YOUR GUIDE TO:

• Backyard Composting
• Worm Composting
• Grasscycling
• Drought-tolerant Landscaping
• Drought-tolerant Plants
• Healthy Soil
• Edible Gardening
• Sun and Shade Plants
• Integrated Pest Management
• Waterwise Irrigation

SMART GARDENING BENEFITS

• Reduce
  - yard waste disposal
  - food waste disposal
  - greenhouse gases
  - water use
• Promote greener, healthier yards and gardens
• Improve soil structure and health
• Increase nutritional value of edible gardens

RESOURCES

Water Conservation Programs and Rebates
Los Angeles Department of Power & Water:
savethedropla.com/save-the-drop/ladwp-rebates

Be Water Wise rebates:
socalwatersmart.com/en/residential/

Be Water Wise
http://bewaterwise.com/

LA County PACE Program:
pace.lacounty.gov/residential
Backyard bins are best if you have ample space and mostly yard debris (grass clippings, leaves, shrubs that require pruning).

- **Input materials equal by volume**
- **Smaller decomposes faster**
- **Turn and water bin every 7 to 10 days**
- **Add new materials as you go**
- **Remove from bottom of bin**
- **Use when it’s brown, crumbly and smells like soil**

### COMPOST OPTIONS:
- Backyard bins & tumblers
- Worm bin (vermicomposting)
- Open piles or burying
- Bokashi (ideal for cooked food, meat, and dairy, and small space constraints)
**Meat, dairy, pet litter or feces and animal byproducts** will attract vermin to your bin and decaying meat could contain pathogens that are harmful to humans. Diseased plants and pesticides could create contaminated compost which could spread disease in your garden.

Weeds and seeds could remain active in your compost and germinate later when you transfer compost to your garden. Glossy or treated paper may contain plastic that won’t break down, chemicals you don’t want in the garden, and slow down the process.

---

**Backyard Composting**

**WHAT GOES IN:**

**Green Materials (Nitrogen-Rich)**
- Fruit and vegetable scraps
- Grass clippings
- Garden trimmings
- Tea leaves and bags
- Coffee grounds and filters
- Green leaves
- Livestock manure

**Brown Materials (Carbon-Rich)**
- Wood chips and sawdust
- Straw
- Dry grass and weeds
- Stale bread
- Shredded paper and cardboard
- Dry leaves
- Nut shells

**WHAT TO KEEP OUT:**

**Meat, dairy, pet litter or feces and animal byproducts**

**Diseased plants and pesticides**

**Weeds and seeds**

**Glossy or treated paper**

Backyard compost bins are an easy way to create your nutrient-rich soil amendment using yardwaste and food scraps.
ODORS:
Store compost scraps in the freezer until ready for compost bin to eliminate mold, fruit flies and odors in the kitchen. Odors in the bin are a sign that an anaerobic decomposition process is occurring. Turn the pile to increase oxygen. Decrease greens and moisture levels by adding dry, brown materials.

TEMPERATURE:
Kill pathogens and speed up the compost process by maintaining a temperature between 130°-150°. Pile or bin temperatures above 150° can kill beneficial microorganisms.

Increase temperature by adding nitrogen-rich ingredients (greens) and more materials (larger pile). Cut scraps into smaller pieces to speed up decomposition process.

Decrease temperature by turning the pile to increase oxygen levels. Add brown materials to decrease heat. Add moisture if necessary.

VERMIN:
To keep vermin away, do not compost meat products or processed foods, keep the bin securely enclosed, cover food scraps with a layer of “browns”, visit the bin and turn the contents frequently.

HARVESTING COMPOST
Your compost is ready to use when it’s dark brown, crumbly and smells like fresh-turned earth. It generally takes 2 to 9 months from start to finish.

Use a compost screen to sift usable compost from contents that need more time to decompose. Shake the screen so usable compost falls through. Put the unfinished compost back into your compost bin.
WORM COMPOSTING

WHAT GOES IN:
- Left-over, extra and spoilt vegetables
- Fruit and vegetable peelings and flesh
- Egg shells are excellent to balance pH in bin
- Grains (oatmeal), rice, bread and potatoes with no heavy sauces or butter
- Coffee filters, grounds and used tea bags
- Garden soil (to add grit for digestion)
- Small amounts of pesticide-free grass and garden clippings
- Coconut coir, shredded newsprint and cardboard for bedding

WHAT TO KEEP OUT:
- **Meat, Dairy:** These are too high in protein for worms to metabolize and will attract vermin and pathogens.
- **Pet litter or feces and animal by products:** Any items that may contain antibiotics, pathogens, or chemical additives should be avoided.
- **Excessively wet food scraps:** Dry out waste from juicing before placing in bin.
- **Citrus:** Small amounts of citrus are ok but avoid large amounts that will upset pH.
- **Salt:** Avoid heavily salted foods (peanuts, chips, etc.) as they can be fatal to worms.

