

HOME COMPOSTING in Napa County



What every Napa County resident can do to keep organic materials out of the landfill, improve garden soil, reduce fertilizer and water use, and grow healthy and beautiful plants.

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For compost troubleshooting or gardening questions, call or drop by our office:

Master Gardener Program
UC Cooperative Extension
1710 Soscol Ave., Suite 4
Napa, CA 94559

Mondays, Wednesdays, & Fridays
9:00 am to 12:00 Noon

INFORMATION/ADVICE LINE
(707) 253-4221

<http://ucanr.edu/ucmgnapa>

Please visit www.CityofNapa.org/compost for workshop registration information.



A Tradition of Stewardship
A Commitment to Service



Why do we encourage home composting?

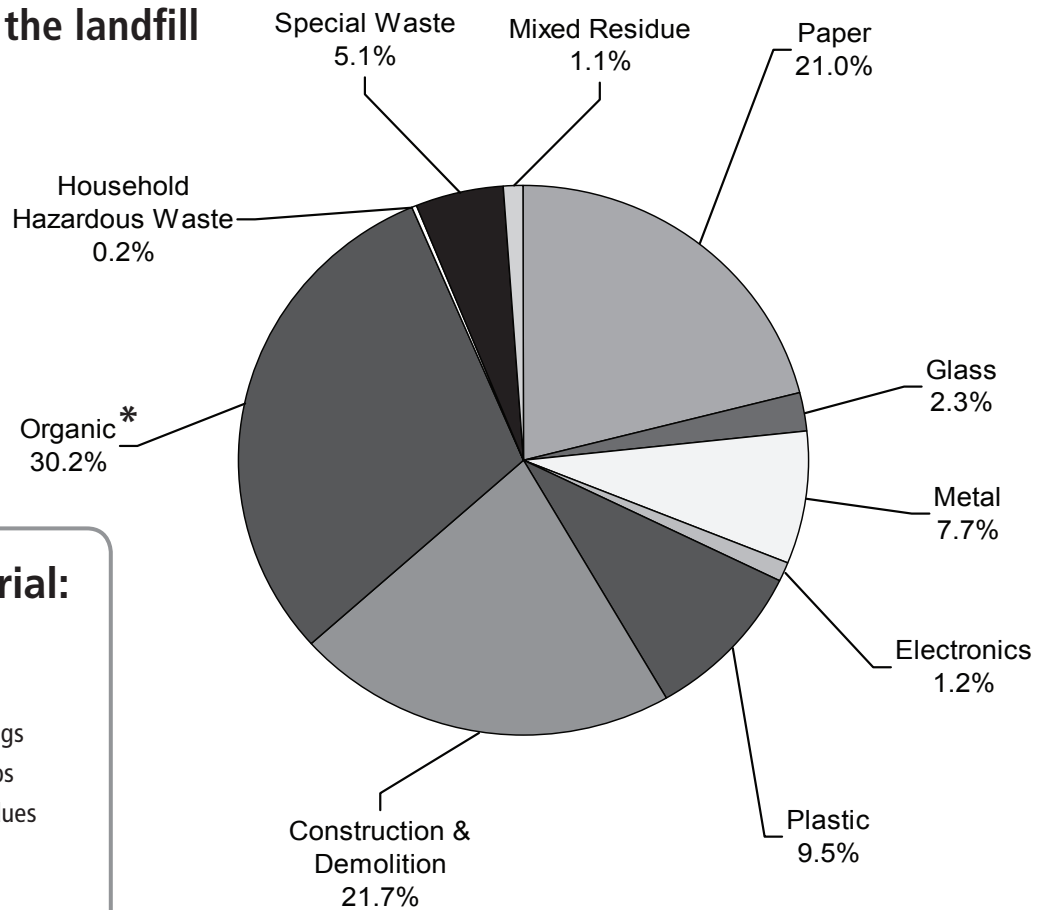
Keeping valuable resources out of the landfill is an important goal for us. We must rethink how we consume and discard resources in order to live sustainably. Most of what we send to the landfill can be reused or recycled.

