

Happy to see you! We will be starting soon.



# Tell us about you?

- How many years have you gardened?
  - (type in the chat)





# Welcome

## Spring Vegetable Gardening



- This event will be recorded for educational or promotional use by the University of California.
  - You can watch it on our YouTube Channel later.
  - You will be muted throughout to prevent background noise.
- Please post your questions in the “Q&A.” They will be addressed at the end of the presentation.
- Use “Chat” for non-question conversations or comments. Change the “To” if needed to ensure your Chat is sent to those who you want to send it to.  
**Options:**
  - “Private” if specific Chat only to an individual participant or speaker
  - “Panelists” if want to send a Chat only to the speakers
  - “Everyone” if you’d like everyone to see your Chat message



# Who are the UCCE Stanislaus County Master Gardeners?

*We extend research-based knowledge and information on home horticulture, pest management, and sustainable landscape practices.*



University of California  
Agriculture and Natural Resources

# Solutions

## *Contact Your Local Program*

- Help identifying the pest or problem.
- If pesticides are necessary, choose less-toxic solutions such as horticultural soaps and oils.
- Visit the UC IPM website for help.



University of California  
Agriculture and Natural Resources

# We're on Social Media!

Facebook

Twitter

Instagram

- UCMGStanislaus

Subscribe to our YouTube...

- <http://ucanr.edu/youtube/ucmgstanislaus>

Manage Page

UCCE Stanislaus County Master Gardeners

Business Suite

- Inbox 1 new message & 22 new comments
- Planner
- Publishing tools
- News Feed
- Business Apps

Home

Reviews Videos Photos More Promote

UCCE Stanislaus County Master Gardeners  
@UCMGStanislaus - Nonprofit organization

Edit Contact Us

Promote

# Subscribe to our YouTube Channel

Stanislaus County UCCE Master Gardeners  
283 subscribers

CUSTOMIZE CHANNEL    MANAGE VIDEOS

HOME    VIDEOS    PLAYLISTS    CHANNELS    ABOUT   

Uploads    [PLAY ALL](#)



Learning Landscape Groundbreaking Video ...  
27:50  
62 views • 9 months ago



How to build a worm bin with UCCE Stanislaus County...  
5:15  
62 views • 10 months ago



Butterflies in Your Garden  
1:18:47  
106 views • 10 months ago



Composting Basics - UCCE Stanislaus County Master...  
1:19:11  
238 views • 1 year ago



UCCE Stanislaus County Master Gardeners Learning...  
27:50  
119 views • 1 year ago



How to Save Tomato Seeds - UCCE Stanislaus County...  
8:53  
74 views • 1 year ago

Shorts



UCCE Master Gardeners - What is a Master Gardener?  
Stanislaus County UCCE Master Gardeners • 146 views • 3 months ago  
Anne Schellman, Master Gardener Coordinator for Stanislaus County explains who a Master Gardener is, how to become one, and the volunteer opportunities available. To find a program in your...

0:45



# Spring Vegetable Gardening

UCCE Stanislaus County  
Master Gardeners



University of California  
Agriculture and Natural Resources

# Meet Your Speakers!

## Master Gardeners

- Ted Hawkins
- Rho Yare



photo: pixabay.com



University of California  
Agriculture and Natural Resources

# Agenda

- Gardening Basics
- Planting Methods
- Popular Vegetables
- Harvest and Storage
- Pests & Solutions
- Your Questions

Answered...Along the  
way!



photo: pixabay.com



University of California  
Agriculture and Natural Resources

# Gardening Basics



University of California  
Agriculture and Natural Resources

# Sun and Water Source

- 6-8 hours sunlight for most plants
  - Leafy, root vegetables 4-6 hours ok
- Have a nearby water source
  - Use drip or soaker hose irrigation



photo: harvesttotable.com

# Soil Preparation

- Add 4-6" of compost to your garden and mix in
- Containers: use good-quality potting mix
  - Avoid using outdoor soil which may contain
    - Weed seeds, diseases, or other pests
    - Garden soil can make containers heavy and hard to move



# Watering



- Make sure seeds, seedlings, and transplants get enough water.
- Keep soil moist, including the root ball!
- **Water regularly.**
  - Sporadic watering can cause problems for the plant.