TIPS:
- When feeding bin, cut food into $\frac{1}{2}$ – 1 inch pieces and bury scraps.
- Best worms for composting are Red Wigglers, Red Worms, and Red Tiger worms.
- $\frac{1}{2}$ lb of worms will consume about $\frac{1}{2}$ lb of food per day.
**BIN CONDITIONS:**

- Worms balled up, clustered in corner or dying? Check for overfeeding, moisture level, acidity.
- If the bedding is too moist, add more dry bedding. If too dry, add wet food scraps.

**PESTS:**

Ants, mites, and smells are a sign that your worms are being overfed.

To reduce fruit flies:

- Freeze food scraps for 24 hours to kill fruit fly eggs.
- Bury scraps and cover with cardboard, newspaper or another carbon-rich material.
- Place a small glass of vinegar in or near the bin.
- Put double-sided tape on the inside of the lid.

**NEED MORE WORMS:**

Worms will double in population in about 4 months. New worms can also be added to existing bins.

**HARVESTING**

- **Method 1)** Feed one side of tray for two weeks. When worms have migrated to that side, remove worm compost from the other end.

- **Method 2)** Stop feeding finished trash and place new prepped tray with food underneath. Remove lid and leave in the sun for about an hour. Most worms will migrate to the lower tray to avoid sunlight, allowing you to remove the vermicompost with fewer worms in it. Remove top tray and place lid on new working tray.

Once harvested, mix the worm castings in with soil or use it to make worm team. The microorganisms in worm castings help your plants become more resistant to disease and pests.
GRASSCYCLING

Grasscycling is an easy way to naturally compost grass clippings. You will fertilize your lawn, help retain moisture and save water, and eliminate the production of greenhouse gases that are created when grass clippings are sent to the landfill.

The U.S. EPA estimates that a 5,000 square foot lawn can trap over 85 pounds of dust, dirt, pollen and mold from the air each year. A 2,500 square foot lawn can produce enough oxygen for a family of four.

HOW TO GRASSCYCLE

- Use mulching mower and keep blade sharp
- Remove grass bag and close grass collection flap or door
- Set mower to proper height for grass type and never remove more than 1/2 the height

SUGGESTED MOWING HEIGHTS:

<table>
<thead>
<tr>
<th>Height</th>
<th>Grass Types</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/4&quot;</td>
<td>Bermuda (hybrid) and Seashore Paspalum</td>
</tr>
<tr>
<td>1-1/2&quot;</td>
<td>Bermuda (common), Kikuyugrass, Dwarf Tall Fescue, St. Augusting, Zoysia, Blue Grammagrass</td>
</tr>
<tr>
<td>2-1/2&quot;</td>
<td>Fescue, Ryegrass and Buffalo Grass</td>
</tr>
</tbody>
</table>

MAINTAINING A HEALTHY LAWN

- Apply compost each spring to reduce water use and help hold fertilizer.
- Aerate your lawn regularly using a plug cutting aerator.
- Add 2 lbs. of earthworms to your lawn every 3-6 months.
LANDSCAPING

TO CREATE DROUGHT-TOLERANT YARDS:

HYDROZONE
Group plants with similar water requirements together.

SELECT PLANTS
Grow drought-tolerant plants.

IRRIGATION
Use drip and smart irrigation direct to plant’s root zone in the early morning. Harvest rain water using rain barrels.

IMPROVE SOIL
Add organic matter such as compost.

USE MULCH
Use mulch to maintain moisture.

REPLACE LAWN
Replace lawn with drought-tolerant plants.

NATIVE GARDENS...
- Reduce water use
- Are relatively easy to care for
- Provide food and habitat for butterflies, birds and other wildlife
- Can incorporate natural elements (rocks, bio-swales, native plants and succulents) to match the local environment

RESIDENTIAL WATER USE

4% CLOTHES WASHING MACHINE & DISHWASHER
9% KITCHEN & BATH FAUCET
4% TOILET
9% OVERWATERING
17% SHOWER
57% OUTDOOR
TIPS

WATER-EFFICIENT IRRIGATION

Careful planting and efficient irrigation systems can reduce irrigation water use by 50% to 70%, resulting in an overall reduction in home water use of up to 25%.

IRRIGATION TIPS

- Use drip irrigation for trees, shrub beds and areas of groundcover to minimize evaporation losses.
- Choose low-volume, low-angle sprinklers for lawn areas.
- Select sprinkler heads that fit the size and shape of the areas to be watered.

IRRIGATION SCHEDULING TIPS

- Water in the early morning to minimize evaporation losses, wind drift and reduce the risk of developing fungal infections.
- Don’t water on windy days.
- Water infrequently but deeply. If necessary, water for a short period, then wait for 15 - 30 minutes, then water again.
- Water near the root zone of your plants.
- Select controllers that allow you to adjust your watering schedule and include moisture sensors to account for seasonal variations.