In 2012, Napa County sent 99,518 tons of "waste" to Keller Canyon Landfill in Contra Costa County, Clover Flat Landfill in Calistoga, and 13 other landfills in California. The pie chart below shows what we send to landfills on average.

Organic material* should never go to landfills because:

1. it can be composted and returned to the soil for multiple benefits
2. burying organic material in landfills generates methane, a powerful greenhouse gas.

What we send to the landfill



*Organic Material:

Food
 Leaves and Grass
 Prunings and Trimmings
 Branches and Stumps
 Agricultural Crop Residues
 Manures
 Textiles
 Remainder/Composite Organics

Napa County is fortunate to have 2 municipal composting facilities that turn yardwaste collected at the curb into high quality mulches and amendments that can be used in our own backyards and agricultural fields.

Curbside collection is a great option — however, backyard composting saves even more resources (no collection trucks needed), offers gardeners the opportunity for total control over the compost ingredients and process, and provides great personal satisfaction!



Grasscycling = Natural recycling of grass

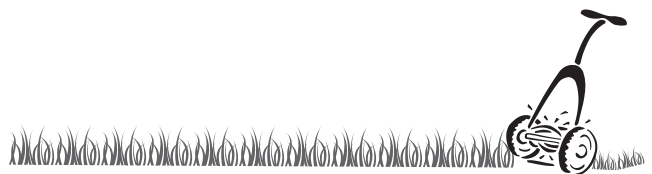
It's simple...just leave the grass clippings on the lawn when mowing. The grass clippings will decompose quickly and release valuable nutrients back into the soil.

Overall benefits of grasscycling

- Saves time—no more bagging
- Saves money—less water & fertilizer needed, no landfill fees
- Encourages a healthier lawn—clippings contain valuable nutrients
- Saves energy—mowing time, hauling to the landfill
- Saves valuable landfill space

Proper mowing is essential for successful grasscycling

- Keep mower blades sharp and cut grass when surface is **DRY**.
- Follow the 1/3 rule: mow lawn often enough so that no more than 1/3 of the length of the grass blade is cut in any one mowing.
- Frequent mowing will produce short clippings that will not cover up the grass surface. You may have to cut the lawn every 5 days when the lawn is growing fast, but only every 7 to 10 days when the turf is growing slowly.



Composting basics

Composting "1-2-3"

The bugs, fungi, bacteria, and worms in your yard or worm box do most of the composting for you. Whatever recipe you choose, it's as easy as 1-2-3!

1. **Shred** compostables. The more you shred, the faster the decomposition process will go.
2. **Mix** dry, brown, carbon-rich material, with moist, green nitrogen-rich material for a balance of nutrients. Equal volumes of green and brown.
3. **Water** the materials as you build the pile, then keep the pile as damp as a wrung-out sponge. This speeds the decomposition process.

Fast Compost

The fastest way to compost is to build a "hot" pile in a heap, hoop, or bin. This requires frequent turning of the pile.

Ingredients: Yardwaste*, some water as needed.

Directions: Layer and mix 50% moist-green with 50% dry-brown (equal volumes of green and brown) materials until you have a cubic yard (3' x 3' x 3'). Keep pile about as moist as a wrung-out sponge. Turn the pile one to three times a week to give it the air it needs for clean, fast composting. If the pile has too many brown ingredients and is not decomposing, mix in fresh green materials like grass clippings or add organic nitrogen fertilizer.

Compost is ready to use in 2-5 weeks. Sift, and use any undecomposed material to start a new pile.

**When using fresh grass clippings, mix them with dry, brown materials to prevent compaction.*

No-Fuss Compost

This is the easiest way to compost yardwaste as it accumulates. It requires little or no turning.

Ingredients: Yardwaste*, some water as needed.

Directions: In a heap, hoop, or bin, layer chopped yardwaste as it accumulates. Water as needed, so compost is kept moist as a wrung out sponge. In 12 to 18 months, the material at the bottom and center of the pile will be dark, crumbly compost. Screen, and use the uncomposted material to start a new batch.

