

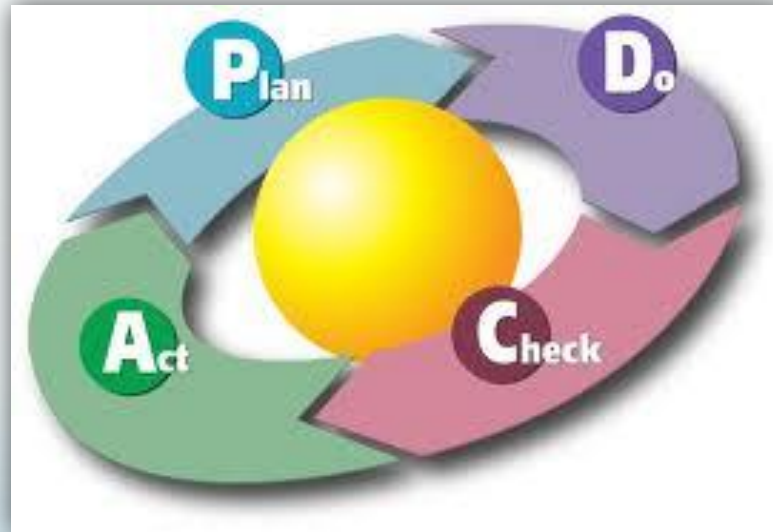
IPM Action Plans for Structural Pests

Luis Agurto Jr.



IPM Programs

- IPM programs are pest control quality assurance programs which are maintained through continual improvement



IPM Action Plans

- Determine controls that are pest specific
- Determine inspection and monitoring locations and service schedule
- Determine communication system for reporting pest sighting activity
- Determine service reporting requirements

Controls

- Controls are *determined by behavior and biology*

Food

Water

Harborage

Access

Thresholds

- Thresholds are defined by potential *economic*, *aesthetic* and *health* related damages or risks
- Determined by
 - Pest activity, evidence or sighting
 - Predetermined quantity observed during regular monitoring and inspections



Actions

- Actions are indicated by:
 - Inspection
 - Monitoring
 - Predetermined thresholds
- Escalate along the reduced risk spectrum as pest activity poses higher risks



Reduced Risk Spectrum

1. Prevention and Non-chemical controls addressing biology and behavior
2. Non-chemical management and removal (vacuums, traps, interceptors)
3. Reduced risk chemical controls (soap and water, tiered pesticides from the SFE Reduced Risk Pesticide List)
4. Risk associated pesticides by demonstrated need according to pre-set exemption

Notification

Plans determine universal building occupant notification procedures for use of anything other than a reduced risk pesticide

NOTICE
PESTICIDE APPLICATION

San Francisco has reduced its pesticide use by almost 80% since our Integrated Pest Management (IPM) Program began. Our IPM Ordinance requires that problems with pests such as weeds, rodents, or insects on City properties be solved using lowest risk methods. Where pesticides must be used, only least toxic products reviewed by the Department of the Environment are permitted.

PREVENTION FIRST → **NONCHEMICAL METHODS NEXT** → **LEAST HAZARDOUS PESTICIDES AS A LAST RESORT**

Target Pest: Carpenter Ant

Other Actions Attempted: yes - hand removal

Area Treated: Spot spray in 2 area area off trail

Pesticide Name(s): Aspinmaster / Milestone

Active Ingredient: Glyphosate / aminopyralid VM

Signal Word: CAUTION - WARNING - DANGER least toxic

EPA Number: 534-373 / 62719-537

Re-Entry Period: Sitting manufacturer label "do not enter until sprays have dried"
staff will be cover until spray has dried

