

## Alternatives to Household Pesticides

**Caution: Read directions thoroughly of any pesticide before use.**

### Boric Acid

#### Uses

- A naturally occurring boron compound. It is a stable, water soluble, nonvolatile white powder.
- Used for controlling cockroaches and ants.
- Can be spread around in cracks and crevasses in powder form.

#### Summary

- Can take several days or weeks to control pests.
- Health hazards are minimal.
  - \*Avoid long term exposure to broken skin or children.

#### Efficiency

- Have caution when using this product.**
- Acts as a desiccant, dehydrating the bodies of the insects.

#### Environmental Risks

- Research has shown that Rainbow trout may be sensitive to high boron levels.

#### Health Risks

- Boric Acid can be harmful when in contact with broken skin or young children. Consumption can be fatal.

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### Methoprene

- An amber or pale yellow liquid at room temperature.
- An alternative to aerosol sprays.
- Regulates insect growth when applied.
- A long-term control measure
- Highly toxic to aquatic animals. Avoid use in areas where run off occurs.
- Available in concentrated formulas, briquette, aerosol, and bait forms.

#### Trade names

- Altosid
- Apex
- Diacan
- Dianex
- Kabat
- Minex
- Pharoid
- Precor
- ZR515

#### Efficacy

- Have caution when using this product.**
- Effective on fleas, ants, termites, and wasps.
- Prevents insects from maturing and reproducing.
- Non-toxic to mammals.

## **Pyrethins**

### **(Will replace Chlorpyrifos as the active ingredient in Dursban and Diazinon)**

- Natural insecticide found in certain species of the Chrysanthemum plant.
- Pyrethrin based products are mixtures of 6 individual pesticide compounds.
- Evaluated as a house and garden chemical.
- Available in aerosol and shampoo form.
- Extremely toxic to fish.
- Moderately toxic to mammals.
- Pyrethins degrade when in contact with light and air.

### **Efficacy**

- Have caution when using this product.**
- Also effective against indoor pests. (mosquitoes, houseflies, bed bugs, lice, and cockroaches)
- Acts as a nervous system toxin, causing prostration and paralysis.
- However, insects can metabolize and recover quickly. Resistance is a problem.

### **Environment**

- Not particularly water soluble

### **Health**

- Moderately to highly toxic to mice and rats.
- Human sensitivity is acute.

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## **Diatomaceous Earth**

- DE is an off-white, porous, fine dust with a chalky texture.
- A natural substance mined from the remains of microscopic unicellular aquatic organisms deposited on freshwater and ocean floors.
- It is an alternative to snail and slug bait containing Carbaryl and Metaldehyde.
- Can be dropped or spread into cracks and crevasses.

### **Summary**

- Avoid inhalation.
- Use a dust mask and goggles to avoid irritation.
- Look for products with a silica content less than 1%, which minimizes health effects.

### **Efficiency**

- Have caution when using this product.**
- Numerous registered pesticide products contain DE, including flea powders, ant and roach killers, crawling insect killers, and products for pest control on grain.
- Not an immediate pest control method.
  - \*Can take several weeks or months to have a significant effect.
- DE should be applied to areas where the pests will make contact with it.
  - \*In humid conditions it may need to be reapplied periodically.

### **Environmental**

- No environmental effects are involved with natural, non-heated DE.

### **Health**

- Long term inhalation of this fine powder is dangerous.

## **Pest Control**

### **Less hazardous methods of controlling insects:**

#### **Spiders**

- 3000 species of spiders, only a few are dangerous.
- Most insect bites come from mites, fleas, or ticks, and not spiders.

#### **Control**

- Vacuum them, instead of spray.
  - \*Dust suffocates spiders.
  - \*Keep home clean of webs.
  - \*Move spiders outside.
- Seal cracks and crevasses into home to prevent entry by pests.
  - \*Install screens on all doors and windows.
- Reduce food supply
  - \*Store fruit in closed containers.
    - Fruit flies are main source of food.
  - \*Use yellow light bulbs outside, insects are less attracted to them.
  - \*Do not spray outside for spiders, it does more harm than good.
  - \*Just spray area with a garden hose.

#### **Black Widows**

- Has a red hourglass shaped on the underside of the female's abdomen.
  - \*Very timid, reluctant to bite, and are not hunters.
- Locations found
  - \*Usually near the ground
  - \*Dark, dry areas
  - \*Lower portions of storage areas
  - \*Lumber and rock piles
  - \*Rodent burrows
  - \*Water meter boxes

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#### **Termites**

- Destructive and difficult to contain these pests.
- Call a Pest Control Operator.

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#### **Ants**

- Ants colonize and scout inside homes in search of food.
- Usually colonize within walls or other structures.