During composting microorganisms (and macro-organisms in slow composting) eat the organic (carbon containing) waste and break it down into its simplest parts.

This produces humus with inorganic nutrients like nitrogen, phosphorus and potassium.

The microorganisms require oxygen that they get from the air you introduce when you turn the material in the compost bin. The microorganisms also require water to live and multiply.

Microorganisms give off carbon dioxide and heat – temperatures within compost piles can rise as high as 100 to 150 degrees Fahrenheit.

If the compost pile or bin is actively managed by turning and watering it regularly, the process of decomposing into finished compost can happen in as little as two to three weeks (otherwise, it may take months).



What to compost

50% ← MIX → 50%

DO

Greens...nitrogen rich

These materials are usually moist.

- green leaves
- weeds, before they go to seed
- veggie/fruit peels and scraps
- spoiled food
- green grass clippings
- coffee grounds, including filter
- tea bags
- egg shells, crushed
- breads
- cooked pasta and rice
- flowers

Browns...carbon rich

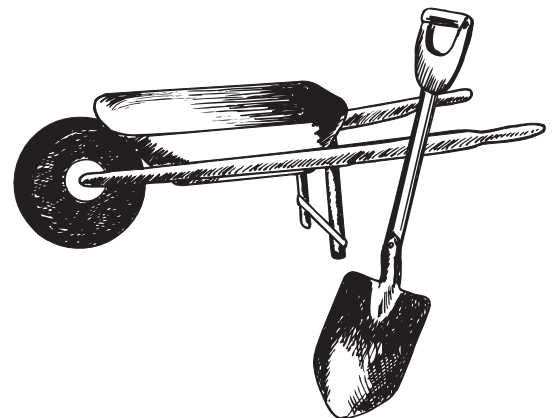
These materials are usually dry.

- evergreen needles
- dry leaves
- dried brown grass clippings
- bark chips
- straw
- prunings and clippings
- dryer/vacuum lint
- bird cage cleanings
- cardboard and paper
- sawdust

DON'T









What not to add:

- meat and/or fish
- dairy products
- oily foods like peanut butter
- for worm-composting: grass clippings (too hot!)
- rubber bands, twist-ties, produce labels
- soil or wood ashes
- weed seeds
- compost starter
- meat-eating animal feces









Make the most of mulch







Mulches are protective coverings on the soil surface that:

-  Enrich soil
-  Retard crusting
-  Prevent erosion
-  Control weeds
-  Moderate soil temperatures
-  Protect plant roots
-  Enhance appearance
-  Conserve moisture

Building the mulch layer

-  Soak the soil first in dry seasons
-  Add additional mulch when it becomes compacted or sparse
-  Use thin layers around seedlings to allow air circulation
-  Apply mulches thicker on sandy soils; thinner on clay soils
-  Build coarse mulches 6 inches thick to achieve a 4 inch settled layer
-  Suppress weeds with old carpet or thick layers of wet newspaper

Mulching tips

-  Monitor mulches to control slugs and snails
-  Restore barren soils with organic mulches
-  Use only newsprint, not slick magazines
-  Substitute woven landscape fabric for clear or black sheet plastic underlayer
-  Cover utilitarian sheet mulch with a more attractive organic material
-  Keep mulch away from base of trees and shrubs to avoid fungal diseases from excess moisture

Mulching practices through the seasons

Fall/Winter: Spread shredded leaves or compost to protect bare ground and planting beds from rains. Protect sensitive roots from excessive winter cold.

Spring/Summer: To hasten soil warming, remove winter mulch to compost pile or work into planting beds with a balanced fertilizer. • After planting, apply fresh mulch to suppress weeds and conserve moisture.

