Cracks and openings are a natural hiding place

Pest Prevention Through Design

- Windows, Doors and Lighting
  - The less the better – glass block is best for windows
  - Doors should be metal, tight fitting seams and good door sweeps
  - Outdoor night lights should be high intensity sodium rather than mercury vapor
  - Lights should be located 30’ from door ways
    - ➢ Crawling and flying pests

Make sure doors close tight



Preventing Pests Entry

- Inspection – identify where they are gaining access
- Pests enter either as volunteers or as captives

➢ Good IPM practice

  - ➢ Routinely inspect the kitchen/cafeteria area for routes of entry
  - ➢ Inspect food products for unwanted guests

Preventing Pests Entry

- Air curtains for flying insects
  - Proper width
  - Sufficient air velocity to cover top to bottom of door
- Inspecting food products
  - Check incoming supplies, including pallets
    - Reduce cardboard boxes
    - Check powdered products for weevils or other evidence of pests

Monitoring for Pests

- Systematic survey at regular intervals
- Maintains data on pest evidence
- Sampling requires numbers of pests
  - Locate and identify pest species
  - Estimate pest population size
  - Investigate causative conditions
    - Food, water, shelter, modes of entry, human behavior

Watching for monitoring devices



Preventing Problems Sanitation

- Equipment Cleaning
  - Basics – wash, rinse and sanitize
  - To be thorough:
    - Entire inside – remove plates
    - Outside, frame, top and bottom of equipment
      - A single crumb and drop of water can sustain a German Roach for up to three weeks

Look inside and clean



Preventing Problems Sanitation

- Housekeeping
  - Essential element removes food and water – what pests need to survive
  - Must include indoors as well as outdoors to be successful
    - Rubbish piles, used equipment storage, dumpsters
    - Maintain an 18” weed & shrub free zone around the outside wall of the campus
    - Remove waste, clean up spillage and trash immediately, keep garbage area clean, lids tight

The Good and the Bad





Preventive Housekeeping Steps

- Keep pests out by carefully inspecting incoming goods, including equipment, pallets and packaging supplies
- Keep building tight – screens, doors auto-closing
- Control trash with frequent pick ups, swapping dumpsters and closing lids
- Prompt disposal of damaged packages of food
- Install Vector control lights in areas of high fly populations

Vector Lights Work





Storage Practices

- Three Basic Rules

1. Store it off the floor
   - PCO need to be able to see underneath
   - If the area is painted white easier to see
2. Keep it away from the wall
   - See behind stored products
3. FIFO – first in, first out
   - Invest in Sharpie's date every item you take in, don't guess

Dry Storage Area

Incorrect



Correct

- Do not store items within cardboard boxes.
- Discard leaky or damaged goods.

Inspection is for Everyone

- How can you help
  - Report suspected harborage sites & water leaks
  - Check doors and windows for proper sealing
  - Check incoming cardboard for pest activity prior to opening
  - Watch ceiling tiles for pest activity
  - Make sure storage rooms are kept clean

Inspection Tips





Ways to Motivate Employees

- Explain about enforcement actions
  - Health Dept., SPCB, others
- Management incentive programs
  - Reward with GC or other small items
- Interdepartmental competition
- Involve key employees in sanitation workshops
- Conduct routine training for all employees

Pests

- Insects are most common and numerous
  - Cockroaches: German, American, Smoky Brown
  - Flies: drain & phorid
- Rodents can contaminate more than they eat
  - Norway rat, roof rat and house mouse

IPM and Roaches

- Contaminate food with droppings, bodies and bacteria
- Seek cover during the day
- Like dark, warm, humid areas
- They are omnivores – not picky eaters
- Highly reproductive
- German roaches most common source of allergies and asthma in U.S.

