



# UC Master Gardener Program

University of California Cooperative Extension

Napa County

**Welcome to Spring & Summer Vegetables**

March 2016



# Who Are Master Gardeners?



Volunteers providing practical horticultural information to Napa County residents, based on extensive training, and staying updated on UC gardening research.

# A Brief Advertisement



UC Master Gardeners  
of Napa County

*twenty 20 years*

- **UC Cooperative Extension Trained Volunteers**
- **Help Desk**
- **Public Workshops**
- **Public Speakers**





# Today's Agenda

- Introductions & Interests
- Preparing Your Site
- Soil: Amendments & Fertilizers
- What to Plant & When



## And There's More

- Irrigation
- Online Resources
- Samples of Good & Bad Transplant Material
- Demonstrations : Planting Seeds & Transplanting

# Preparing Your Garden Site



# *1<sup>st</sup> Rule of Garden Soil Preparation:*

## **DO NO HARM!**

- **Avoid compaction.** *Never try to work wet soil.*
- **Avoid excessive soil disturbance.**  
*Worms and microbes can be destroyed by a rototiller.  
Can bring up weed seeds.*
- **Avoid overuse** of chemical and synthetic fertilizers, herbicides and pesticides, over-fertilizing, over-watering, severe under-watering. ***Moderation is key.***



## *2<sup>nd</sup> Rule of Garden Soil Preparation:*

**REMOVE ALL WEEDS!**

*To hoe or not to hoe....that is the question!*

***PULL THEM – CUT THEM – ROTOTILL***





# *3<sup>rd</sup> Rule of Garden Soil Preparation:* Know What You're Doing Before You Do It!

**Good Soil** – Our native soil is often clay-based. Incorporate organic soil amendments to improve poor soil and increase yield.

**Level Ground** – Level ground is easier to prepare, plant and irrigate.

**Water Supply** – Locate your garden near a water supply easily reached with a hose.

**Adequate Light** - Vegetables need at least 6-8 hours of sunlight each day.

**Close to Home** – Plant your garden near your home, making it easier to work in and carry tools back and



# Plan ahead

- **Plant vegetables that your family likes and in quantities that you will use.**
- **Plant only as large a garden as you can maintain easily.**
- **Plant disease-resistant varieties that are adapted to your area.**
- **Think about sharing produce.**
- **Use mulch to help conserve soil moisture, reduce frequency of irrigation, and control weeds.**
- **Check irrigation system periodically for leaks or clogs.**

# When you plan your garden....



- Set up your garden in blocks rather than rows
- Provide windbreaks as needed
- Keep tall plants from creating unwanted shade
- Plant some crops now that take advantage of cool weather



Plants grow well in soil that ...

Has a healthy  
physical structure

Contains essential  
micronutrients

# Some essential garden terms that people sometimes mix up

**Compost**



**Mulch**



**Amendments**



**Fertilizer**



**Compost:** A mixture of organic matter that is decomposed, i.e., been digested by organisms

- Make it at home



- Buy it from recycling plants



- Buy it in bags from stores (expensive option)



**Mulch:** Material layered on top of the soil to cover and protect it.

Mulch serves many purposes: preserves moisture, reduces weeds, prevents erosion, also can slowly add some micronutrients.

Mulch is usually organic (leaves, grass clippings, compost, straw, etc.) but can be inorganic (e.g. plastic).

One of the best mulches is compost



**Amendments:** Material mixed into the soil to improve the texture or physical condition of the soil to support healthy plant growth (tilth).

- Some examples of amendments include:
  - **Barnyard manure**
  - **Green Manure and Cover Crops (E.g. Fava Beans, Mustard, Vetches)**
  - **Packaged mixes**





# One of the best amendments is *compost*

- Compost develops into humus to improve soil structure
- Improves drainage and aeration
- Conserves soil moisture
- “Finished” compost can be mixed into the soil right before planting

## **Distinguish between amendments that can be added right before planting and those that can't**

- Some amendments (animal manure, green manure) should be added early enough that organic materials can break down.