# Fertilizing

- Use a **slow or time-release fertilizer**. OR
- Water soluble fertilizer.
- Follow directions
  - Never add more fertilizer than the directions state, as this can “burn” your plants.
  - Don’t fertilize seedlings until at least 2 weeks old. Use at  $\frac{1}{2}$  strength when fertilizing.



# Questions?



University of California  
Agriculture and Natural Resources

# Container Gardening

- Clay, plastic, metal, wood, etc., all work well.
- **Drill holes if missing.**
- Large containers are best.
- When reusing containers, clean with a 10% bleach in water solution.
- Avoid using garden soil which may have weeds, diseases, nematodes, etc.



# Container Concerns

- Heavy containers.
  - Use a pot trolley underneath.
- Pots may stain your porch or patio.
  - Use saucers underneath.
- Empty saucers.
  - Don't allow container to sit in water.
  - Sitting water could become a mosquito pond!



University of California  
Agriculture and Natural Resources

# Creative Containers

- Wagons or wheelbarrows
- Kitty litter bins
- 5-gallon buckets
- Rubber maid tubs
- Kiddie pools
- Milk jugs (1 gallon)
- Anything else you can think to use!
- Avoid tires and railroad ties.



# Minimum Container Sizes for Vegetables

- Pot that holds at least 2 gallons:
  - Beets, cucumber, radishes, cherry tomatoes, green beans
- Pot that holds at least 5 gallons:
  - Determinate tomatoes, squash, eggplant, mini pumpkins



# Plant Support

- Some crops have a vining form & need a trellis.
  - Beans, cucumbers, mini pumpkins, squash



photo: garden-gadget.com



Photo: gardenofsteph.com

# Watering & Containers

- Containers may dry out quicker.
- Test moisture with your finger to a few inches deep, water as needed.
- During warm weather:
  - Daily watering may be needed
  - Check plants at least 2x per day.



University of California  
Agriculture and Natural Resources

# Vegetables that need more space should be planted in the ground

- Artichokes
- Pumpkins
- Melons
- Winter squash
- Indeterminate tomatoes
- Corn (rows needed for wind pollination)



Photo: Wikimedia commons

# Questions?



University of California  
Agriculture and Natural Resources

# Planting Methods

- Transplants (4-6 weeks old)
  - Recommended for beginning gardeners.
- Seeds
  - Necessary to grow root vegetables.



photo: pixino.com

# How do you start your vegetables?

## Poll#1

- From seed.
- I buy transplants.
- Both.



photo: pxhere.com



**University of California**  
Agriculture and Natural Resources

# How much do you plant?

## Poll#2

- Enough for my family.
- Enough for family and friends.
- Enough for the whole neighborhood!

photo: pixabay.com



# Seeds vs. Transplants

- Seeds
  - Leafy vegetables, squash, pumpkins, cucumber are easy to grow from seed
- Transplant (*very tiny seeds*)
  - Tomatoes, peppers, and eggplant may be best from a transplant



University of California  
Agriculture and Natural Resources

# What is a transplant?

- A plant that is 6 weeks old or older.
- A plant that can quickly help you establish your garden.
- Many transplants are available.
  - Seeds - most inexpensive choice.
  - Transplants are often easier for new gardeners to establish.