Integrated Pest Management Contact Info: 831-6266

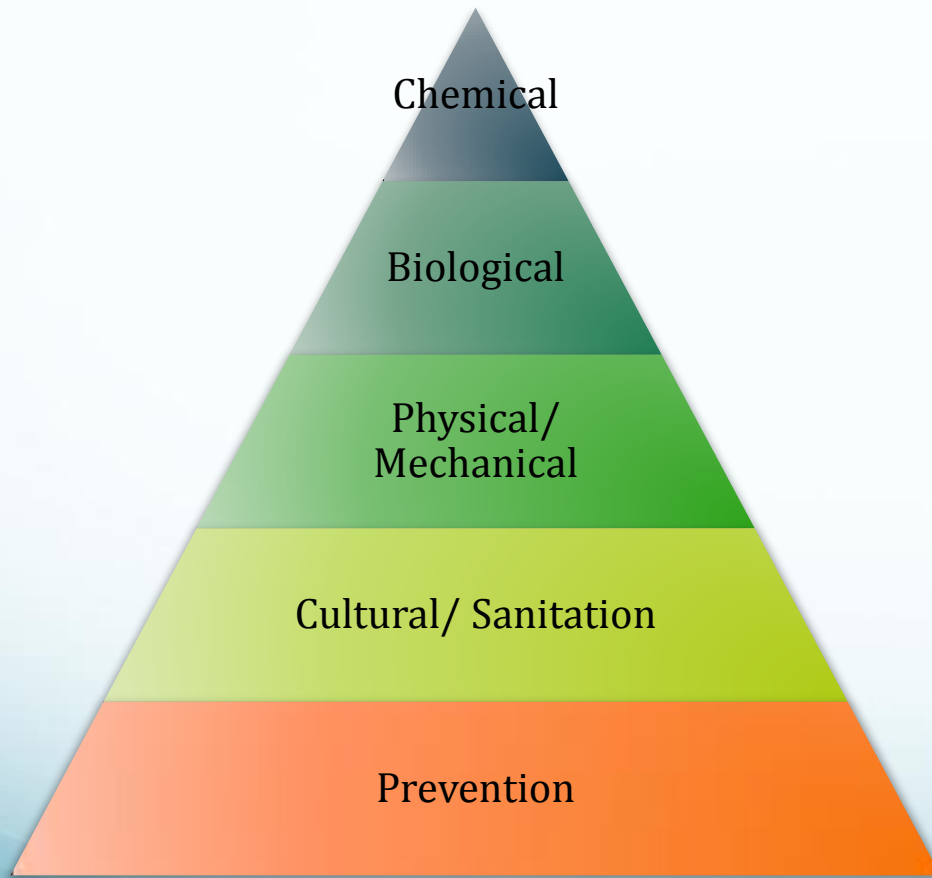
Date/Time of Application: BEFORE 10 AM 3/8/2012 - 3/15/2012

Date Completed: 3/8/2012 PM 3/8/2012 - 3/15/2012
expected 2 applications on separate days within this week

Spray Postponed Until: _____

For more information on the SF Integrated Pest Management Program, or to submit complaints of improper pesticide use, see: www.sfdenvironment.org/ipm

IPM Plans & Use of Multiple Methods



- Education is a vital part of prevention
- Site occupants need to be accountable for their role in pest activity
- Structural repairs should be a part of IPM services or recommendations
- Pesticides can still be used, but should always be used in combination with other methods and should be reduced risk options.



Pest Prevention by Design

Authoritative guidelines for
designing pests out of structures



SF Environment

Our home. Our city. Our planet.

A Department of the City and County of San Francisco



PPBD Technical Advisory Committee

Name	Organization	Sector	Name	Organization	Sector
Allison Taisey, Ph.D	Cornell Univ. Extension	Academic/ Extension	Luis Agurto, Jr.	Pestec	Pest Control Industry
Arthur Slater	Slater Pest Control	Pest Control Industry	Lyn Garling	PA IPM Program, Penn State University	Academic/ Extension
Bobby Corrigan, Ph.D	Corrigan Consulting	Consultant	Margaret Hurlbert	Univ. of Calif., Berkeley	Facility manager
Brad Guy	Material Reuse	Architect	Mark Palmer	SFE – Green Building Program	Government
Darren Van Steenwyk	Clark Pest Control	Pest Control Industry	Mary Louise Flint, Ph.D	Univ. of Calif. Statewide IPM Program	Academic/ Extension
Dion Lerman	PA IPM Program, Penn State University	Academic/ Extension	Megan White	WebCor Builders	Construction
Doug Henderson	Alameda Co. Lead Prevention Program	Government	Michael Merchant, Ph.D	Texas A&M AgriLife Extension	Academic/ Extension
Greg Axten	American Geotechnical Inc.	Engineer	Nita Davidson, Ph.D	California Dept. of Pesticide Regulation	Government
Jim Fredericks, Ph.D	National Pest Management Association	Pest Control Industry	Paul Romano	New Jersey Institute of Technology	Architect
Jody Gangloff-Kaufmann, Ph.D	New York State IPM Program	Academic/ Extension	Richard Estrada	ATCO Pest Control	Pest Control Industry
John Cahill	Cahill Inspection Services	Inspector	Sraddha Mehta	SFE - Environmental Justice Program	Government
Kathy Seikel	US EPA - Childrens Health	Government	Tara M. Cahn	Tara Cahn Architecture	Architect
Lee Tanner	US EPA – Office of Pesticide Programs	Government	Thomas Green, Ph.D	IPM Institute of North America	Consultant
Leo Saylor	Cincinnati Metropolitan Housing	Public Housing Maintenance	Vernard Lewis, Ph.D	Univ. of Calif., Berkeley	Academic/ Extension

Interior Walls



Principle 7.1 Construct interior walls to minimize harborage and pathways for insect and rodent pests.