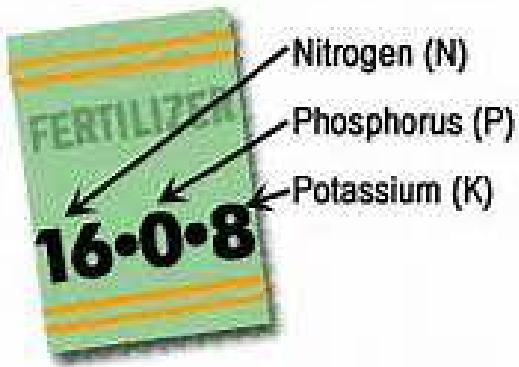


**Fertilizers:** Substances added to soil to provide plants with essential micronutrients

## **Nitrogen–Phosphorous--Potassium X-X-X**

The three numbers on fertilizer bags and boxes sold in stores show how much of the three most essential micronutrients the product will provide





- **5-X-X Nitrogen (N)** promotes green leafy growth
- **X-5-X Phosphorus (P)** assists in flower, seed, and fruit production
- **X-X-5 Potassium (K)** helps develop root and tubers

# Organic Fertilizers

- Include variety of nutrients.
- Can amend and improve soil.
- Encourages micro-organisms in soil
- Slow release.
- Less likely to “burn” plants

# Organic Fertilizer Examples

- Commercial organic fertilizers
- Animal manures
- Seaweed (kelp)
- Fish meal or emulsion
- Soybean meal
- Alfalfa pellets
- Bone and blood meal

# Synthetic Fertilizers

- Fast-acting
- Often less expensive
- Can be hazardous to plants or soil if used incorrectly or too much
- Key: Use according to the direction on the bag/box and in moderation to avoid environmental pollution due to overuse.

# Ways to Fertilize

- Add to soil before planting (slow release forms are an option)
- Foliar feed: spray a mist solution to be absorbed by osmosis.
- Liquid solutions: Watering can
- “Side-dress” by working a granular fertilizer into top inch of soil near plant roots and water in well.



# When Do I Plant?

- Cool season vs warm season plants
- Our climate considerations for spring and fall
- Use a reliable resource

# Cool Season Crops

- Grow best in day time temperature range of 55 to 75 degrees Fahrenheit
- Tolerate some amount of short-term freezing (frost tolerant)

# Warm Season Crops

- Grow best at 65 to 95 degrees Fahrenheit
- Are injured or killed by frost

Monthly Averages

Table Display

Graph Display

### Temperature (°F)

- Avg High
- Record High
- Avg Low
- Record Low

### Precipitation

- Avg Precip.

Legend: ● Record High ● Average High ● Average Low ● Record Low ■ Precip





# IRRIGATION, VEGGIES & YOU

**Water needs depend on many factors**

**Soil Condition (sandy, clay, loam)**

**Weather and wind**

**Ambient temperature**

**Type of vegetable**



## More Rain Coming?

**Don't count on it:** Plan your garden and watering methods accordingly

# Over Head Sprinklers?



**Low labor time, BUT need to water a long time to get deep into roots; water loss to evaporation**

# Hand Water?



**Labor intensive; Unlikely to get to roots. Need to get down to base of plant. Water evaporation**



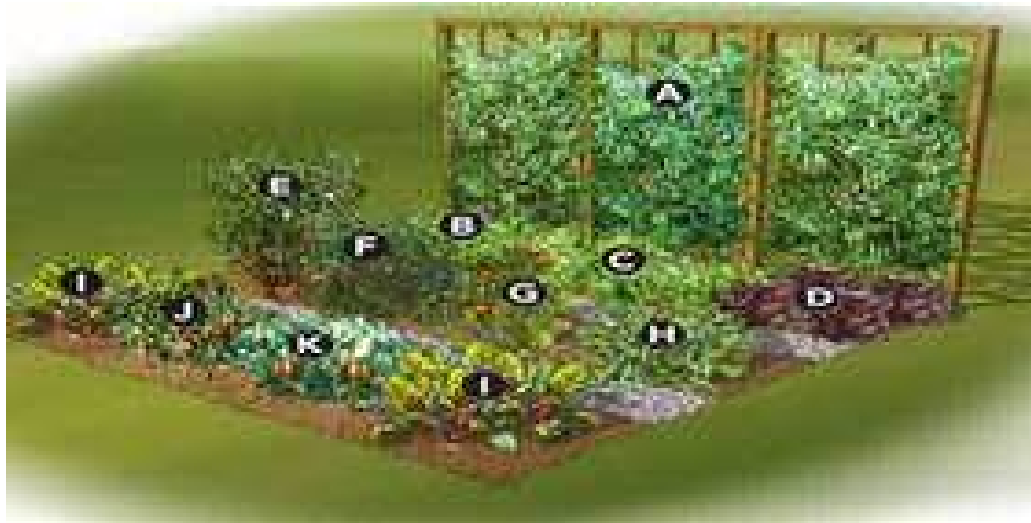
# Here's the Right Way!