American cockroach



- Identification: reddish-brown with yellowish band around pronotal shield; 1 3/8 to 2 1/8 inches
- Ootheca black-brown w/o lateral indentations



Smoky Brown

American cockroach

- Habitat
  - Primarily outdoors, but can be well-established indoors
  - dark, damp, warm locations
  - floor drains, pipe chases, basements, sewers, storage areas
  - generally found near ground level in food storage and prep areas

Sticky trap proper placement

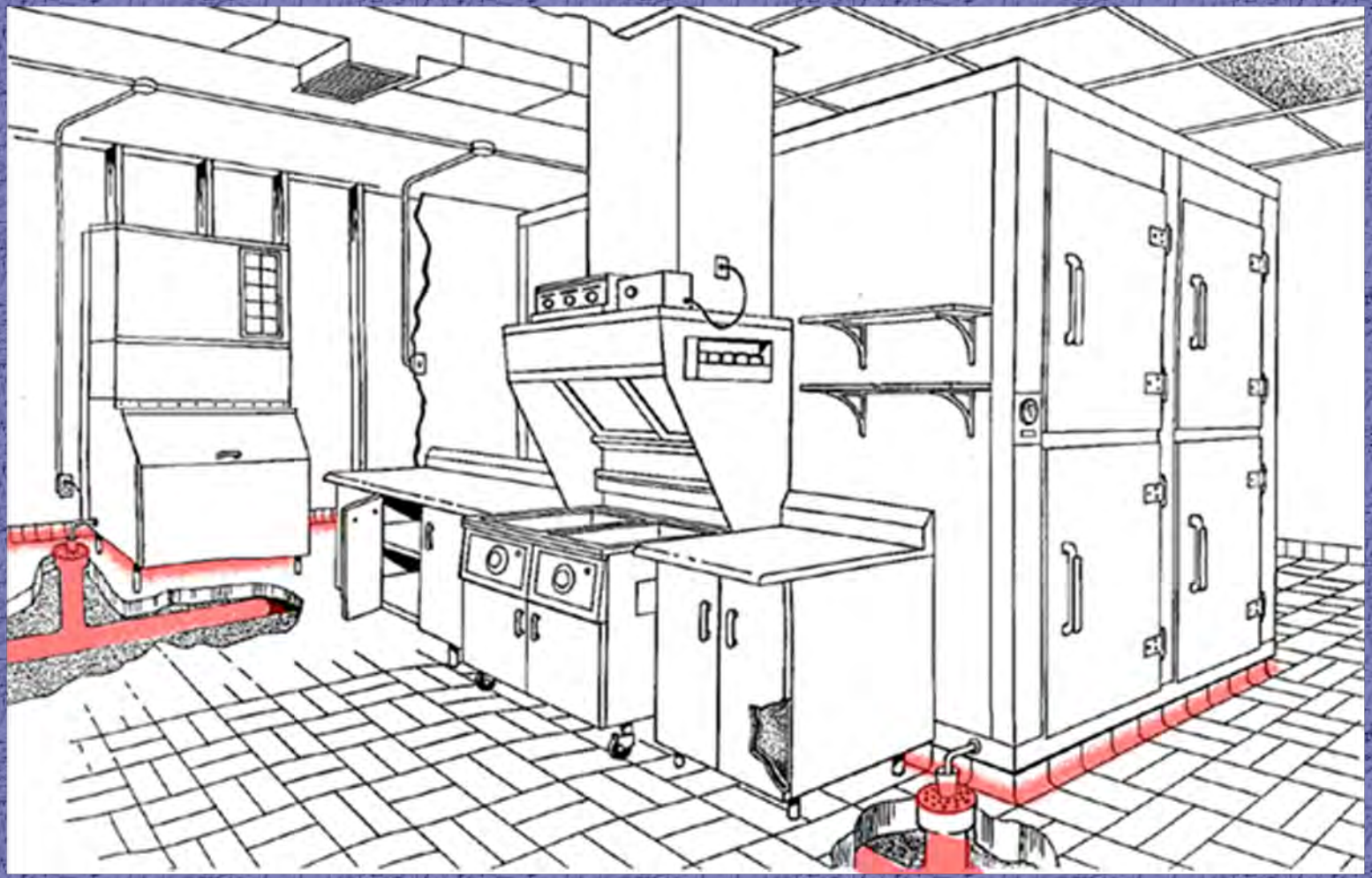


American cockroach

- Control
  - Sticky traps to pinpoint activity hot-spots
  - Perimeter treatment and pest-proofing
  - Granular baits outdoors
  - Baits, sprays, dusts indoors



