Garden Chemicals

USE

STORAGE

DISPOSAL
Garden Chemicals

- Pesticides
  - Insecticides
  - Herbicides
  - Fungicides
  - Rodenticides

- Fertilizers
  - Liquid
  - Dry
Unwelcome Garden Guest!
Welcomed Garden Visitors
Beneficial Insects
Insecticides
Pesticide Selectivity—can help protect the environment, people and nontarget plants

- A **broad-spectrum** pesticide kills a wide range of organisms.
- A **selective** pesticide kills only organisms in a related group.

Bifenthrin kills all types of insects including ants, grubs, aphids, caterpillars, bees as well as fish and nontargets.

*Bacillus thuringiensis (Bt.k)* kills only caterpillars feeding on leaves or buds of sprayed plants. Beneficials, bees and wildlife not affected.
Herbicides
Contact vs. Systemic Herbicides (postemergent only)

**Contact Herbicide**
Contact herbicides usually kill only the green parts of the plant where the spray touches the plant. Contact herbicides will kill young plants fairly quickly. They may not kill older plants or the roots.

**Systemic Herbicide**
Systemic herbicides are taken up by green plant parts or through roots and are transported to the growing tips of roots and shoots. It may take several days for a systemic herbicide to kill a plant.

Contact examples: pelargonic acid (Scythe), Clove oil (Burnout)

Systemic examples: Glyphosate (Roundup), 2-4-D, fluazifop
Deciding to Use a Pesticide

• Is the PEST the cause of the problem?

• Is the PEST causing lasting damage?

• How many PESTS are there and will spraying be justified?

• Other than a pesticide, what else might work to control the Pests
As a Consumer of Pesticides
You Must

• Understand how to properly use the product

• Understand how to protect yourself when applying by wearing proper clothing and protective gear

• Understanding how to dispose of empty containers and if necessary, unused product
Proper Protective Gear for Applying Pesticides
Check Label Before Purchase to Ensure Produce Use Is Appropriate For Plant Or Garden Site

• Plant type or garden site to be treated needs to be listed on label

• Never use pesticides labeled for “Outdoor Use Only” indoors

• Never use pesticides labeled for use on ornamental plants on edible plants

• Pesticides can seriously damage some plants, read label carefully!

• Don’t buy more product than you can use during the season
Pesticides Must Be Used Per Label Instructions

OTHERWISE:

• May injure the target plant
• May not control pest
• May kill beneficial insects
• May physically harm user
• May contribute to pollution of the environment
Pesticide Label

1. Trade or Brand Name
2. Active Ingredients and % by weight
3. Type of Plants or Sites where may be used
4. Pests targeted (may only attack a pest at a certain stage of life cycle)
5. How much to Use
6. How and When to apply
7. Protective clothing to wear - rubber gloves, eye protection, long-sleeved shirt, long pants, and closed shoes
8. Signal word defining toxicity to people (DANGER, WARNING, or CAUTION) also as to potential chronic problems or hazard to wildlife or beneficials
9. Precautionary statement regarding hazards to people, domestic animals, wildlife, beneficial insects & the environment
10. Emergency & first aid measures to take if someone has been exposed
## Signal Words indicate acute toxicity

### Table

<table>
<thead>
<tr>
<th>SIGNAL WORD</th>
<th>Toxicity</th>
<th>Approx Human lethal dosage</th>
</tr>
</thead>
<tbody>
<tr>
<td>DANGER-POISON</td>
<td>Highly toxic</td>
<td>Taste to a teaspoon</td>
</tr>
<tr>
<td>DANGER</td>
<td>Highly hazardous</td>
<td>Pesticide-specific</td>
</tr>
<tr>
<td>WARNING</td>
<td>Moderately toxic</td>
<td>1 teaspoon-1 oz</td>
</tr>
<tr>
<td>CAUTION</td>
<td>Low toxicity</td>
<td>1 oz to relatively nontoxic</td>
</tr>
</tbody>
</table>

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**LIME-SULFUR SOLUTION**

**ACTIVE INGREDIENT:**
- **By Weight:** Calcium Polysulfide 23.0%
- **Inert Ingredients:** 71.0%
- **Total:** 103.0%

**Density:**
- 31° Baume at 60°F
- 10.6 Lbs. Per Gallon at 60°F

**Contains:** Calcium and Sulfur expressed as Gypsum 3.0 lbs. per gallon. Other combined sulfur 1.9 lbs. per gallon.

**EPA Reg. No.** 64348-1
**EPA Est. No.:**

**KEEP OUT OF REACH OF CHILDREN**

**DANGER**

**Precautionary Statements**
- **Hazards to Humans and Domestic Animals**
  - Fatal if swallowed, inhaled or absorbed through skin.
  - This product is corrosive to flesh because of its caustic alkaline nature and it causes irreversible eye damage and skin burns. Do not breathe dust, vapor or spray mist or get in eyes, on skin or on clothing.

