

## Pest Management in Hatcheries

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## The basic components of IPM

1. Identify the pest,
2. Understand the biology and behavior of the pest,
3. Determine if control is needed,
4. Know the available control measures and evaluate their usage (risks, benefits and effectiveness),
5. Implement safe and effective control tactics, and
6. Evaluate the control efforts.

### Major Pests:

- Cockroaches
- Rodents

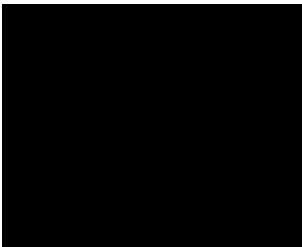
### Minor Pests:

- Ants
- Flies
- Spiders
- Wasps

## Cockroach species

- American Cockroach
- Brown-banded Cockroach
- German Cockroach
- Oriental Cockroach

## Life cycle



1. Adults and immatures (nymph) look alike
2. Adults have wings immatures do not.

## Habitat

- High humidity areas
- Warm areas (setters & hatcheris)
- Motors and electrical outlets
- Dark areas

## American Cockroaches



From egg to maturity six to 12 months. Produces about 150 eggs.

## Brown-banded Cockroach



Egg to adult about 7 months. Females lays about 250 eggs and live about six months.

## German Cockroach



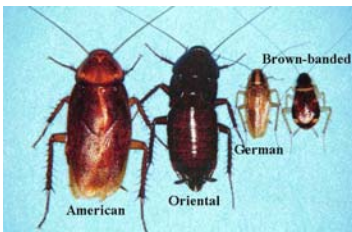
Egg to adult 60 days, one female lays about 300 eggs. 100K roaches per year from one female

## Oriental Cockroach



Low reproduction potential about 20-100 eggs. Egg to adult about 4 months. Only adults over winter

## Comparison by size



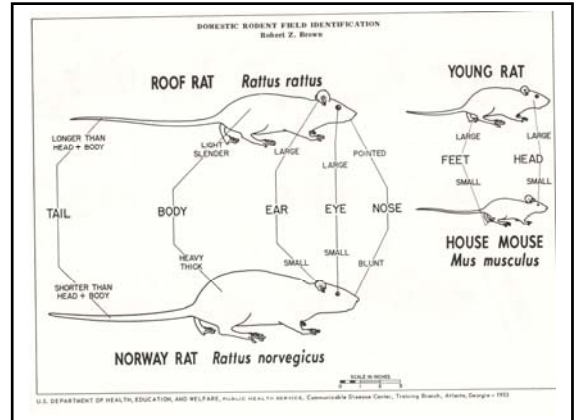
## Chemical Control

- Pyrethroids (Tempo, Permethrin)
- Boric Acid
- Gentrol
- Baits & Gels

## RODENT IPM

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- RODENT INSPECTIONS
- SANITATION
- RODENTPROOFING
- RODENT CONTROL



## RODENT INSPECTIONS

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- DROPPINGS
- TRACKS
- GNAWING
- BURROWS
- RUNWAYS
- GREASE MARKS
- URINE STAINS
- RODENT SIGHTINGS
- RODENT SOUNDS
- RODENT ODORS

## DROPPINGS

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- MICE
  - 50 TO 100/DAY
  - 1/8 TO 1/4 INCH LONG
  - POINTED ENDS
  - BROWN RICE

## DROPPINGS

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- RATS
  - 25 TO 50/DAY
  - 1/2 TO 1 INCH LONG
  - ONE END BLUNT
  - SHINY BLACK

## URINE STAINS AND ODOR

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- FLUORESCES BLUE-WHITE UNDER UV LIGHT
- URINE DRIBBLED WHEREVER RODENTS TRAVEL
- URINE PRODUCES A STRONG ODOR
- MAJOR CONTAMINANT OF FOOD AND FEED

## SANITATION

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- FOOD
- SHELTER
- TRASH
- VEGETATION



## RODENT CONTROL

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- TRAPPING
- RODENTICIDES

## TRAPPING

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- SNAP TRAPS
- MULTIPLE OR AUTOMATIC CATCH TRAPS
- GLUE TRAPS
- LIVE TRAPS



## Rodenticides and Bait Stations

- Use small amounts of bait
- Place bait stations every 30 feet around the building
- Inspect monthly
- Keep bait fresh
- Treat the bait stations with a pesticide to keep spiders and ants away



## Chemical Treatments

- Treat the inside of the hatchery every two weeks.
- Treat on weekends to allow the pesticide work the longest.
- Treat the outside of the building every two months during spring and summer

## Fly Control

- Keep outside area clean from egg shells and organic matter.
- Keep trash cans with a lid.
- When necessary use Baits (Blue Streak, Elector, Golden Malrin, and Quickbayt).
- Place the bait liberally in the floor in the areas where the flies are located. Use only in the outside.
- Use foggers or aerosols inside.