7.1.1 Baseboard installation.

Use straight base rather than cove base. Cove bases are typically installed with adhesives that may be food for cockroaches, and the gap behind the cove provides potential harborage for a variety of pests, including bed bugs. Alternately, use cove bases that have no gap, and install them to be more easily removable (using screws or nails) to make inspection and treatment easier.

Effective on:	Bed Bugs, Cockroaches, Ants, Misc. Insects
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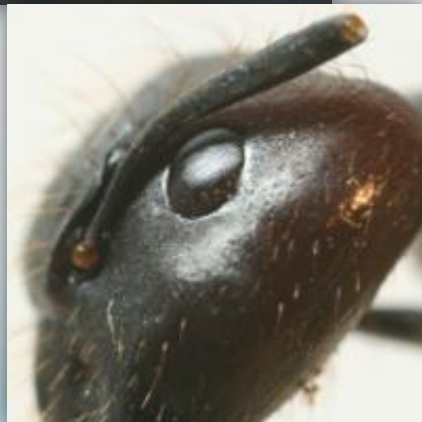
Compatibility Issues with Other Design Goals:	Cove baseboards make cleaning corners easier; using straight bases may affect custodial operations.
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References:	Allen, 2009
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Source: San Francisco Dept. of the Environment

Argentine Ants



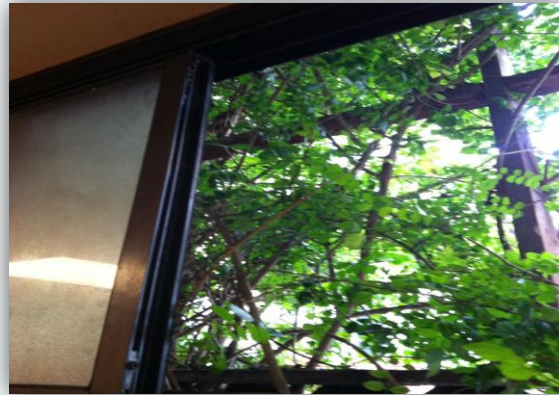
Pestec

- Super organism
 - Every individual in the colony works together to survive
 - Trophallaxis
- Why are they a pest?
 - California super colony
 - Splinter colonies
 - Out-compete native species
 - “Farming” aphids
 - Search for foods in homes and structures



Argentine Ants

- Removing pathways
 - Trim vegetation around structures
 - Seal cracks and crevices
- Proper food storage

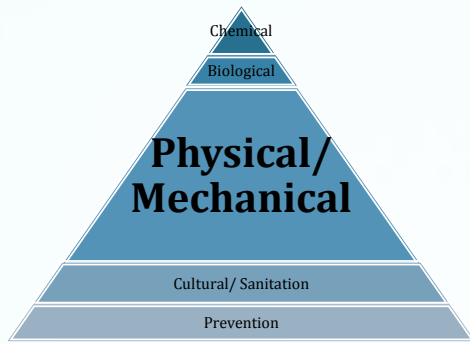




Argentine Ants

- Remove attractants
 - Don't leave food out
 - Clean up spills
 - Rinse recyclables
 - Store food trash/compost in appropriate containers
 - Remove trash regularly

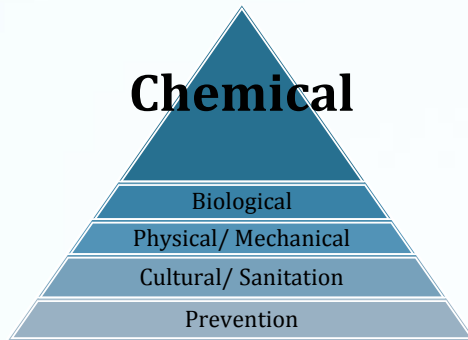




Argentine Ants

- Physical removal
 - Wipe up ants
- Clean up pheromone trail
 - Soapy water
- Tangle foot