Get to the root of the issue

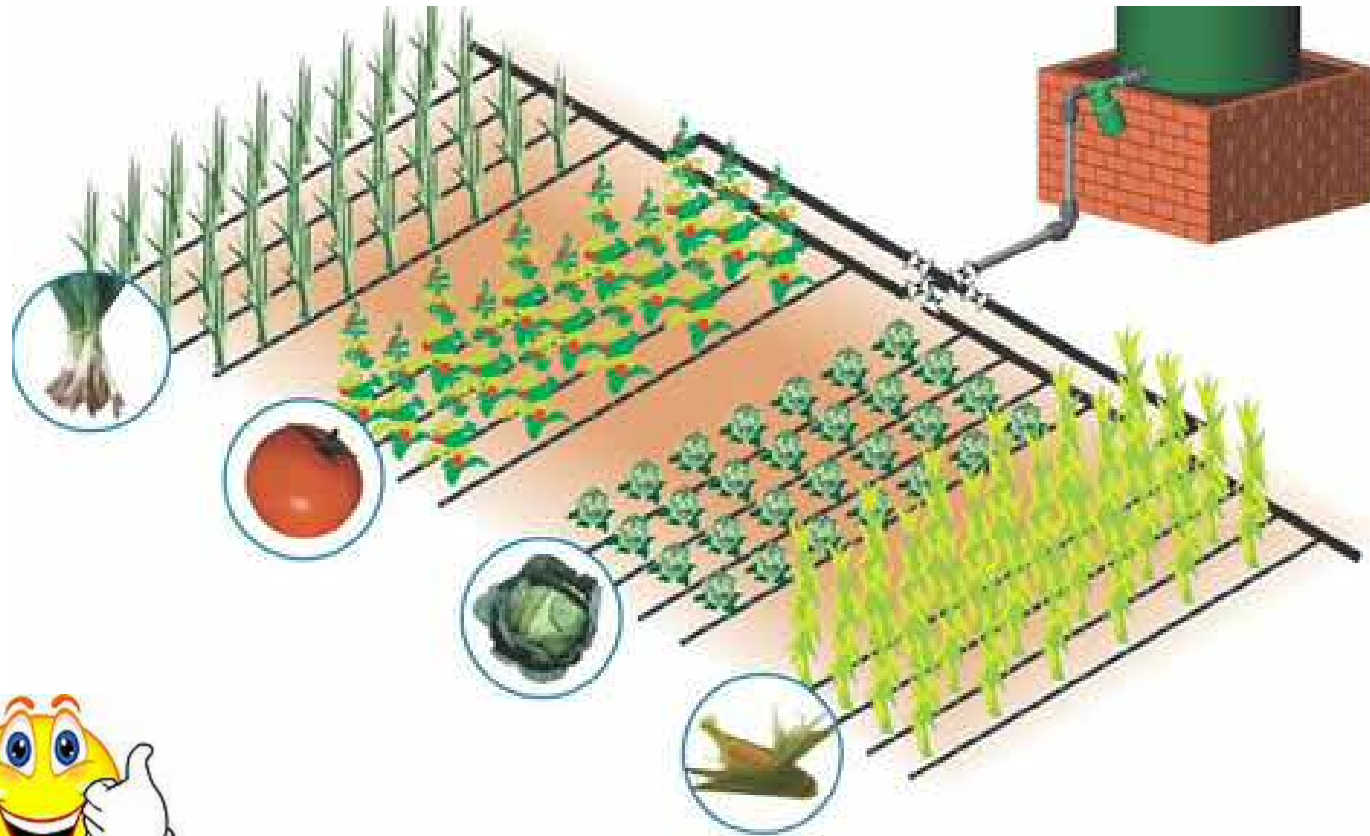
# Plan Before Planting

- Lay out: Blocks vs. long rows



- Group plants by water needs
- **Install drip systems with built in emitters before planting**