#### **Inside**

- Winter problems can indicate indoor nests.
- Follow source of ants.
- Wipe and clean with soapy water.
- Caulk, jelly, or tape entries into home.
- Apply Boric Acid (Roach Prufe) to cracks .
  - \*Avoid aerosol spray
    - Can be inhaled

- Little long-term effects. It repels more than it kills.
- Ant Bait that is picked up and taken back to the queen is effective.
  - \*Gel, pellet, and station baits.
- Vacuum up ants.

### **Outside**

- Ants are beneficial, because they control the population of more harmful insects.
- Use “Tanglefoot” at the bases of trees or bushes.
- Use Ant bait such as “Antrol Ant Killer”, “Drax”, or “Combat”.
- Pour boiling water down an ant mound. It will kill about 60% of the colony.

### **Prevention**

- Keep food in tightly sealed containers.
- Keep home clean and prevent or repair any leaky faucets and sinks, as they are sources of water for ants.
- Seal home of cracks and crevasses. Weather-seal doors and windows.
- Watch areas in which pets dwell. Pet food or water dishes are magnets for ants.

### **Tips for Ant Bait use**

- Use different kinds of ant baits, because ants change their appetites often.
- Use bait inside, not outside because it will just attract more ants to the area.
- Aerosol sprays just repel ants.
- Remove bait after ants are no longer present.
- May take several weeks to be fully effective.

### **Ant Emergencies**

1. Vacuum or spray ant lines with soapy water.
2. Block entry point.
3. Move infested items outside.

## **Fleas**

### **Inside**

- Comb pets frequently with a metal brush. Focus on the neck and tail.
  - \*As you do this, clean brush in soapy water.
- Bathe dogs using a pet shampoo.
- Vacuum pet areas frequently and caulk any cracks or crevasses.
  - \*Use Diatomaceous earth on upholstery and in cracks and crevasses.
- Use a Borate-based carpet treatment. (“Fleanix”)
  - \*Borate has a low toxicity to humans and pets.
  - \*Controls flea populations for up to a year.
  - \*Mix Borate with water.
  - \*Borate mixed with water is less hazardous than powdered forms.
  - \*It binds to carpet and is not sucked up.
- Flea traps are effective in areas not visited by humans and pets.

### **Outside**

- Spraying a yard or area is ineffective, and will kill beneficial insects.
  - \*Infestations are limited to the areas frequently visited by pets.
  - \*Spot treat with spray.
- Check for wild animals that may harbor fleas.
  - \*Treat areas with Diatomaceous Earth.

-Use Nematodes in soil where fleas are believed to.

### **Pets and flea control methods**

-Ultrasonic collars and machines do not work.

-Frontline (Fipronil)

\*Applied to the skin of the animal around the neck and shoulder.

\*Insecticide spreads over the body for about a month.

\*Use gloves, for it does have a low toxicity level.

-Advantage (Imidacloprid)

\*Kills 98 to 100% of fleas in the first ten days.

\*Disables fleas' nervous system.

\*Water resistant

\*Low risk of side effects.

\*Lasts for about a month.

-Program

\*Given orally to animal

\*Fleas that ingest this produce few larvae that will not mature.

\*Do not give to pregnant or young animals.

-IRG (Methoprene)

\*Trade names

• "Precor" and "Nylar"

\*Prevents larvae from maturing.

\*Various methods of application, each with a low toxicity.

### **Prevention**

-Restrict pets to sleeping in one area.

\*Use washable pet bedding.

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### **Yellow Jackets**

-Outdoor nests will disappear during the winter.

-If you have many yellow jackets inside, you may have a nest in the wall.

\*Refer to County of Santa Clara Vector Control @ **(408)792-5010**  
or a pest control professional.

### **Traps**

-Place traps away from frequently visited areas.

\*They tend to lure away wasps.

-Set traps outside a few hours before bringing food out.

-Tuna and cat food act as effective forms of bait.

### **Prevention**

-Seal holes and cracks in foundation, floors, and walls to prevent entry.

-Cover attic and crawl space vents with screens.

-Keep garbage containers tightly closed.

-Avoid having sugary products outside, such as foods or drinks.

### **Stings**

-Wear protective clothing when inspecting nests.

-Do not wear lotions or perfumes.

## **Snails and Slugs**

### **Detection**

- Large ragged holes in plants
- Slime trails
- Control
  - \*Look for snails at night and douse them with soapy water.
  - \*Wrap a strip of copper around tree trunks or garden beds.
    - "Surefire Slug and Snail Copper Barrier Tape"
  - \*Cover rows of vegetables with special horticultural fabrics.
    - "Fast Start Seed Blankets"
  - \*Homemade or commercial pit traps that use Beer or Yeast mixtures.
  - \*Use baits containing Iron Phosphate.
    - "Sluggo", "Escar-Go", "Worry Free"

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## **Cockroaches (Contact a pest control operator)**

- They travel through buildings via plumbing and electrical systems.
- Can carry bacteria which cause allergies or illness.
- Use nontoxic sticky traps to bait their habitat.
- Use a strong vacuum with a crevice tool to suck them up.
- Apply Diatomaceous Earth or Boric Acid to cracks.
- Use cockroach bait.