Treatment areas for Americans



German cockroach

- Most prolific of all cockroaches
  - 30 to 40 eggs per ootheca
  - 2 month development time
- Found only indoors
- Public health threat
  - Germ transport
  - Allergen production



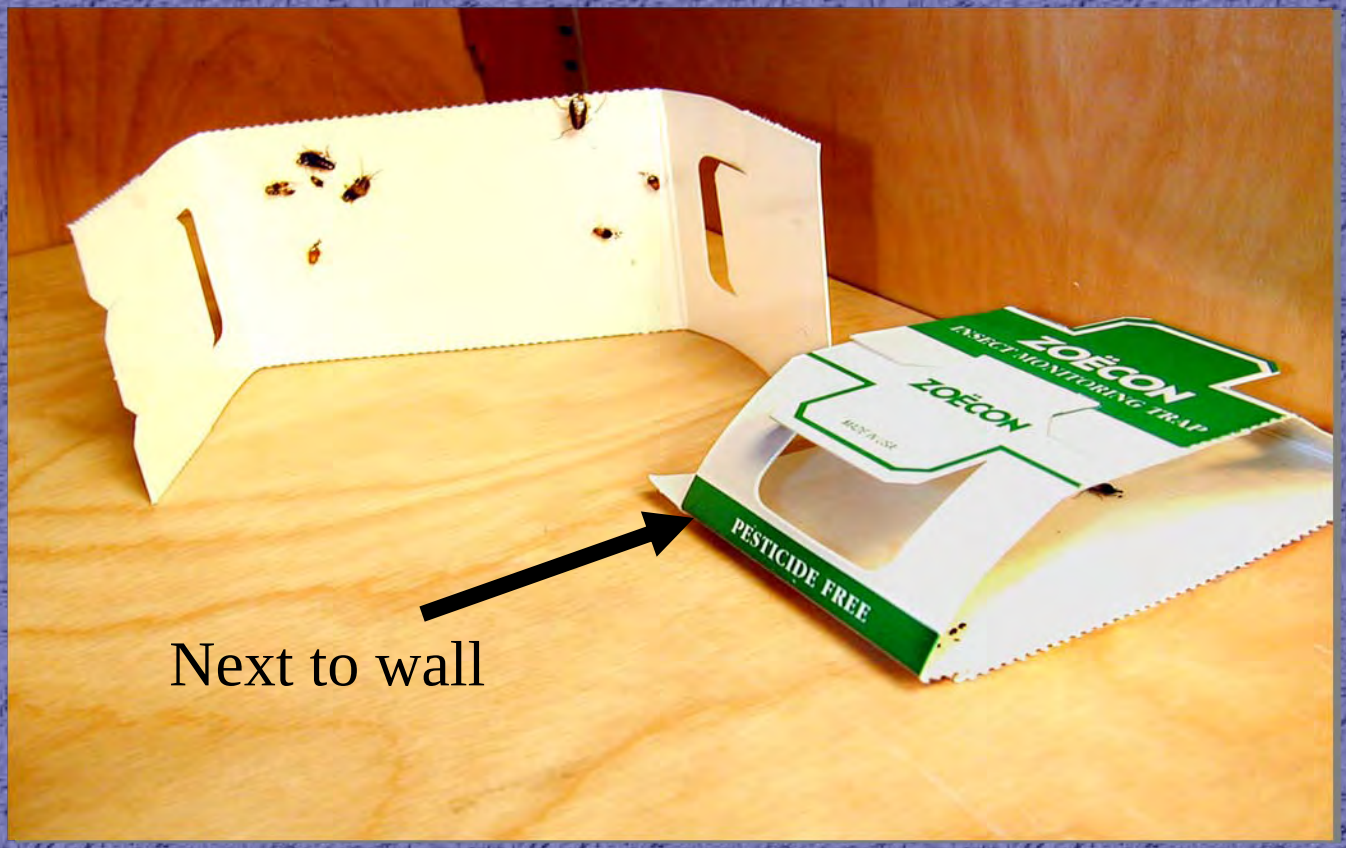
Key biology points

- Egg case, nymph, adult stages
- Maximum growth rate at 33° C (91° F), preferred temps 75° to 90° F
- Spend most time in cracks (1 to 4 mm-wide)
- Found mostly in close proximity to food, water and harborage