**University of California**  
Agriculture and Natural Resources

# Planting Transplants

- Take plant out of container and examine “root ball.”
- Pull apart circling, overgrown roots.
- Make a hole the same size of root ball.
- Set plant into hole.
- Fill in around root ball gently.
- Don’t put soil over the top of the root ball.
- Water well, is the root ball saturated?



photo: mantis.com

# What is a seed?

- Tiny living embryos covered by a protective seed coat.
- Some are more protected than others.
- Have small amount of food reserve.
- Germinate when soil temperature is right, and when kept moist.



photo: deltatechnology.com

# The Sprouted Seed

- Root hairs
  - Fine & fibrous
  - Responsible for water & mineral uptake
  - Fragile! Keep moist

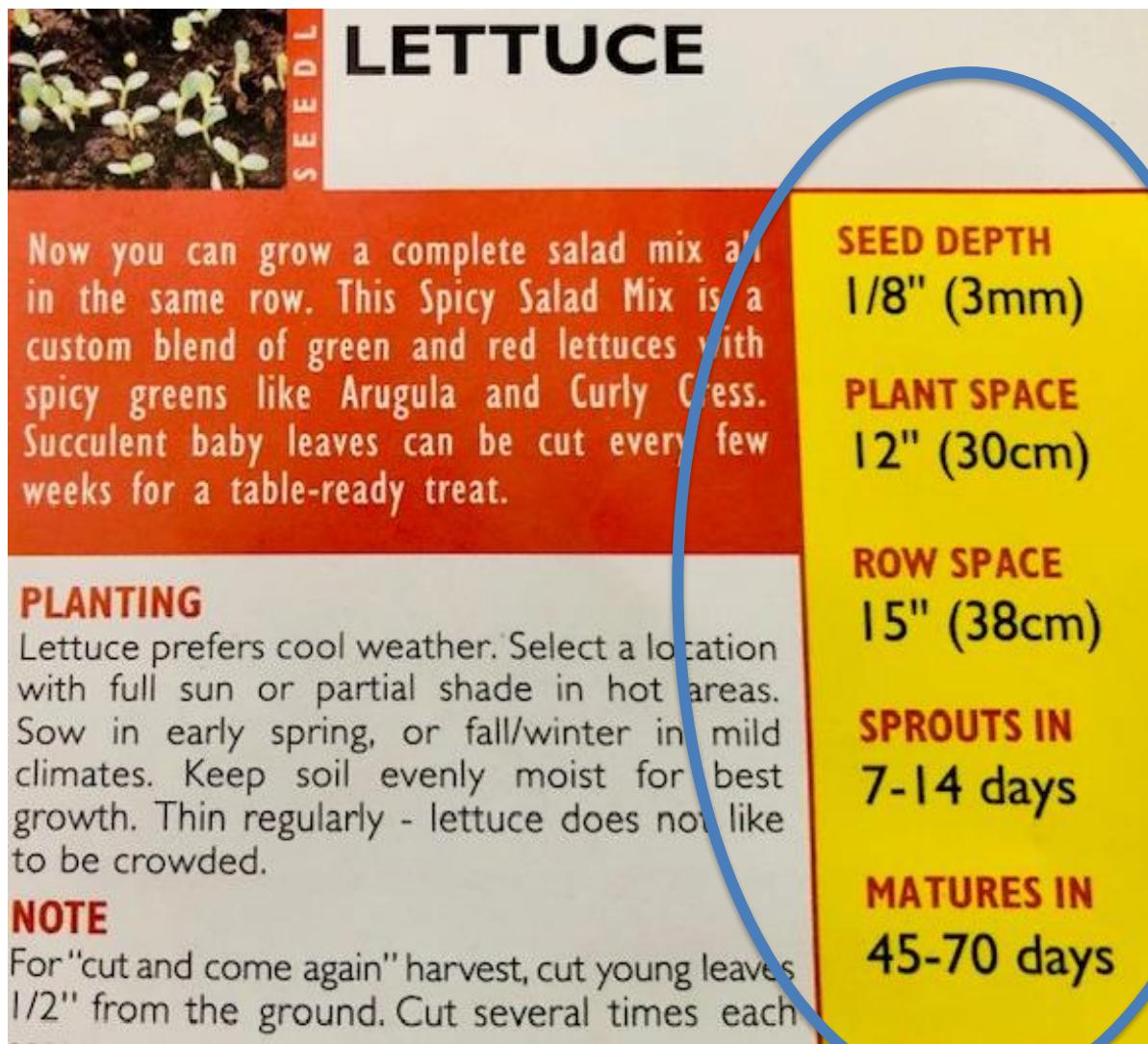


photo: University of Central Arkansas



University of California  
Agriculture and Natural Resources

# Seed Packet Instructions



# Has this ever happened to you?

## Poll#3

- Planted seeds that never came up.
- Planted seeds that sprouted and died.
- Planted seeds that sprouted and appeared to be cut off.
- Planted seeds and pretty sure something ate them, but what?