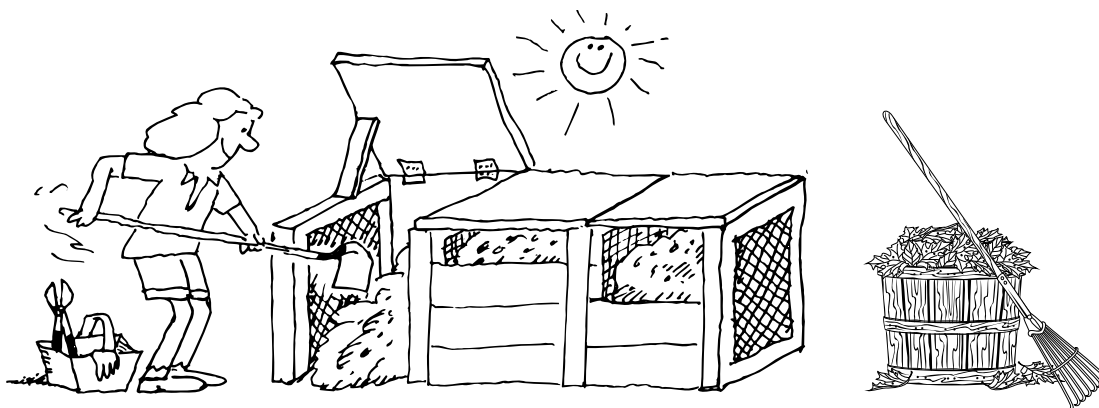


MULCH PARTICLE SIZES AND THEIR DEPTH USES

Particle size	1/4 inch	1/2 inch	1-2 inches	3 inches or larger
Mulch material	sifted compost newspaper sawdust	gravel compost pine needles	straw bark chips	shredded paper shredded leaves shredded bark
Mulch depth	1 inch or less	1-2 inches	3-4 inches	4-6 inches

Trouble-shooting

SYMPTOMS	PROBLEMS	SOLUTIONS
Pile not composting		
	Too dry	Moisten until slightly damp
	Lack of oxygen	Turn to aerate
	Too much dry brown material	Turn, add fresh green materials or organic nitrogen fertilizer
Pile smells rotten; and/or attracts flies		
	Too wet	Turn, add dry brown materials
	Non-compostables present (meat, grease, etc—see page 5)	Remove or avoid meat, grease, etc. and turn
Rodents in pile		
	Food waste in open bin	Turn compost
	Holes larger than 1/4 inch	Rodent-proof your bin by covering openings with wire mesh
	Non-compostables present (meat, grease, etc—see page 5)	Remove or avoid meat, grease, etc. and turn
WORM COMPOSTING		
Worms not eating enough		
	No grit for the gizzard	Add some dirt, oyster shell or rock flour
Bin smells bad		
	Too much food	Feed less
	Too wet	Check drainage holes and/or add dry bedding
Fruit flies		
	Too acidic	Add rock flour or oyster shell to change pH
	Food exposed	Bury food Cover surface with paper or carpet



Enrich your garden with compost

What is compost?

The decomposed remains of plant residues and other organic matter.

What does compost do?

Compost develops into humus and binds soil particles together for improved structure.

What are benefits of compost in the garden?

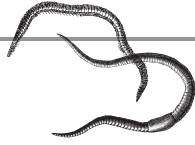
- Improves drainage & aeration
- Nurtures soil organisms
- Provides plant nutrients
- Conserves soil moisture