Sticky card

Proper placement of sticky trap



Example thresholds for German cockroach

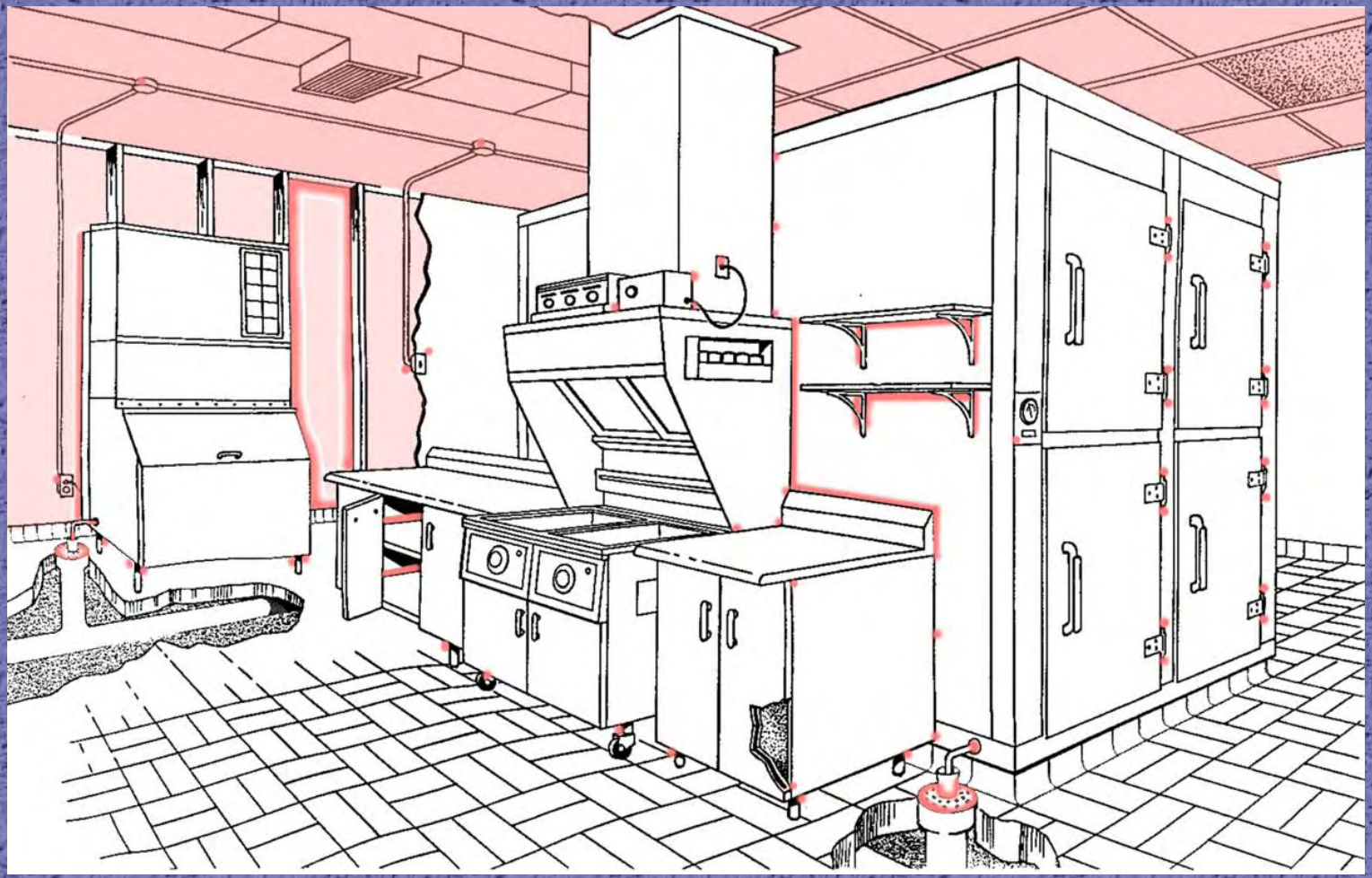


Ave. # cockroaches per zone	*Action*
0	None
1-2	Bait stations; check sanitation
3-6	Spot treat c&c; add or replace baits; review sanitation
7-15	Thorough bait and c&c application; revisit in two weeks
15+	Close facility; conduct thorough c&c inspection and sanitation improvement; increase baits in infested areas; monitor biweekly

Effective controls

- Caulk and seal harborages
- Eliminate, reduce, separate water and food resources
- Bait and dust harborage areas identified by sticky traps
- Apply residual sprays to harborages