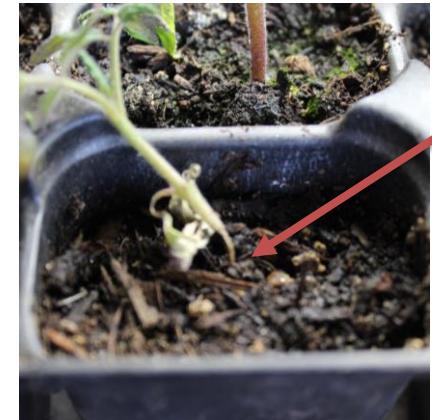
# Why didn't my seeds come up?

- You might have buried them too deeply.
- You didn't water them consistently to keep soil moist.
- Seeds expired due to incorrect storage.



# Why did my seedlings die?

- A damping off disease may have killed them.
  - Prevent by using clean potting mix and containers. When reusing containers, clean with 10% bleach in water solution.
- Insects may have eaten them.
  - Cutworms
  - Snails or slugs
  - Earwigs



Seedling killed by damping off.  
H. Aufdermaur



Cutworm photo. UC IPM

# Seed Life Expectancy

One Year	Two Years	Three Years	Four Years	Five Years
Chives	Annual Flowers	Amaranth	Beet	Artichoke
Marjoram	Cilantro	Lima Beans	Broccoli	Basil
Onion	Leek	Carrot	Brussels Sprout	Cucumber
Oregano	Okra	Celery	Cabbage	Dill
Parsley	Mizuna	Chinese Cabbage	Cauliflower	Endive
Parsnip	Most Wildflowers	Fennel	Eggplant	Greens
Salsify	Peppers	Kohlrabi	Kale	Lettuce
	Sage	Pea	Pumpkin	Melons
	Sweet Corn	Perennial Flowers	Radish	
		Snap Bean	Rutabaga	
		Spinach	Squash	
		Tomatillo	Swiss Chard	
			Tomato	
			Turnip	
			Watermelon	

*Properly stored*

# Label what you plant!

- Purchase labels
- Repurpose mini blinds
- Popsicle sticks
- Paint sticks
- Milk carton strips
- Use a permanent marker



# Thinning

- Giving seedlings space!
- Thin 3 weeks after sprouting
- Pinch or cut off weakest/unwanted plants
- Add sprouts to a salad or a sandwich!



# Thinning Example



# Questions?



photo: pxfuel.com



University of California  
Agriculture and Natural Resources

# Popular Warm Season Vegetables

- Tomatoes
- Squash
- Corn
- Cucumbers
- Peppers
- Beans
- Eggplant
- Melons
- Pumpkin
- Lettuce, chard
- Carrots, beets



Photo: pixabay.com

# What's your favorite vegetable?

*Type into the chat!*

- Okay, top 3 favorites you can't live without!?



Photo: pxhere.com

# Tomatoes

- Most popular vegetable...or is it a fruit?
- Hundreds of varieties!
- Easiest to grow from a transplant.



# Fruit is the result of pollination

- Many vegetables are the pollinated “fruit” of a plant.
- Flowers need pollinators (bees and other insects) to produce “fruit.”
- Can you name some vegetables that are actually fruit?



photo: usda.org

# The Jury is in...

Botanically, tomatoes are fruit!

1893 Supreme Court Case, **Nix vs Hedden**



Photo by Tracy Celio

- Plaintiff Nix: tomatoes are a fruit, so I don't need to pay the vegetable import tax!
- Court: Tomatoes aren't prepared the same way as fruit, so we consider them a vegetable, so you must pay the tax!