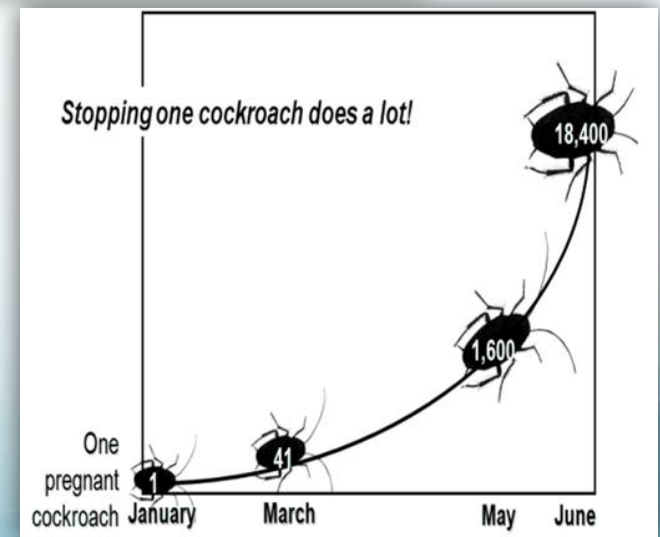
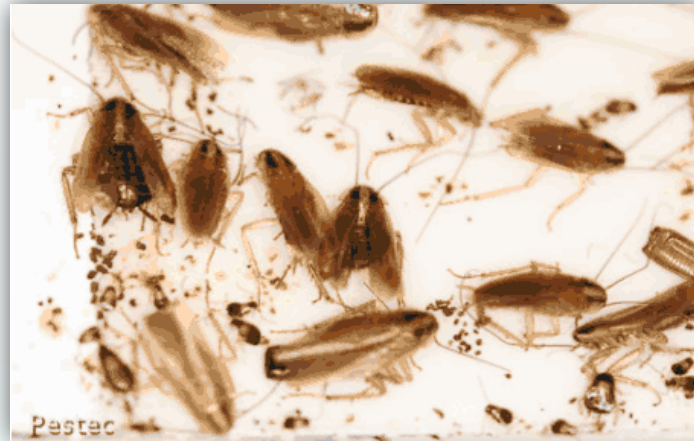
Argentine Ants

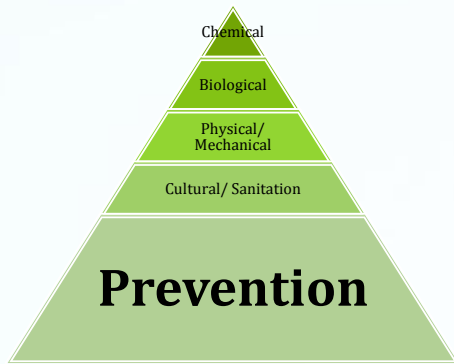
- Diversionary Baiting
 - Back-flow Baiting
 - Bypass Baiting
 - Re-route Baiting
 - Omni Baiting
 - Non-Toxic Baiting
- Insecticidal dusts



Cockroaches

- The great recyclers
- Rapid population growth
- Why are they a pest?
 - Associated with unsanitary conditions
 - Can trigger asthma





Cockroaches

- Be wary of used appliances
- Check shipments and boxes
- Store food and trash properly
- Seal cracks and crevices

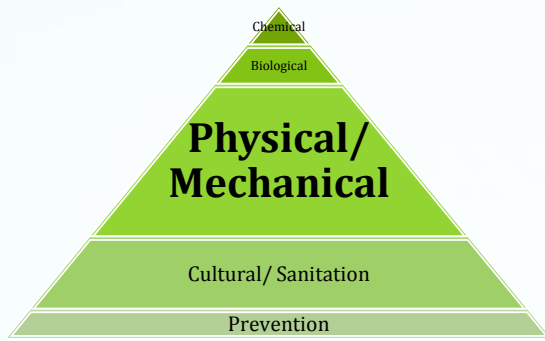




Cockroaches

- Remove attractants
 - Don't leave food out
 - Clean up spills
 - Rinse recyclables
 - Store food trash/compost in appropriate containers
 - Remove trash regularly
 - Clean up cooking grease
 - Clean up frass