TIPS FOR USING COMPOST

<i>As a soil amendment</i>	Work 2-3 inches of compost into top 6-8 inches of soil when ground is warm and moist.
<i>Vegetables</i>	Amend soil with compost before planting. • Side-dress (mulch) with 2-3 inches of additional compost for intensive cropping and heavy-feeding plants.
<i>Annual flower beds</i>	Mix 1-2 inches compost into top 2-6 inches of soil before sowing seeds. • Layer 1/2-2 inches compost on top of soil during growing season. • Spread 1-2 inches partially-decomposed compost over planting bed during fall clean-up; dig it into soil or cover with mulch for winter.
<i>Perennials</i>	Layer 2-4 inches of compost on soil and mix in before planting. • Add fresh compost mulch annually to surrounding soil surface. • Dig 2 inch-layer of compost into soil 6-12 inches deep around all perennials just outside root zone.
<i>Transplanting</i>	Mix small amount of compost into each hole when planting flowers, small perennials, and vegetables.
<i>Trees and shrubs</i>	Rake 1-2 inches layer of compost into soil, beginning 6-12 inches from the base and extending to 1 foot beyond drip line. Cover with 2-4 inches of mulch. Spread a mix of equal amounts compost and soil 1-2 inches thick over root area where plant roots are close to or protrude above the soil surfaces. Cover with mulch. • Avoid use of compost or other amendments in planting holes for trees for larger shrubs. Roots may not spread into native soil. Instead, spread 2 inches of compost on soil surface around the plant, water it in, and cover with mulch.
<i>Lawns</i>	Spread sifted compost 1/4 inch thick in fall and early spring. For best results, aerate lawn before spreading and rake in after. In most cases applications of compost will reduce need for other lawn fertilizers. • Prepare for new lawn by mixing 2-3 inches of compost uniformly into the top 6-8 inches of soil before seeding.
<i>Propagation mix</i>	Mix up to 20% sifted compost with uniform mix of sand, perlite, vermiculite, or potting soil for start seedlings.
<i>Potting mix</i>	Mix sifted compost with equal parts garden soil and perlite or lava rock. In a soilless mix, use 30% compost, more for moisture-loving plants. • Use sifted compost as a top dressing for container plants.

COMPOSTING VARIATIONS

<i>Sheet composting</i>	Spread leaves or plant residues over soil surface in fall. Turn material into soil or wait until spring. • Cut legume or grass "green manure" crops in spring to cover bare soil in summer. Turn under in fall or the following spring.
<i>Compost tea</i>	Soak compost in water (a burlap bag is useful) to make a liquid fertilizer. Use compost tea to water transplants, garden flowers, vegetables, and container plants. Apply to soil or use half-strength as a foliar spray.
<i>Trench or posthole composting</i>	Bury yardwaste and food scraps (not meat or bones) 12 inches deep in garden. Soil is ready for planting in 2-6 months



Worm composting

Even in cool winter weather where outdoor compost piles lie dormant, you can compost your food scraps indoors with worms, and reduce the volume of your household garbage by as much as 25%. The end result is worm compost, unsurpassed as an organic soil builder and plant fertilizer. Worm compost contains 5 times more nutrients than regular garden soil. It can be added to potting mix or dug directly into garden soil around base of plants.

What Kind of Bin?

Your bin should be 10 to 16 inches deep. Because redworms are surface feeders, deep bins are not desirable. A worm bin should have a snug fitting lid to keep out flies and rodents. Bins need ventilation holes in the bottom or sides. The holes should be ¼ inch or smaller to keep out flies.

Pick a Place . . .

Locate your bin where it will not freeze or overheat—indoors or outdoors. During the cold winter months it should be out of the rain.

Make a Worm Bed . . .

Worm composting will turn food waste into a rich fertilizer and soil amendment.

Ingredients: Food waste, newspaper, red worms

Directions: Worms like to live under lots of damp paper and/or leaves. Make a layer of shredded cardboard or newspapers (black and white only) six inches deep in the box, with enough water to make it damp as a wrung-out sponge. Add worms, food waste (no animal products) as generated and shredded newspapers as needed. Keep the box between 50 and 75 degrees, out of direct sun.

Worm compost is ready after 3-6 months.

Adopt Some Worms . . .

The best kinds of worms for composting are “red worms” or “red wigglers.” They are often found in old compost piles, and are different than the earthworms you find in the ground. You can get red worms or red wigglers from a friend, at a bait store, or online.

Feed the First Meal . . .

Begin feeding your worms only a little at a time. As they multiply, you can add larger quantities of food wastes. Bury the wastes into the bedding regularly, rotating around the bin as you go. When you return to the first spot, most of the food you buried there should have been eaten. If not, just feed the worms less for a while. Compost materials include vegetable scraps, fruit and peels, bread and grains, tea bags, coffee grounds and filters, crushed eggshells.

Maintaining Your Worm Bed . . .