Treatment area for Germans

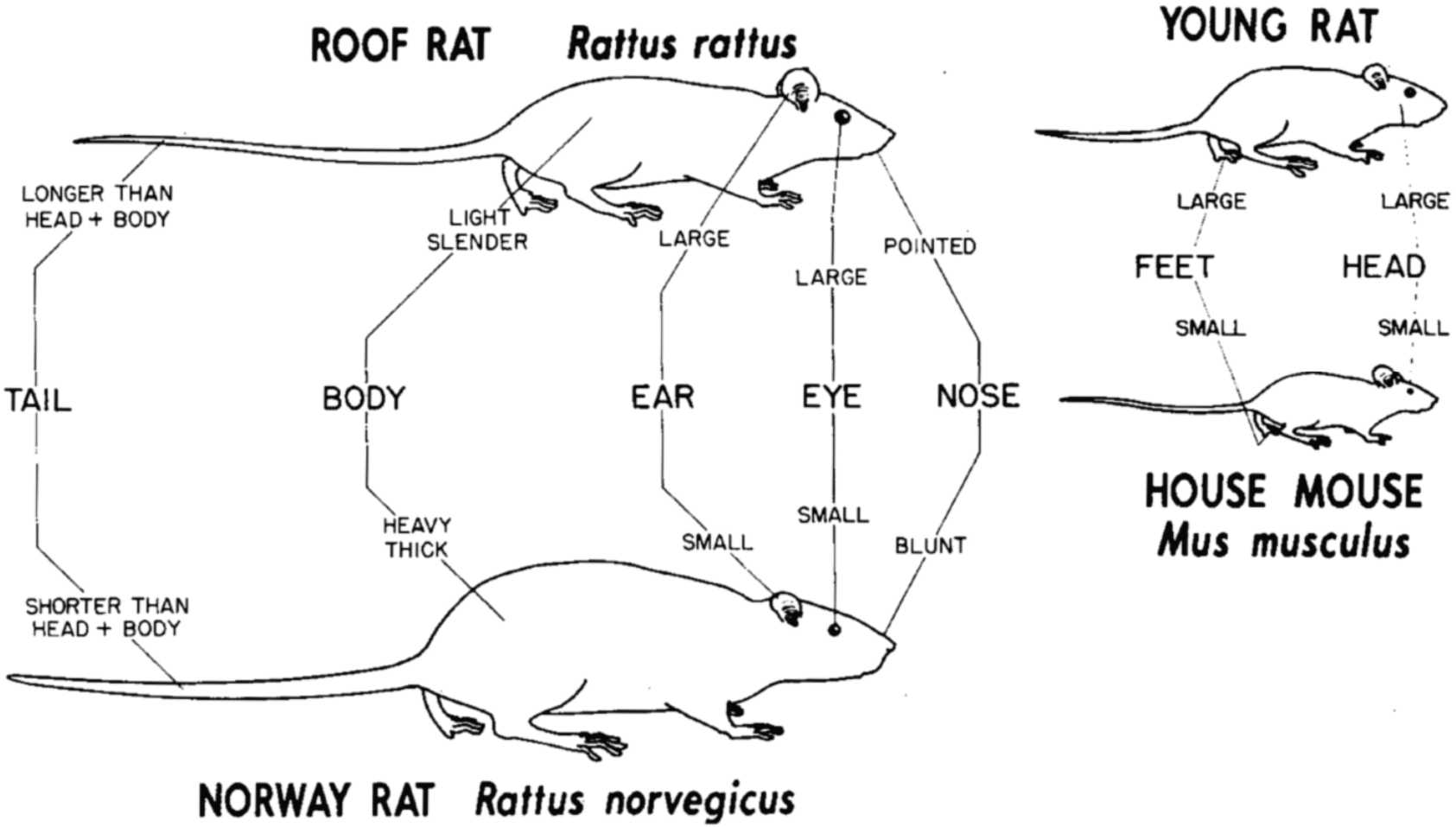


Commensal rodents

- Hazards
  - fire hazard, damage to structures, stored food, and other commodities
  - bites
  - disease transmission, including plague, typhus, leptospirosis, salmonellosis, hantavirus, others



FIELD IDENTIFICATION OF DOMESTIC RODENTS



Can you identify the species?



Brown/roof rat, note large feet

Commensal rodents

- Rodent-proofing
- Sanitation
- Inspections
- Trapping
- Rodenticides, tracking powders