# Tomato Container Gardening

*Check the variety!*



- Indeterminate tomatoes grow too large for containers.
- **Determinate tomatoes are best:**
  - ‘Celebrity,’ ‘Roma,’ ‘Bush Early Girl,’ ‘Marglobe.’
  - Tomatoes with the word “patio” or “pixie” in the title.

# Planting Leggy Tomatoes

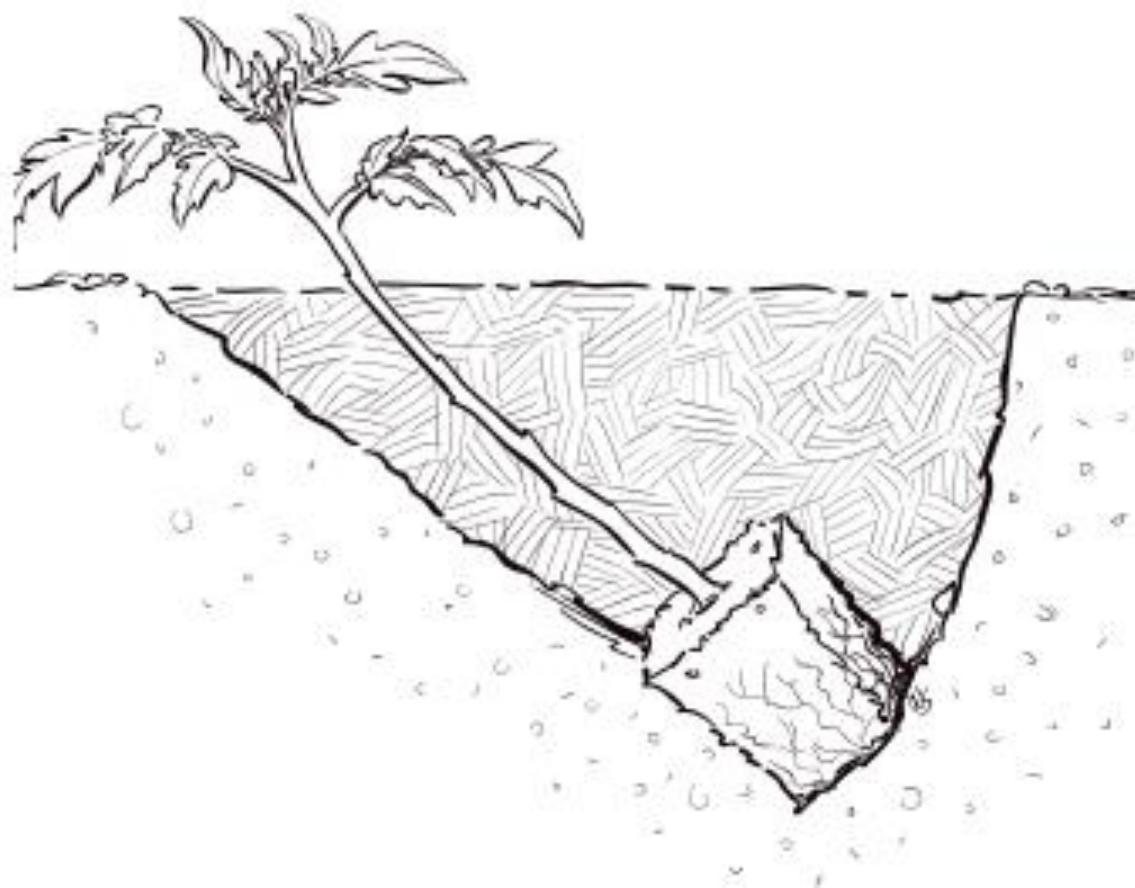
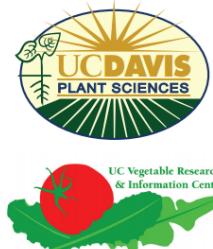


Illustration: UC Master Gardener Handbook

# Planting Time Matters!

- Warm vs cool season
    - Radishes ≠ heat
    - corn ≠ cold
  - We will email a copy to everyone once this presentation is posted online.