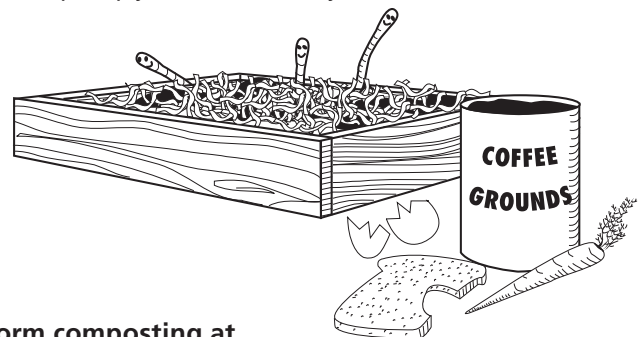
FEED YOUR WORMS regularly as is convenient. Add only as much food as the worms seem able to handle. To avoid fruit flies and odors, always bury food under bedding.

ADD FRESH BEDDING every 1-3 months. Always keep a 4” to 6” layer of fresh bedding over the worms and food in your bin.

KEEP BEDDING SLIGHTLY MOIST like a wrung out sponge. In a plastic bin, add dry bedding to absorb excess moisture. Wooden bins may require adding water occasionally.


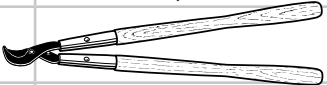


Harvesting Worm Compost . . .

After a few months, you will notice that the bedding has been eaten. You can begin harvesting the compost, which will look like rich, dark soil. Harvesting the compost and adding fresh bedding at least twice a year is really necessary to help keep your worms healthy.



More information on worm composting at
Napa UCCE Master Gardener: <http://ucanr.edu/ucmgnapa>
Search “worms” for “Worms – Nature’s Recyclers” factsheet.

Effective ways to re-use what grows in your garden

YARD MATERIAL	MAKE INTO COMPOST	USE AS MULCH	OTHER
Herbaceous Plants			
Flowers & garden trimmings	Shred* to speed decomposition		Sheet compost
Most weeds	Pull before seeds set. Hot composting will kill most seeds		Mow & compost
Troublesome roots & weeds (bind weed, bermuda grass, quack grass, etc.).			Put in yardwaste cart
Woody Plants			
Prunings, brush	Chip or shred before composting. Use as aerator on bottom of pile	Chip or shred for paths or ground cover	Make a planting mound by covering with soil. Use to stake up annuals or perennials
Large branches, trunks		Chip for paths or ground cover	Cut for kindling and firewood. Devise creative landscape uses
Plants with thorns	Chip or shred small lengths cautiously		Use at bottom of planting mound Put in yardwaste cart
Leaves			
Dry leaves	Stockpile dry to use with fresh green materials		Sheet compost
Soft, deciduous & fast decomposing	Shred* for faster decomposition	Shred. Use under trees & shrubs or planting beds	
Tough leaves, needles	Shred* large or waxy leaves for faster decomposition. Good as aerating bottom layer	Use naturally under oaks & redwoods; use around other tree & shrubs, pine needles on acid-loving plants	
Leaves with toxins & growth suppressants	Compost to break down harmful substances	Compost before using as mulch	
Fruits & Vegetables			
Fallen or inedible		Bury in middle of bin or pile; mix with dry materials	Use small amount in worm box or bury in trench compost
Lawns			
Grass clippings	Mix with ample dry brown ingredients to avoid compaction	Dry & use on planting beds	Grasscycle with mulching mower for best use
Sod	Stack upside-down for 1-2 years. Cover Bermuda grass and sod with black plastic		Cover turf with black plastic in late winter until grass is killed, then replant
Diseased Plants			
Leaves, flowers, trimmings, plants	Hot compost only; 3-5 days above 130° will kill most diseases	Do not use as mulch	Put in yardwaste cart

*Substitute lawn mower with bag attachment for chopper/shredder to reduce particle size of compost ingredients.

Learn How to Reduce "Waste" with Napa County's Reduce, Reuse, & Recycle Guide



The Recycle Guide includes curbside and electronics recycling, household toxics, construction & demolition programs, buying recycled product, and much more.

