Garden Chemicals

USE

STORAGE

DISPOSAL

UNIVERSITY OF CALIFORNIA
Agriculture and Natural Resources
UC Master Gardener Program
El Dorado County

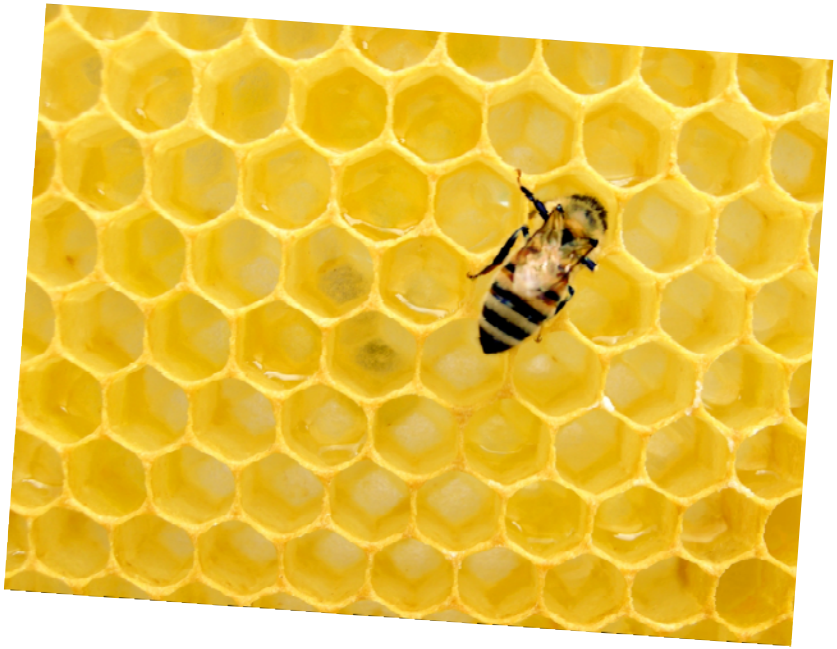
Garden Chemicals

- Pesticides
  - Insecticides -
  - Herbicides
  - Fungicides
  - Rodenticides
- Fertilizers
  - Liquid
  - Dry

Type to enter a caption.

Unwelcome Garden Guest!

Welcomed Garden Visitors



Beneficial Insects

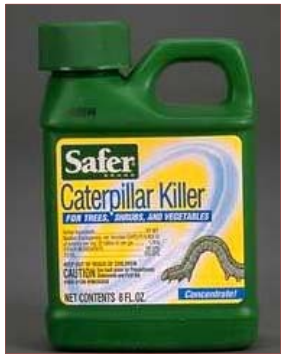
Insecticides

Pesticide Selectivity—can help protect the environment, people and nontarget plants

- A ***broad-spectrum*** pesticide kills a wide range of organisms

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

- A ***selective*** pesticide kills only organisms in a related group.