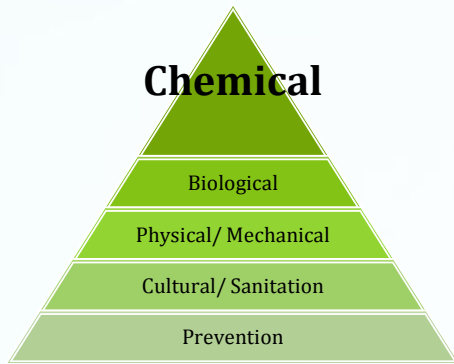




Cockroaches

- Vacuuming
- Sticky traps
- Sealing cracks and crevices
- Fans





Cockroaches

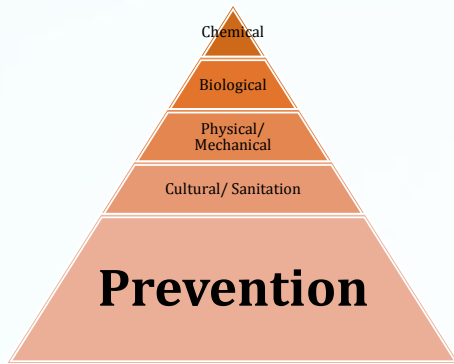
- Baits
 - Gel baits
 - Containerized bait stations
 - Pesticide also spread to other cockroaches that cannibalize the dead
 - Do not mix with other pesticides
- IGRs
- Borate dusts



Mice



- The great survivors
 - Optimized for living in tight, secluded spaces
- Why are they pests?
 - Leave constant trail of urine and feces



Mice

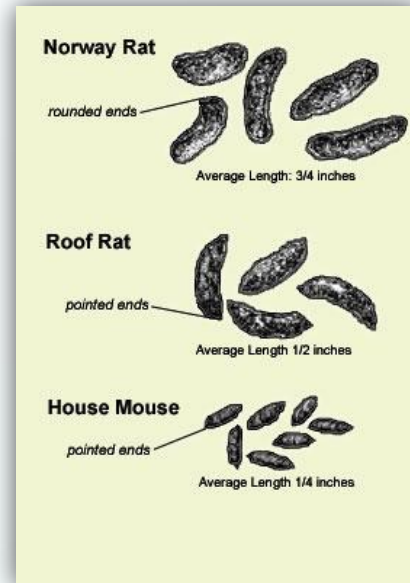
- Store food properly
- Seal cracks and gaps to prevent entry
- Install door sweeps

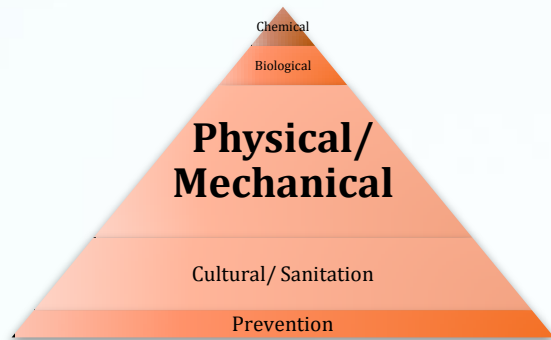




Mice

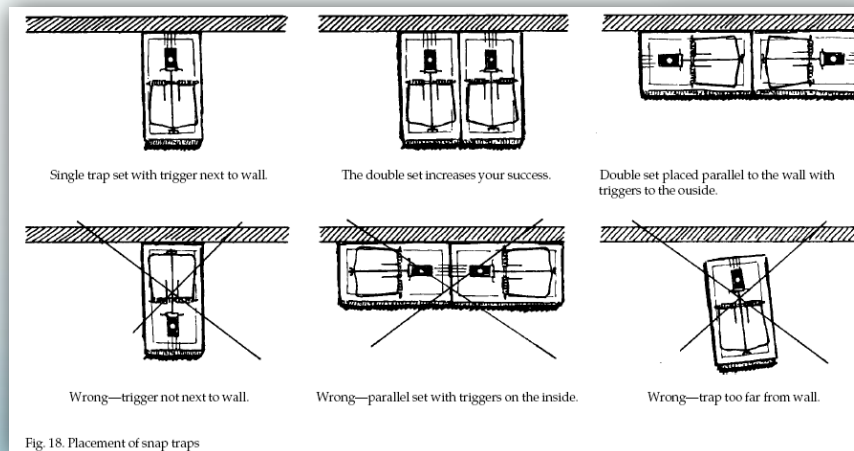
- Clean up food debris
- Remove trash frequently
- Clean up mouse droppings and urine

