University of California
Agriculture and Natural Resources

UCCE Master Gardener Program
Monterey and Santa Cruz Counties

Soil Preparation for Your Vegetable Garden

Why test your garden soil?

- **Nutrient levels** - Test results provide you with soil nutrient levels and fertilizer recommendations when needed.
- **Soil Acidity** - Soil pH and exchangeable acidity are measured for the determination of lime requirements.
- **Environmental Protection** - Test results identify areas with excess nutrients that can pollute local waterways.
- **Economics** - You buy soil amendments only when needed, avoiding unnecessary spending.
- **Health** - Soil testing can help protect you and your family by alerting you to elevated levels of lead or other toxic heavy metals.

  Soil tests do not identify plant growth problems associated with soil drainage, insects, plant diseases (whether soil-borne or not), weeds, winter injury or the misuse of pesticides.

Soil Sample Collecting

Avoid having the soil tested whenever the soil is wet or when it's been recently fertilized. To take a sample for testing garden soil, use a small trowel to take thin slices of soil from various areas of the garden (about a cup's worth each). Allow it to air dry at room temperature and then place it into a clean plastic container or Ziploc baggie. Label the soil area and date for testing.

Soil Testing Resources

Soil test labs in Northern and Central CA and with what they test for
http://cesonoma.ucanr.edu/files/27431.pdf

Soil test Interpretation guide
http://extension.oregonstate.edu/sorec/sites/default/files/soil_test_interpretation_ec1478.pdf

Over the counter soil tests *(Risky)*

Accuracy varies for over-the-counter soil test kits: "La Motte Soil Test Kit had the largest range of pH measures, whereas Rapitest was relatively easy to use and interpret and is a practical choice for home gardeners or landscapers; both were more than 90% accurate for Salinas clay loam soil type."
http://horttech.ashspublications.org/content/17/3/358.full

Kit Name	% accurate compared to commercial test	Estimated cost
La Motte	94%	$37
Rapitest	92%	$14

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Fertilizer Basics

California soils are (in general)

- Low in Nitrogen
- High in Potassium
- Phosphorus levels vary

Fertilizer 101

- http://www.gardeners.com/how-to/fertilizer-ratios/5161.html

Fertilizer application basics and rates by plant

- http://extension.oregonstate.edu/polk/sites/default/files/MG_Handouts/ec_1503_fertilizing_your_garden_0.pdf

N-P-K rates of common organic fertilizers

- http://extension.oregonstate.edu/douglas/sites/default/files/documents/lf/orgfertval.pdf

Cover Crops

	Cover Crop	Type of plant	Special Features
Winter	Bell Beans	Legume	Nitrogen fixing
	Fava Beans	Legume	Nitrogen fixing, lots of biomass, food crop
	Vetch	Legume	Nitrogen fixing, low growing easy to dig in
	Rye grass	Grass	roots break up clods, lots of biomass
	Winter Oats	Grass	roots break up clods, lots of biomass, animal fodder
	Barley	Grass	roots break up clods, lots of biomass, animal fodder
Summer	Buckwheat	Broadleaf	very FAST growing, flowers attract pollinators, easy to dig in
	Cowpeas	Legume	Nitrogen fixing
	Crimson Clover	Legume	Nitrogen fixing, very beautiful flowers
	Red Clover	Legume	Nitrogen fixing
	Alfalfa	Legume	Nitrogen fixing, perennial if left alone, animal fodder

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How to Dig in a Cover Crop

Version 1

1. Cut the crop down at the soil line with a shovel or weed wacker
2. Chop with a shovel
3. Dig into soil
4. Water and wait 3 weeks to plant

Version 2

1. Cut the crop down at the soil line with a shovel or weed wacker
2. Leave on surface 3-5 days (it will wilt and reduce in size)
3. Chop with a shovel
4. Dig into soil
5. Water and wait 3 weeks to plant

Sheet Composting: Basic Formula for a Lasagna Garden Bed

Build alternating layers until pile is about 2 feet high

1. scrape off weeds – water
2. layer of cardboard or newspaper - water well
3. layer of green stuff – water
4. layer of brown stuff – water
5. layer of green stuff – water
6. layer of brown stuff – water
7. layer of compost
8. layer of top soil (optional if you want to plant right away)

Ratio = 2:1	
Brown stuff	**Green stuff**
Carbon (4 inches)	*Nitrogen (2 inches)*
Dried Leaves	Grass Clippings
Shredded newspaper or junk mail	Fruit and Vegetable Scraps
Straw	Coffee Grounds / tea bags
Pine needles	Weeds (if they haven't gone to seed)
	Manure
	Compost
	Trimmings from the garden

Other Resources

Mason jar soil test

- https://www.todayshomeowner.com/diy-soil-texture-test-for-your-yard/
- http://extension.oregonstate.edu/lane/sites/default/files/documents/jartest.pdf

Amendment coverage calculator

- http://www.harvestpower.com/products/landscape-calculator/

Lazy Gardener blog post

- http://mbmg.ucanr.edu/Read_An_Article/Monterey_Bay_Master_Gardener_Blog/?blogpost=23849&blogasset=75668

Master Gardener Hotline

- http://mbmg.ucanr.edu/hotline/
- 831.763.8007