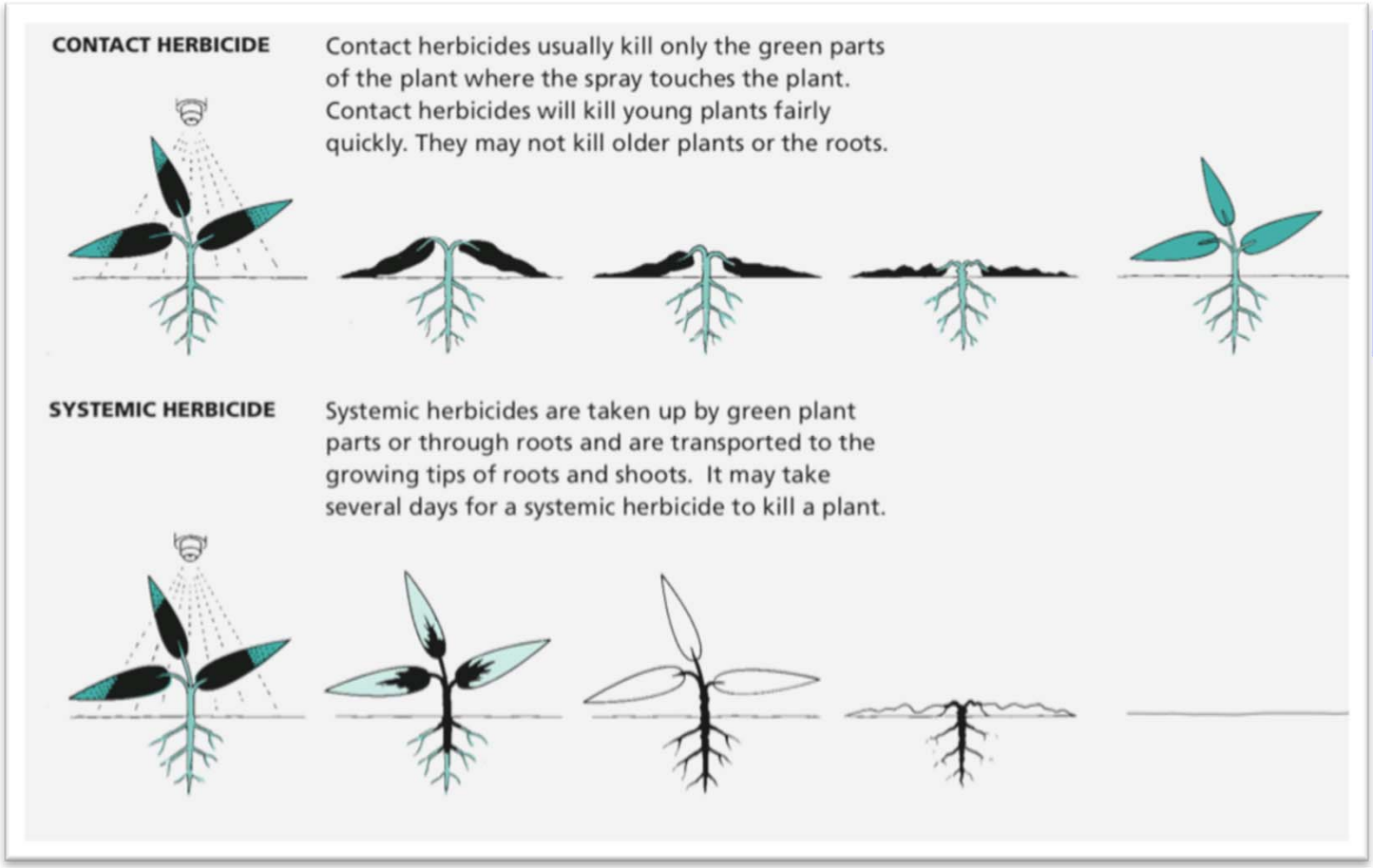


Bacillus thuringiensis **(Bt.k) kills only caterpillars feeding on leaves or buds of sprayed plants. Beneficials, bees and wildlife not affected.**

Herbicides


Weed & Grass Killer
Dr. EARTH
FINAL STOP
WEED & GRASS
KILLER
NATRIA
Roundup
BurnOut

Contact vs. Systemic Herbicides (postemergent only)



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

Systemic examples:
Glyphosate (Roundup), 2-4-D, fluazifop

UC IPM

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:

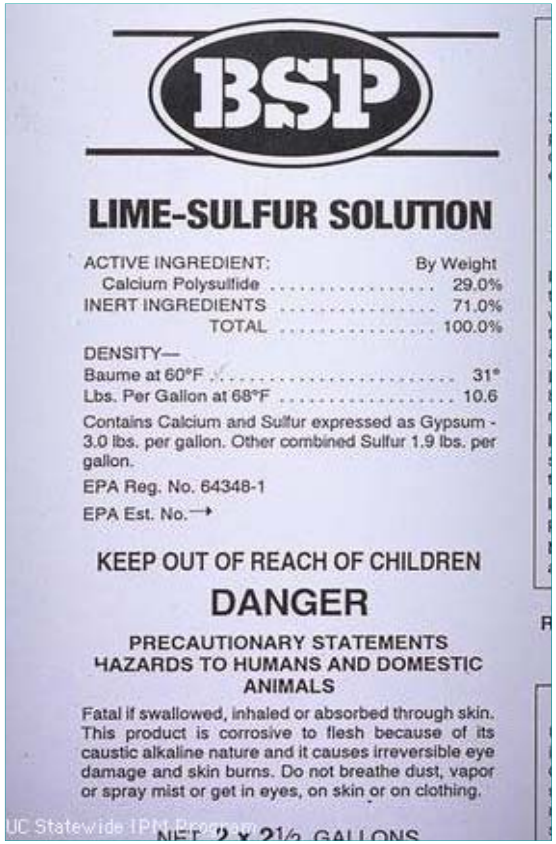
- **May injure the target plant**
- **May not control pest**
- **May kill beneficial insects**
- **May physically harm user**
- **May contribute to pollution of the environment**