**UC Statewide IPM Network, UC IPM 21-A_GALLONS**

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**UC IPM**
Neem Oil

Fungicide • Miticide • Insecticide

Ready to Use

3 garden products in one

Controls blackspot, powdery mildew, rust, spider mites, aphids, whiteflies & other insect pests

For use on roses, flowers, houseplants, ornamental trees and shrubs, fruits, nuts and vegetables

ACTIVE INGREDIENT:
Clarified Hydrophobic Extract of Neem Oil ........ 0.9%
OTHER INGREDIENTS: ................................ 99.1%
TOTAL: ............................................. 100.0%

Keep Out Of Reach Of Children
CAUTION (See Back Panel for Additional Precautionary Statements and First Aid)

Net Contents 32 FL. OZ. (946 ML.)

FOR ORGANIC GARDENING
Directions for use

- How to mix up product (if applicable)
- What plants or sites you can use it on
- What pests it controls
- Special restrictions
Registrations and terminology

- Most pesticides are registered by the U.S. EPA and CA Department of Pesticide Regulation.
- Some food or natural oil products are **exempt** from registration (“25b” products). They don’t carry EPA registration numbers.
- **Organically acceptable** pesticides are derived from natural products such as plants or minerals (including petroleum oil), are not chemically processed. Some *but not all* have the OMRI logo.
- **Less Toxic Pesticides**: (*not an official term*)—have less negative impact on people and nontargets.
Storage of Garden Chemicals

1. Keep pesticides in their original containers and store right side up

2. Keep dry pesticides above liquid pesticides

3. Keep liquid pesticides in an additional plastic tray to contain any potential leak

4. Identify a specific area for pesticide storage and, if possible, keep locked

5. Never store Personal Protection Equipment (PPE) with pesticides

6. Organize your storage area by type of pesticide, ie. herbicide, insecticide, fungicide, and other chemicals such as fertilizers; prevent likelihood of picking wrong product

7. Food and drink should NEVER be in the pesticide or fertilizer storage areas. Also, pesticides and other chemicals should NEVER be stored in food or drink containers!

NOTE: Clearly Label Garden Sprayers and Measuring Implements!!
Good Practice for Pesticide Use in the Garden

• Try not to purchase more product than you can use during the current season

• “Spot” treat where the pest is most prevalent versus widespread application (you will need less product & minimize harming the environment)

• Avoid applying pesticides to driveways and other hard surfaces because water runoff from these surfaces will generally go into storm drains
Disposal of Pesticides and Other Garden Chemicals

1. Carefully read product label regarding disposal of empty container; generally, EMPTY containers of home-use pesticides may be disposed in the trash by the homeowner.

2. **NEVER** dump excess or unwanted pesticides or fertilizers down the drain, onto the soil, or in the trash.

3. Unused pesticides and fertilizers are considered **HAZARDOUS WASTE**; Hazardous household waste must be disposed as directed by local county and municipality.

4. All hazardous household materials must be in the original container when delivered to the waste collection facility.
Garden Chemicals: Safe Use & Disposal

Pesticides, such as insecticides, herbicides, and fungicides, are designed to be toxic to the pests they target.

When used properly, pesticides can protect your plants or home from damage. However, if the label instructions aren't followed correctly, plant injury may occur, pests may not be controlled, human health may be impaired, and pesticides may contribute to soil, air, or water pollution. Fertilizer products may also have negative environmental impacts when they get into waterways.

Are pesticides necessary to control pests?

- Use pesticides only when nonchemical methods are ineffective and pests are reaching intolerable levels, then choose the least toxic, most effective product.
- Contact your local UC Master Gardener or Cooperative Extension office for help identifying your pest or an alternative pest control method.

If you must use garden chemicals:

- Select least toxic products that target your pest. Examples include bait stations, insecticidal soaps and oils, and microbial insecticides such as Bacillus thuringiensis (Bt).
- Buy ready-to-use products when possible, since they don't have to be measured and mixed.
- Don't water after applying garden chemicals unless the label tells you to. Never let pesticide or fertilizer run off into storm drains.
- Avoid applying chemicals outdoors when rain is forecast or when it is windy.
- Don't apply pesticides or fertilizers on paved surfaces.