Find the Guide in both local phone books under "R" in the yellow pages or visit www.NapaRecycling.com.

BUY COMPOST & TOPSOIL

Enrich your soil, prevent erosion, conserve water, save money, fight global warming and close the loop with Napa's local compost.

OMRI™ *Our compost is OMRI listed for use in organic production!*
Listed
 Organic Materials Review Institute

Napa Recycling & Composting Facility
NRWS will deliver for a fee -10 cubic yard minimum
255-5200

Upper Valley Disposal & Recycling
 Harvest Compost & Blended Compost
 Please call for pick-up or delivery details
963-7988



The City of Napa offers an annual **Water-Wise Landscaping Workshop Series** for residents interested in saving on water bills while beautifying their properties. For details, call 257-9309.

CHOOSE LESS TOXIC

PRODUCTS FOR PEST CONTROL



Our Water Our World... Is a program that provides information about less-toxic pest management. Look for this information in participating stores (8 in Napa County!) before you buy:

- **User-friendly Fact Sheets** are available on common pests & less toxic ways to control them including product recommendations
- **Tags** on store shelves to help you find the less-toxic products recommended



- **www.OurWaterOurWorld.org** offers information about pesticide use. Website also lists participating stores in Napa County.

More information

References/Books

Let It Rot! The Home Gardener's Guide to Composting, 1975, Stu Campbell, Garden Way Publishing, Pownal, VT.

Rapid Composting Method, 1991, UC ANR Publication #21251.

Compost Production & Utilization, a Grower's Guide, 1995, UC ANR Publication #21514.

Easy Compost, the Secret to Great Soil and Spectacular Plants, 1997, Brooklyn Botanic Garden 21st Century Series

Rodale Guide to Composting, 1979 Minnicca & Hunt, Rodale Press, Emmaus, PA.

Mike McGrath's Book of Compost, 2006, Mike McGrath, Sterling Publishing, New York

Soil Biology Primer, Soil and Water Conservation Society, USA

Start with the Soil, 1997, Grace Gershuny

Worms Eat My Garbage, 1982, Mary Appelhof, Flower Press, Kalamazoo, MI, 100 pp.

Worm Book, Loren Nancarrow and Janet Hogan Taylor, 1998, Ten Speed Press, Berkeley, CA

Websites

Grasscycling info

www.calrecycle.ca.gov/Organics/Grasscycling

Composting Info

www.epa.gov/wastes/conserves/composting

Variety of compost bins and accessories

Many compost bins are available for purchase on-line. Search "compost bin."

Worm Sources

www.thewormfarm.net

www.unclejimswormfarm.com

Composting with red wiggler worms

www.cityfarmer.org/wormcomp61.html

www.calrecycle.ca.gov/Vermi/

Local recycling information

www.naparecycling.com

California Master Gardener information

<http://camastergardeners.ucdavis.edu>

Contact information

UCCE Master Gardeners of Napa County

For home composting and gardening questions

1710 Soscol Avenue, Suite #4

Napa CA 94559

Phone: (707) 253-4221

or toll free from American Canyon and Upvalley

(877) 279-3065

<http://ucanr.edu/ucmgnapa>

City of Napa Recycling Division

For compost workshop registration or recycling questions

PO Box 660

Napa, CA 94559

Phone: (707) 257-9200

Fax: (707) 253-1603

www.cityofnapa.org/recycle

Napa County Public Works

Natural Resources Conservation

805 First St

Napa, CA 94559

Phone: (707) 259-8600 or 259-8330

www.countyofnapa.org

Upper Valley Waste Management Agency

(for Yountville north)

c/o Napa County Public Works

Natural Resources Conservation

805 First St

Napa, CA 94559

Phone: (707) 259-8600 or 253-4094

Napa Recycling & Waste Services

Napa County Recycling & Waste Services

820 Levitin Way, American Canyon

(707) 255-5200

www.naparecycling.com

City of American Canyon Public Works Dept

205 Wetlands Edge Road

American Canyon, CA 94567

(707) 647-4550



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