# DRIP System By Zones



MG OK

**Provides deep watering at roots**

# When to Water

**Test:** Water if dry at 3-4 inches



**Monitor Regularly**

**Avoid over watering.**

**NOTE: Drooping leaves does NOT always mean the need for watering. Check the soil. Avoid overwatering. Roots can drown.**

## *Critical Periods for Adequate Watering:*

<b>Vegetable</b>	<b>Period</b>
Pea	Flowering & seed enlargement
<b>Pepper</b>	<b>Flowering through harvest</b>
Pumpkin	Fruit forms
<b>Squash</b>	<b>Bud forming &amp; flowering</b>
Swiss Chard	When true leaves form
<b>Tomato</b>	<b>Flowering through harvest</b>
Lettuce	When true leaves form

## *Critical Periods for Adequate Watering:*

<b>Vegetable</b>	<b>Period</b>
<b>Bean</b>	<b>Flowering/forming pods</b>
<b>Broccoli</b>	<b>Forming heads</b>
<b>Corn</b>	<b>Silking, tasseling, forming ears</b>
<b>Cucumber</b>	<b>Flowering; fruit forming</b>
<b>Eggplant</b>	<b>Flowering through harvest</b>
<b>Melon</b>	<b>Fruit set &amp; early development</b>
<b>Onion</b>	<b>Bulb enlargement</b>

# Master Gardeners Online



Search: “Napa Master Gardeners”

Or: <http://ucanr.edu/sites/ucmgnapa/>



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Dean Donaldson Endowment Fund

Garden Questions?

Gardening Resources

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UC IPM Resources for Master Gardeners

Members Area

Beware of the Cone – A Bunya Bunya Grows in Napa



Master Gardener led tree walks make front page news in the Napa Valley Register. [Read this article online.](#)



References and Slides

From Recent Workshops and Events

## UC Master Gardeners of Napa County

### Gardening Resources

**Upcoming Events!**

SAVE THE DATE!  
**Saturday, April 23**  
**Tomato Sale and Education Day**

**STRONG YOUNG PLANTS**  
**NEARLY 30 VARIETIES**

**NEW LOCATION**  
1710 Soscol Avenue  
9 a.m. until sold out

**Spring Workshops**

- Home Vineyards February 27
- ~~Irrigation February 27~~ **Postponed**
- Garden Forum February 28
- Spring & Summer Veggies March 12, March 13
- Growing Tomatoes April 10, April 16
- Oaks & Native Plants May 7
- Flowers & Ornamentals May 21

For details, times and locations:  
<http://ucanr.edu/2016TomatoSale>  
<http://ucanr.edu/2016Workshops>  
(707) 253-4221

### Master Gardener Calendar

Event Name	Date
<a href="#">Growing Spring and Summer Vegetables - Napa</a>	3/12/2016
<a href="#">Growing Spring and Summer Vegetables - Yountville</a>	3/13/2016

[View More Events](#)



### Weekly Newspaper Article

#### Spring and Summer Vegetable Planting Guidelines

Added March 3, 2016



Spring and Summer Vegetables From Your Very Own Garden By Pat Hitchcock,

U.C. Master Gardener of Napa County When should home gardeners start planting their spring or summer vegetable



## Gardening Resources



### **Common Pests & Problems**

encountered by Napa County gardeners.

**UC Pest Notes** are peer-reviewed UC publications about specific pests or pest management topics directed at California's home and landscape audiences.

### **Vegetable Planting Calendar**

Everything you need to enjoy a year 'round harvest in Napa County.