## **Vegetable Planting Guide**



- ▼ preferred time to seed in a greenhouse or other protected area (e.g. coldframe, well lit window)
- preferred time to transplant
- preferred time to direct seed
- seeding
-  transplanting

*Seeding and transplanting dates may vary between varieties. Please check seed package or nursery for additional information.*

Information provided by Robert Norris, Department of Plant Sciences, 2008

SUMMER/FALL Vegetables for the Sacramento Area												
JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
<i>brussels sprouts</i> 												
<i>cabbage</i> 												
<i>parsnips</i> 												
<i>cauliflower &amp; broccoli</i> 												
<i>carrots</i> 												
<i>rutabaga</i> 												
<i>lettuce</i> 												
<i>lettuce</i> 												

# Corn

- Wind pollinated. Plant seeds in rows.
- Ready when silks turn dark brown.
- Prevent corn earworm-apply 3-5 drops mineral oil to each silk just after it forms.

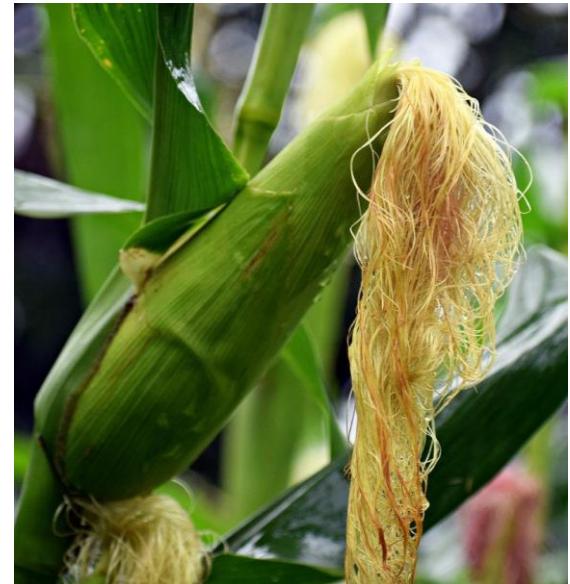


Photo: pixabay.com

# Squash

- Summer squash: has a thin skin
- Winter squash: has a thick skin



Photo: pixinio.com



Photo: Terry Harper

# Summer Squash

- Zucchini, yellow crookneck, patty pan
  - Which one do you grow?
- Harvest at desired size, don't let them get big!
- Need 60 days from seed to reach maturity.



# Summer Squash in Containers

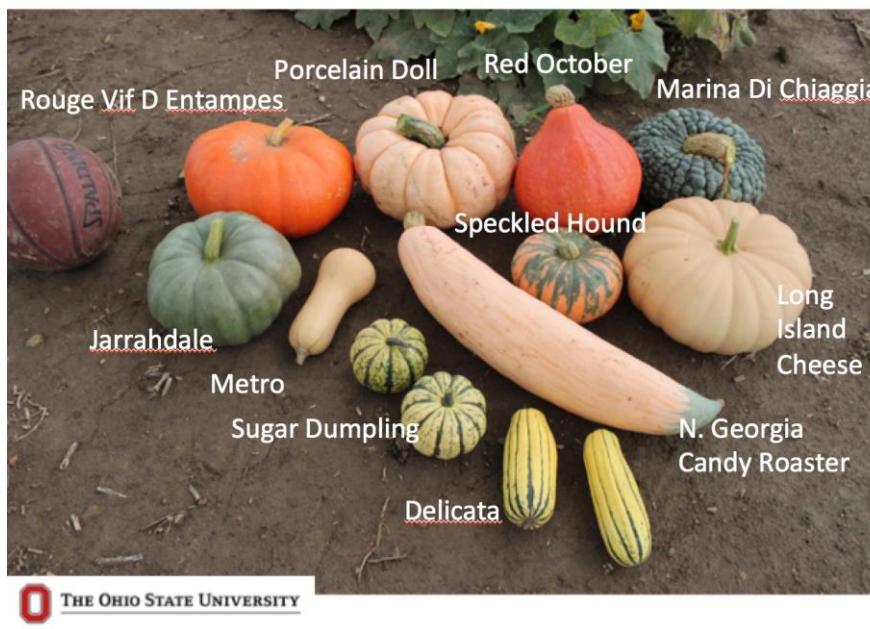
- Use 24" wide 16-18" deep pot.
- Use 3 plants for best pollination.
  - Bush/compact varieties
  - Vining: need a small trellis