### **Prevention**

- Store food in tightly sealed containers.
- Keep area clean and tidy.
- Keep area dry.
- Seal cracks and crevices
- Weather-strip all doors and windows
- Inspect materials brought into the home.
- Monitor past problem areas with sticky traps.

### **Tips for use of Roach Bait**

- Use bait indoors only.
  - \*Boric Acid, Fibronil, or Hydramethylen only.
- Reduce food sources so that they will feed only on bait.
- Use Gel bait in small areas.
  - \*Applied through a small gun into cracks, crevasses, and hiding places.
    - Insects carry pieces back to nest.
  - \*Trade names
    - "Combat Roach killing Gel"
    - "Combat Quick Kill Roach Control Gel"

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## **Mosquitoes**

- Screen all windows and doors.
- Remove any standing water near your house.

- Stock any ornamental ponds with mosquitofish. (Contact Vector Control for more information)
- Burn Citronella Oil at any outdoor activities.
- Mosquito repellent should be applied to clothing not to skin.

### **Whiteflies**

- Be sure to keep plants well watered. Whiteflies tend to suck the moisture out of plants.
- Insecticidal soaps can help contain populations in greenhouses and gardens.
- Use traps such as "Ortho" or "Surefire", or construct your own using yellow colored paper with tanglefoot applied to it.

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### **Aphids**

- Large numbers of Aphids can distort foliage and flowers.
- Some can transmit disease onto plants.
- Aphids excrete a substance called "honeydew" onto plants, which later is inhabited by fungus.
  - \*Fungi can make leaves moldy.
  - \*Ants also are attracted to the honeydew material.

### **Detection**

- Small insects with pear shaped bodies.
- Long Antennae, males have wings
- Assorted colors
- Small numbers of the insect can be beneficial.

### **Control**

- Parasites (wasps) lay their eggs inside aphids.
- Wipe or prune away colonies of aphids off plants.
- Use water to take off honeydew. (garden hose)
- Use Insecticidal soap.
- Use Oil Sprays(Horticultural)
  - \*Also leaves a substance that repels natural enemies.

### **Prevention**

- Use slow release fertilizers (compost).
- Avoid excess pruning, because it can attract aphid growth.
- Control ant populations that feed on aphid excretions.

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### **Maintain a Beautiful Lawn**

- Pesticides contribute to water pollution.
- Overwatering can wash pesticides and fertilizers into the water system.
- Leave grass clippings on the lawn. It acts as a fertilizer.
- Over fertilized and frequent pesticide use can lead to nutrition deficient lawn.
- Tolerate a few weeds.
- Keep plants healthy and they will force out weeds.
- Apply Corn Meal to lawn in spring to prevent some weeds from appearing.

### **Lawn substitutes**

- Woolly Yarrow
- Caraway-scented Thyme

- Mother of Thyme
- O'Connor's Legume
- Garden Chamomile

### **Preferred Grasses**

- Tall Fescue
- Dwarf tall Fescue
- Red Fescue
- Perennial Ryegrass

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### **Safe use and Disposal of Pesticides**

- Identify the pest and afflicted plant.
- Make sure you are using the right pesticide for the right problem.
- Read the directions and literature provided, and carefully use as instructed.
- Never use Pesticides around children, pets, or other animals.
- Don't eat or drink when using pesticides.
- Store pesticides out of the reach of children and pets.
  - \*Keep them in a cool, dark, dry area.
- When handling pesticides use goggles, gloves, respirator, long sleeved shirt.
- When mixing pesticides use a dedicated set of spoons and containers.
- After using pesticides wash and rinse skin that may have experienced contact.
- Do not transfer pesticides to another container.

### **Proper Disposal**

- County of Santa Clara HHW disposal program @ (408)299-7300.

### **Banned substances**

- Dursban
- Diazinon
- DDT
- Chlordane

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### **Growing a Healthy Garden to Manage Pests naturally**

- Reduce or eliminate the use of pesticides in your garden.
  - \*Kills more beneficial insects.
- Creates a resistance.

### **Plants**

- Know your soil type, water requirements, sun and shade patterns.
- Select disease resistant plants.

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### **Vertebrate Control: Contact Santa Clara County Vector Control @ (408)792-5010**

**Less hazardous methods of controlling Rodents and severe pest problems.**

### **References**

For gardening information and tips, Contact The Master Gardeners of Santa Clara County between 9:30a.m. and 12:30p.m., Monday to Friday @ (408) 299-2638

For more information concerning Pest control contact:

-Bio-Integral Resource Center @ **(510)524-2567**

-UC Integral Pest Management @ **www.ipm.ucdavis.edu**

-Central Contra Costa County Sanitary District @ **www.centrcsan.org**