When using and storing garden chemicals:

- Always wear shoes, a long-sleeved shirt, pants, eye protection, and any other equipment listed on the product label.
- Properly measure concentrated formulations of pesticides. Keep all measuring tools for the garden separate from those used for food.
- Never apply more product than the amount listed on the label.
- Always keep chemicals in their original container and store them tightly capped in a locked cabinet out of the reach of children and pets.

Finding active ingredients on a pesticide label

<table>
<thead>
<tr>
<th>Active Ingredient</th>
<th>KEEP OUT OF REACH OF CHILDREN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium Salts of Fatty Acids</td>
<td>1.0%</td>
</tr>
<tr>
<td>Other Ingredients</td>
<td>99.0%</td>
</tr>
<tr>
<td>Total</td>
<td>100.00%</td>
</tr>
</tbody>
</table>

Net Contents: 32 FL OZ/946 mL

Pesticide labels show the active ingredient in a product. This example shows the active ingredient in some insecticidal soaps.

Disposing of pesticides and fertilizers:

- If you can't use up your pesticides and fertilizers, consider giving them away.
- Sewage treatment plants aren't designed to remove all toxic chemicals from wastewater. Pouring garden chemicals into a storm drain, down the sink, or into the toilet pollutes water and is against the law!
- The only allowable way to dispose of pesticides is to use them up according to label directions, or to take them to a household hazardous waste site.
- For the Household Hazardous Waste Disposal site nearest you, call 1-800-CLEANUP (1-800-253-2687) or visit earth911.com for more information.

For help in an emergency, call the California Poison Control System at 1-800-222-1222. Visit calpoison.org for more information.

What you do in your home and landscape affects our water and health:

- Minimize the use of pesticides that pollute our waterways and harm human health.
- Use nonchemical alternatives or less toxic pesticide products whenever possible.
- Read product labels carefully and follow instructions on proper use, storage, and disposal.

For more information about managing pests, visit ipm.ucdavis.edu or your local University of California Cooperative Extension office.
Locations for Disposal of Garden Chemicals such as unused pesticides and fertilizers

EL DORADO COUNTY

El Dorado County Environmental Management edcgov.us
Household Hazardous Waste Collection Facilities

El Dorado Disposal Material Recovery Facility eldoradodisposal.com
4100 Throwita Way
Diamond Springs
(530) 626-4100
Drop off Friday - Sunday from 9 - 4

El Dorado Hills Fire Station edcgov.us
3670 Bass Lake Road
(530) 296-4100
Drop off 1st and 3rd Saturday of the month (weather permitting) from 9 - noon

Call above facilities prior to drop off to ensure that hours have not changed
Locations for Disposal of Garden Chemicals such as unused pesticides and fertilizers

CITY OF FOLSOM

City of Folsom Solid Waste Division folsom.ca.us
Hazardous Materials
(916) 461-6730

The City of Folsom provides “door 2 door” pickup service, on Monday, Wednesday & Friday
Resident must call the Folsom Hazmat Division to make and appointment for pickup
Sources of Pesticide Environmental and Health Impact Information on the Web

- National Pesticide Information Center: http://npic.orst.edu
- UC IPM Web site, pesticide active ingredients database http://www.ipm.ucdavis.edu
- Pesticide Action Pesticide Database: http://www.pesticideinfo.org/
- Penn State Extension: https://extension.psu.edu
- Our Water Our World: http://www.ourwaterourworld.org

For information on how to manage specific home and garden pests, visit the UC IPM Web site: www.ipm.ucdavis.edu/homegarden
Physical Exertion
How Can I Make My Gardening Life Easier?

• Smaller loads of garden materials

• Use planters made with lighter materials vs heavy pottery

• Don’t purchase more plant materials than you can use at this time

• Use props such as knee pads or a kneeler, carry garden tools in a five gallon bucket which can also be used to steady you when standing up

• Don’t overestimate what you can do during your garden work period and take a break now and then, you deserve it!

• Choose new tools that are ergonomic and comfortable for you to use
Basic Garden Needs

• 2 in 1 garden kneeler, garden stool

• Thick foam kneeler

• Bucket with garden tools and pruners

• Bucket for weeding and pruning

• Garden trug tub for carrying planting materials such as potting soil or mulch
Outside storage for frequently used garden tools
Storage for garden tool bucket as well as dry fertilizers
“May you stay forever young”

Bob Dylan