University of California  
Agriculture and Natural Resources

# “Winter” Squash

- Banana, butternut, kabocha, spaghetti, Hubbard
- Plant in spring, harvest in fall, “keep” for winter!
- Harvest - when rind hardens & turns a dull color.
- Eat or “cure.” Store: 5 weeks - several months.



# Beans

## Bush or pole

- Provide support for pole beans.
- Use 2-gallon size pot per plant.
- Harvest: gently snap pods off plant.



Photos: pixabay.com

# Beets, Lettuce, & Carrots

- Plant seeds in February or March.
- Don't forget to thin!
- Use 1 gallon container or larger.
- Harvest in late spring.



Photo: pixabay.com



Photo: pikrepo.com

# Cucumbers

## Bush or pole

- Provide support for pole beans.
- Use at least 3 plants for best pollination.
- 2-gallon size pot minimum per plant.
- ‘Spacemaster,’ ‘Bush Crop,’ Bush Champion,’ ‘Patio Pickle’ save space.



photo:burpee.com

# Eggplant

- Any eggplant lovers here?
- Harvest with hand pruners.
- Use immediately, or store on countertop.
- Can be planted in 5-gallon container.



photo:bonnieplants.com



photo:  
[bosque.agrilife.org](http://bosque.agrilife.org)



photo: H. Aufdermaur

# Peppers



photo: UC IPM

- Peppers can get sunburned. Keep plants well watered.
- Large pepper plants can benefit from a cage to hold them up.
- Chile, bell, and banana peppers do well in a 5-gallon container.



photo: University of Iowa

# Melons

- Watermelon, cantaloupe, honeydew, casaba.
- Prefer warm weather.
- When is it ripe?
  - Watermelon - when bottom rind turns yellow.
  - Cantaloupe - when fruit “slips” right off the vine.



photo:wikihow.com

# Questions?



University of California  
Agriculture and Natural Resources

# What will you plant in your spring garden?

*Type into the chat*



University of California  
Agriculture and Natural Resources

# Storage Tips

We will send everyone a copy via email.

**Storing Fresh Fruits and Vegetables for Better Taste**

**UCDAVIS**  
POSTHARVEST TECHNOLOGY

Storage Location	Fruits and Melons	Vegetables		
<b>Store in refrigerator</b>	apples (> 7 days) apricots Asian pears (nashi) blackberries blueberries cherries cut fruits figs grapes raspberries strawberries	artichokes asparagus green beans lima beans beets Belgian endive broccoli Brussels sprouts cabbage carrots cauliflower celery cut vegetables	green onions herbs (not basil) leafy vegetables leeks lettuce mushrooms peas radishes spinach sprouts summer squashes sweet corn	
<b>Ripen on the counter first, then store in the refrigerator</b>	avocados kiwifruit nectarines peaches	pears plums plumcots		
<b>Store only at room temperature</b>	apples (< 7 days) bananas grapefruit lemons limes mandarins mangoes muskmelons	oranges papayas persimmons pineapple plantain pomegranates watermelons	basil (in water) cucumbers† dry onions* eggplant† garlic* ginger jicama	peppers† potatoes* pumpkins sweet potatoes* tomatoes winter squashes

\*Store garlic, onions, potatoes, and sweet potatoes in a well ventilated area in the pantry. Protect potatoes from light to avoid greening.  
†Cucumbers, eggplant and peppers can be kept in the refrigerator for 1 to 3 days if they are used soon after removal from the refrigerator.