The **UC Agriculture and Natural Resources Catalog** offers hundreds of publications, videos, DVDs, and training kits that can be purchased directly from ANR and shipped to your home. There are many that can be downloaded for free. Use promotional code PRNA28 and save 10% on your online purchase.

**The School Garden Task Force** offers site consultation and provides outreach to parents, teachers and community members who support school gardens in Napa County.

**UC Garden Web** focuses on sustainable garden practices, highlighting seasonal issues.

**Healthy Garden Tips** are short information sheets that answer some common local gardening questions. They cover topics such as soil, water, vegetable, tips for general horticulture, and herb and fruit tree care and management.

**Garden Links** directs you to a host of interesting and informative garden information sites.

**Spill the Beans Blog** contains articles about growing home garden crops, monthly things-to-do, plant spotlights, current problems encountered/solved at the Napa MG Help Desk and more.

# UC Pest Notes

## Garden Pests and Diseases

Have a problem with an insect, disease or vertebrate pest?

This page will direct you to information that will help you identify pests or diseases that you may have in your garden. It is important to correctly identify a problem before you begin treating it.

IPM, or Integrated Pest Management, helps you to control garden pests (insects, diseases and vertebrates) by effectively reducing problems using the least toxic methods that safely minimize or eliminate the pest.

The [UC IPM Statewide Integrated Pest Management Program](#) has produced publications about specific pests or pest management topics that are directed at California's home and landscape audiences. These publications are peer-reviewed and based on UC IPM recommendations.

### [Flowers](#)



### [Fruit Trees](#)



### [Lawn and Turf](#)



### [Vegetables](#)



### [Trees and Shrubs](#)



### [Weeds](#)



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[Home & landscape pests](#)

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[Exotic & invasive pests](#)

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[Natural enemies gallery](#)

[Weather, models & degree-days](#)

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## Vegetables and melons

- [Artichokes](#)
- [Asparagus](#)
- [Beans](#)
- [Broccoli](#)
- [Brussels sprouts](#)
- [Cabbage](#)
- [Cantaloupe](#)
- [Carrots](#)
- [Cauliflower](#)
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- [Watermelon](#)

**Example**



# Lettuce

## Cultural tips

- [Fertilizing](#)
- [Harvesting and storage](#)
- [Planting](#)
- [Site selection](#)
- [Soil improvement](#)
- [Soil preparation](#)
- [Soil recommendations](#)
- [Time to plant](#)
- [Watering](#)



## Pests and disorders of Lettuce

### Invertebrates

- [Aphids](#)
- [Armyworms](#)
- [Corn earworm](#)
- [Crickets](#)
- [Cutworms](#)
- [Darkling beetles](#)
- [Flea beetles](#)
- [Garden symphylans](#)
- [Grasshoppers](#)
- [Leafminers](#)
- [Loopers](#)
- [Nematodes](#)
- [Snails/slugs](#)
- [Vegetable weevil](#)
- [Whiteflies](#)

### Diseases

- [Big vein](#)
- [Botrytis rot \(Gray mold\)](#)

### Diseases (continued)

- [Damping off](#)
- [Downy mildew](#)
- [Powdery mildew](#)
- [Sclerotinia lettuce drop \(watery soft rot\)](#)
- [Virus diseases](#)

### Environmental disorders

- [Common environmental disorders](#)
- [Ammonia injury](#)
- [Bolting](#)
- [Frost injury](#)
- [Heat injury](#)
- [Tipburn](#)

### Vertebrates

### Weeds



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# Workshop Documents Online

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# Ready to Get Down & Dirty?

## **Demonstrations on how & then it's your turn**

(You get to take them home)

Planting seeds

Transplanting seedlings

### **Demonstrations Only:**

- Planting seeds in ground (carrots, peas, etc)
- Planting tomato seedlings
- Using row covers

# Tips on Buying Seedlings



Beet



Radish

Would you buy any of these examples?

Why?



Broccoli



Cabbage



# Burning Questions





# Master Gardener Program

University of California Cooperative Extension 

Thanks!

Be sure to complete the  
evaluations before leaving