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

SIGNAL WORD	Toxicity	Approx Human lethal dosage
DANGER-POISON	Highly toxic	Taste to a teaspoon
DANGER	Highly hazardous	Pesticide-specific
WARNING	Moderately toxic	1 teaspoon-1 oz
CAUTION	Low toxicity	1 oz to relatively nontoxic




FastAct® TECHNOLOGY
Roundup®
READY-TO-USE
WEED & GRASS KILLER III
MATA MALEZAS Y GRAMAS III
• RAINPROOF IN 10 MINUTES
• VISIBLE RESULTS IN 3 HOURS
KILLS THE ROOTS GUARANTEED*
Keep Out of Reach of Children
CAUTION See back panel booklet for additional precautionary statements.
Mantener Fuera del Alcance de los Niños
PRECAUCIÓN Vea los avisos adicionales de precaución en el panel posterior
NET 1.33 GAL (170 FL OZ/5L)


TRUSTED SINCE 1926
BONIDE®
BurnOut®
Fast acting
weed and grass killer
Concentrate
See results in less than an hour
For non-selective control of herbaceous broadleaf and grassy weeds
People & Pet Safe
when used as directed
Keep Out Of Reach Of Children
DANGER
FOR ORGANIC GARDENING


NEW!
ORTHO®
GROUNDCLEAR®
WEED & GRASS KILLER
ABSORBS ON CONTACT
STARTS WORKING IMMEDIATELY
SEE RESULTS IN
15
MINUTES
PATIOS*
LANDSCAPE BEDS*
VEGETABLE GARDENS*
KEEP OUT OF REACH OF CHILDREN
CAUTION
MANTENER FUERA DEL ALCANCE DE LOS NIÑOS
PRECAUCIÓN
ACTIVE INGREDIENT wt%
Ammonium Nonanoate 5.0%
OTHER INGREDIENTS 95.0%
Total 100.0%
Ortho Ground Clear Weed & Grass Killer contains 0.42 lbs. of ammonium nonanoate per U.S. gallon
OMRI LISTED® For Organic Use
For Organic Gardening
*apply directly to weeds
Matrix Code
NET CONTENTS/CONTENIDO NETO 1 GAL (3.79L)