CONSERVATION TIPS

- Put plants that need a lot of water at the high point of your yard so the water can help irrigate other plants as it flows downhill.
- Use plenty of compost in your soil to improve the organic content.
- Use mulch around plants and along walkways to reduce soil moisture loss and reduce weed seed germination.
- Consider using low water-use ground covers, particularly in low traffic areas of your yard.
- Use rain barrels to collect rain water and reduce irrigation needs.
DROUGHT-TOLERANT PLANTS

- Evening Primrose
- Desert/Apricot Mallow
- Island Bush Poppy
- Lavender
- Big Berry Manzanita
- Desert Willow
- Natal Plum
- Purple Sage
- Hummingbird Sage
- Red Bottlebrush
- California Wild Rose
- Rosemary
HEALTHY SOIL

SOIL TYPES
Healthy soil has good structure to allow air and water for nutrient uptake by plants, supports microbial activity and is resistant to pests, fungus and disease.

**SANDY** soil will not hold a ball shape. It feels coarse to the touch, and it will sift through your fingers as you open your hand. Sandy soil drains too quickly for plants to take up water through roots.

**SILT** will form a loose, slightly slimy ball that will flatten somewhat as you open your hand. If left to dry, the ball will become compact but it will break down into a powdery substance if crumbled between your fingers. Silt holds water but erodes easily.

**CLAY** soil will form a firm ball that will retain its shape after you open your hand. If you set the ball aside and let it dry, it will become rock-hard and difficult to break. Clay does not drain well, either blocks water or holds it, drowning roots.

**LOAM** is the result of the mixed compositions. Loamy soil forms a soft ball that will crumble if you press it with your finger. When dry, the ball will break apart easily.

TO IMPROVE ALL SOIL TYPES, ADD ORGANIC MATERIALS.
SEASONAL PLANTS

Seasonal planting can vary depending on microclimates and sun/shade conditions of a particular space. Observe your garden and consult with your local nursery when planning your garden.

COOL SEASON
late fall through winter
Lettuce, broccoli, cauliflower, peas cabbage, garlic, onions

BRIDGE SEASON
end of winter and early spring
Radishes, beets, spinach, verdolagas (purslane), favas, and cilantro

WARM SEASON
late spring to early fall
Tomatoes, peppers, melons, squash, beans, corn, cucumbers

YEAR ROUND/PERENNIALS
Carrots, artichokes, Swiss chard, kale, thyme, rosemary, cane berries

LOW IRRIGATION VEGETABLES
Eggplant, romaine lettuce, tepary beans (native crop), watermelon

TIPS

• **Plant what you will eat**: Put effort into growing food that will be consumed before experimenting with new and interesting plants.

• **Give plants some space**: Pay attention to recommended spacing guidelines for seeds and seedlings to avoid overcrowding.

• **Save time and effort**: Install drip irrigation on a timer, maintain a thick layer of mulch, and remove weeds when still small.

DROUGHT-TOLERANT PLANTS
bewaterwise.com
theodorepayne.org
avrcd.org
rsabg.org
laspilitas.com
highcountrygardens.com
plantnative.org
**FULL SUN**
- Tomatoes
- Squash
- Cucumbers
- Watermelon
- Eggplant
- Peppers
- Beans
- Yarrow
- Lavender
- Salvia
- Sedum
- Bee Balm
- Marigold

**FULL SHADE**
- Mushrooms
- Mint
- Camellia
- Ferns
- Hosta
- Astilbe

**PART SUN**
- Chives
- Cilantro
- Kale
- Salad Greens
- Swiss Chard
- Carrots
- Beets
- Potatoes
- Radishes
- Leeks
- Begonia
- Hydrangea
- Impatiens
Integrated Pest Management (IPM) consists of identifying the pest and addressing the issue using one or a combination of four methods:

**CULTURAL**
Use clean pruning shears, remove diseased plants, add beneficial fungi and bacteria

**CHEMICAL**
Spray with worm tea, garlic, onion, vegetable oil, insecticidal soaps

**PHYSICAL**
Handpicking, barriers, sticky or copper tape

**BIOLOGICAL**
Introduce beneficial insects like ladybugs, praying mantis, trichogramma wasps, lacewings, tachinid, syrphid flies

### COMMON PESTS

| A) | Aphids |
| B) | Whiteflies |
| C) | Spider mites |
| D) | Mealy bugs |
| E) | Tomato Hornworms and Cabbage Worms |

### BENEFICIAL INSECTS

| A) | Syrphid Flies > A |
| B) | Ladybug > A, B, C, D |
| C) | Lacewings > A, B, C, D |
| D) | Praying Mantis > A, B, C, D, E |
| E) | Trichogramma Wasps > E |
|   | Tachinid > E |
COMMON DISEASES

Mosaic virus: Remove affected plants. Control pests such as aphids and leafhoppers, which spread virus.

Damping off: Ensure soil has good drainage, avoid overwatering. Remove and discard diseased plants.

Powdery mildew: Water the soil, not the plant. Apply copper fungicide.

Verticillium wilt: Rotate crops and avoid planting same crop in same location for five years. Prune affected parts of plant. Soil solarization in infected areas.

Fusarium wilt: Rotate crops and avoid planting same crop in same location for five years. Prune affected parts of plant. Soil solarization in infected areas.

Blossom end rot: Amend soil with calcium (bone meal, oyster shells, gypsum). Water evenly and consistently and apply mulch. Remove affected parts of plant.