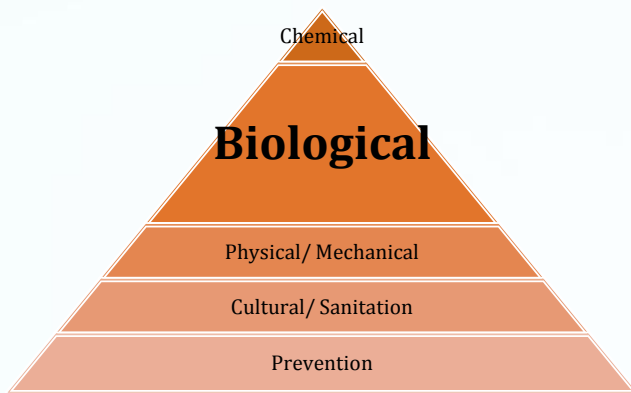




Mice

- Snap traps
 - Proper placement
 - Abundant #

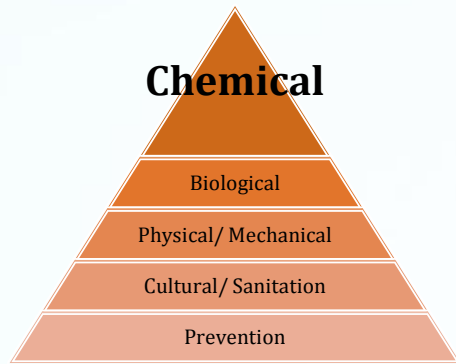




Mice

- Encouraging predators for exterior pests
 - Owl boxes
- Protecting resident predators





Mice

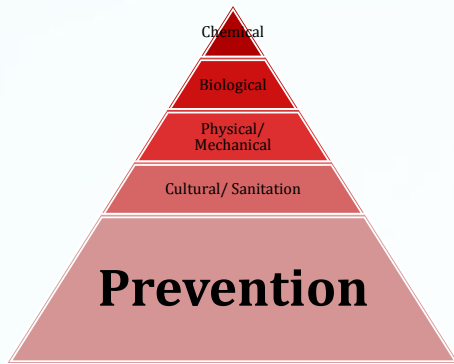


- Rodenticides
 - First generation vs. second generation
 - Impacts on non-target organisms

Bed Bugs

- Have been around since the dawn of human civilization
- Attracted to CO₂ and body heat
- Active and passive transfer
- Why are they pests?
 - Feed on human blood
 - Bites can be painful and itchy





Bed Bugs

- Look for bed bugs when traveling in hotels
- Inspect any used items before bringing them into living space
- Change clothes after leaving a place with a known or suspected infestation

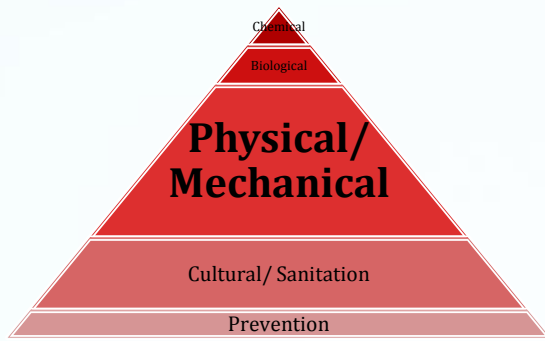




Bed Bugs

- Set up consistent reporting procedures
- Regular laundering of bed linens
- Vacuum up any evidence

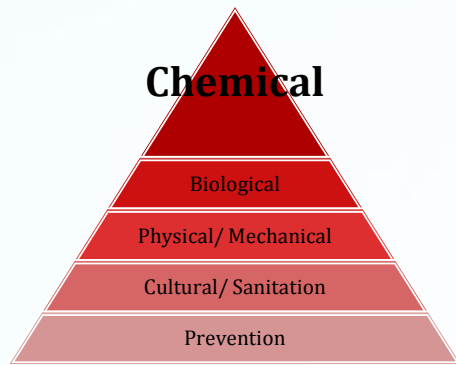




Bed Bugs

- Make the bed an island
- Bed bug specific traps
- Extreme temperatures
 - Steam treatment
 - Heating items or spaces
 - Extreme cold





Bed Bugs

- Contact Killers
 - Bed frames, mattresses, box springs
 - Nightstands and furniture around bed
 - Any other areas bugs are found
- Insecticidal Dusts
 - Wall Voids
 - Outlets
 - Baseboards