TRUSTED SINCE 1926

BONIDE®

Neem Oil

Fungicide•Miticide•Insecticide

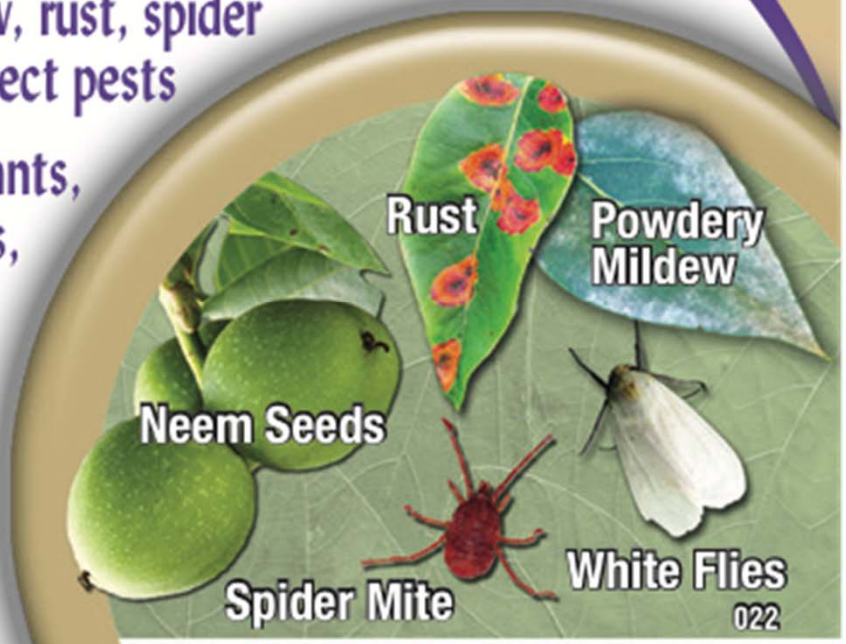
Ready to Use

3 garden products in one

Can be used up to day of harvest

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%

EPA Est No. 4-NY-1 EPA Reg. No. 70051-13-4

Keep Out Of Reach Of Children

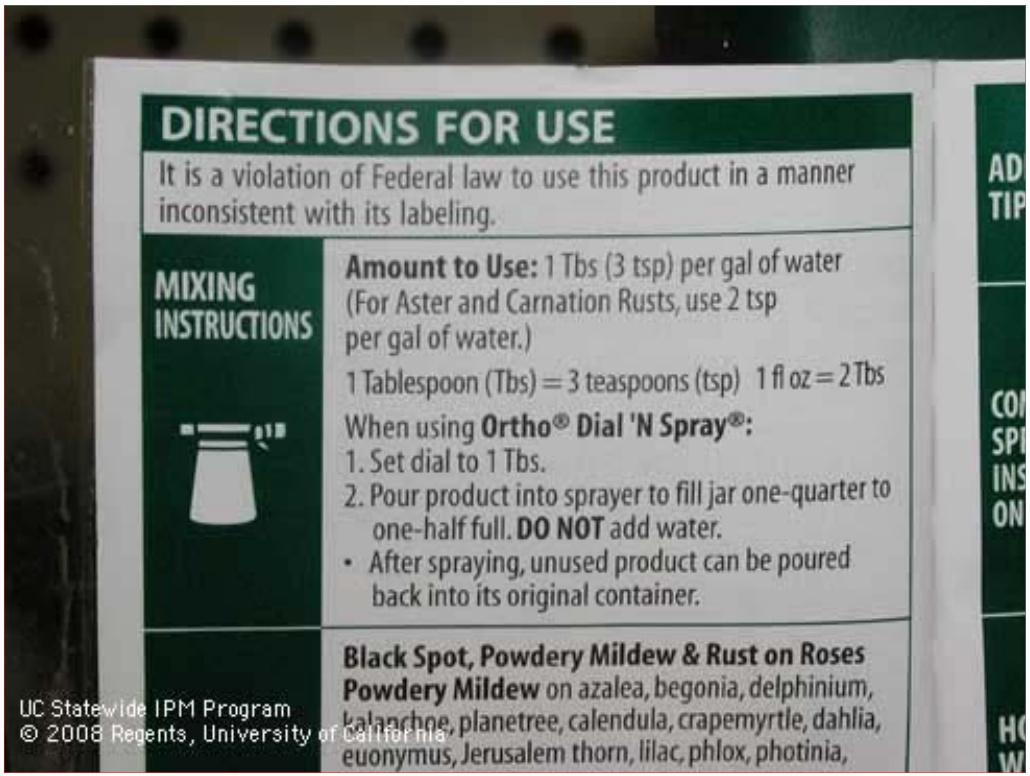
CAUTION (See Back Panel for Additional Precautionary Statements and First Aid)

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 fo 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 wast collection facility

Quick Tips UC IPM

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, when 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.

For more information about managing pests, visit ipm.ucanr.edu or your local University of California Cooperative Extension office.

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

Active Ingredient:
Potassium Salts of
Fatty Acids..... 1.0%
Other Ingredients..... 99.0%
Total..... 100.00%

KEEP OUT OF REACH OF CHILDREN
CAUTION
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.

UC IPM
September 2018
UC CE University of California Agriculture and Natural Resources
Integrated Pest Management

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**

UC IPM

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