How rodents gain access



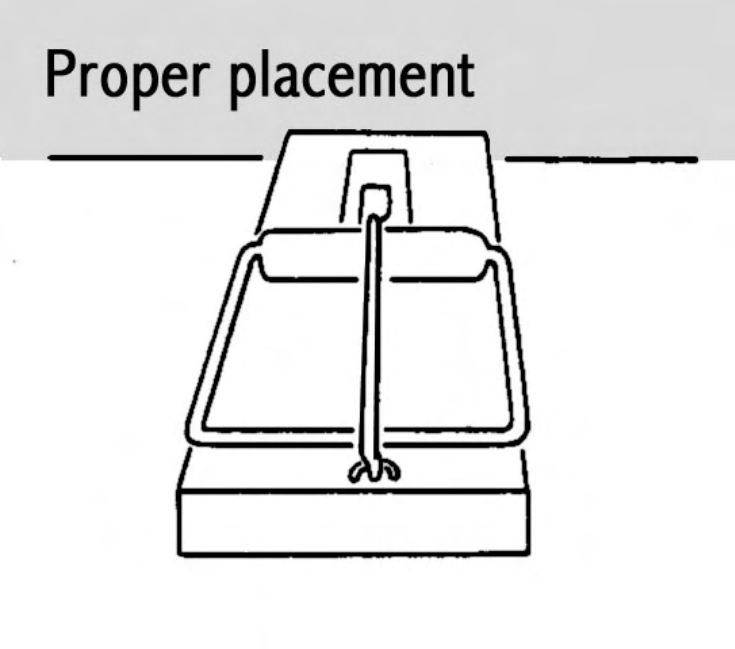
Preventing rodents access

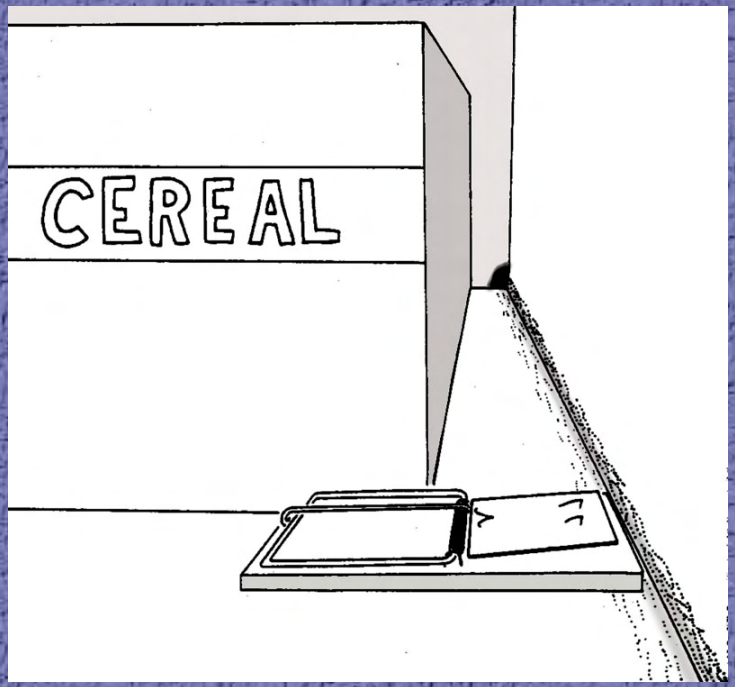


Rat guards

Placing the rat trap

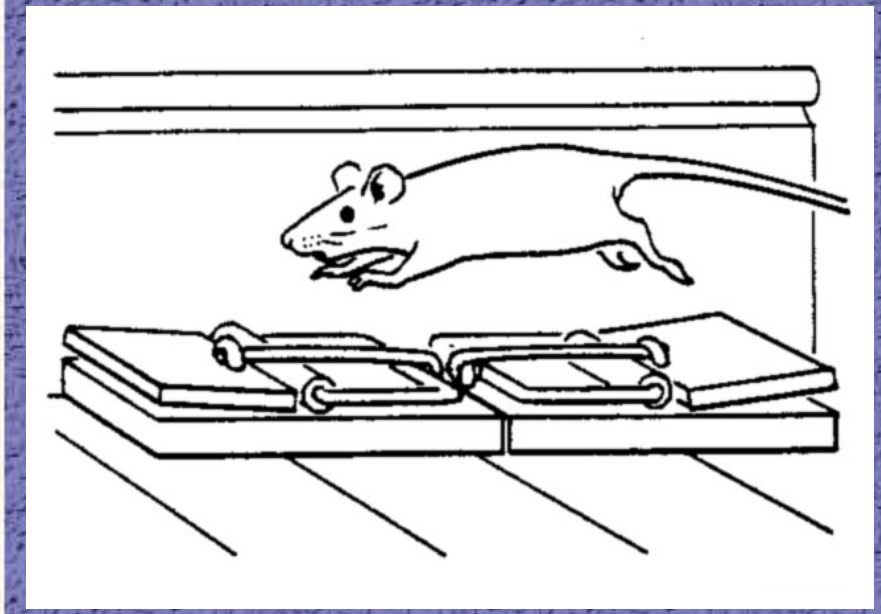
- Trapping tips



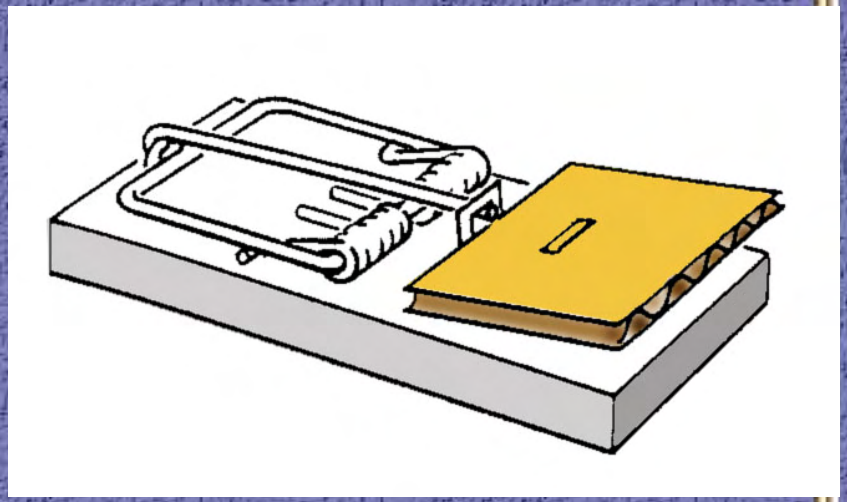


Rodents

- Trapping tips



Pairing traps



Expanded trigger

How rats move about