# Troubleshooting



# Pollination Problems

- Squash and cucumber plants have male and female flowers.
- The male comes out first.
- Some “fruit” may shrivel because it wasn’t pollinated.
- Not enough bees, too cold, etc.  
Eventually pollination will happen.



Photo: [helpfulgardener.com](http://helpfulgardener.com)

# Blossom End Rot

Affects tomatoes, squash, peppers.

- Cause: water imbalance.
- Made worse by irregular watering.
- Water regularly to keep soil moist but not wet.
- Adding fertilizer will not help.



Photos: UC IPM

# Insect Pests

- Tomato hornworm, fruitworm
- Leaffooted bugs
- Aphids
- Wash off, squish, or knock into bucket of hot, soapy water.



Photos: UC IPM

# Questions?



University of California  
Agriculture and Natural Resources

# Solutions

## *Contact Us!*

- Help identifying the pest or problem.
- Call (209) 525-6802
- If pesticides are necessary, choose less-toxic solutions such as horticultural soaps and oils.
- Visit the UC IPM website for help.



**University of California**  
Agriculture and Natural Resources

**UNIVERSITY OF CALIFORNIA AGRICULTURE & NATURAL RESOURCES**

# UC IPM

Statewide Integrated Pest Management Program

What is IPM | Identify & Manage Pests | Research | Publications | Training & Events | Links | About Us | Contact Us | Subscribe

Solve your pest problems with UC's best science

What's New

- Pest Alert! Agriculture: Peach Root-Knot Nematode Pest Alert. New nematode to California.
- Ag Pest Management: Citrus revised. Asparagus updated
- Pest Notes: Armillaria Root Rot added. Plantains, Cockroaches, Deer, Rosey insects and Mites, Centipedes and Millipedes revised
- Retail Nursery & Garden Center IPM Newsletter: Winter 2019
- Green Bulletin: Fall 2019
- Weed Photo Gallery: Italian thistle and slenderflower thistle added.
- More...

**QUICK LINKS**

- Newspapers
- Recursos en español
- Online training
- Weather, models, & degree-days

For noncommercial purposes only, any Web site may link directly to this page. FOR ALL OTHER USES or more information, read Legal Notice. Individual solutions to specific pest problems. See our Home page, or in the U.S., contact your local Cooperative Extension office for assistance.

Acknowledgements | Staff-only pages | Subscribe (RSS) | Contact UC IPM

**MAKE A GIFT**

**Home, Garden, Turf & Landscape Pests**

**Natural Environment Pests**

**Exotic & Invasive Pests**

**MAKE A GIFT**

**Agricultural Pests**

**HOME**

**ON THIS SITE**

- What is IPM?
- Home & landscape pests
- Agricultural pests
- Natural environment pests
- Exotic & invasive pests
- Weed gallery
- Natural enemies gallery
- Weather, models & degree-days
- Pesticide information
- Research
- Publications
- Events & workshops
- Online training
- Links
- About us
- Contact us

**MAKE A GIFT**

**University of California Agriculture & Natural Resources**

# UC IPM

Statewide Integrated Pest Management Program

What is IPM | Identify & Manage Pests | Research | Publications | Training & Events | Links | About Us | Contact Us | Subscribe

**PRINT**

**Home, garden, turf, and landscape pests**

University of California's official guidelines for managing pests with environmentally sound methods. (More...)

**Pests of homes, structures, people, and pets**

- Pests that sting, bite, or injure
- Wood-destroying, food, fabric, and nuisance pests
- Vertebrate pests: birds, mammals, and reptiles

**Pests in gardens and landscapes**

Choose a plant to find the most likely source of your pest problem

- Flowers
- Fruit trees, nuts, berries, and grapevines
- Lawns and turf (including comprehensive lawn guide)
- Trees and shrubs (including roses and other ornamentals)
- Vegetables and melons

**Some common pests**

- Birds, mammals, and reptiles: vertebrate pests
- Insects, mites, mollusks, and nematodes: invertebrate pests
- Plant diseases
- Weeds

**Pesticides and alternatives**

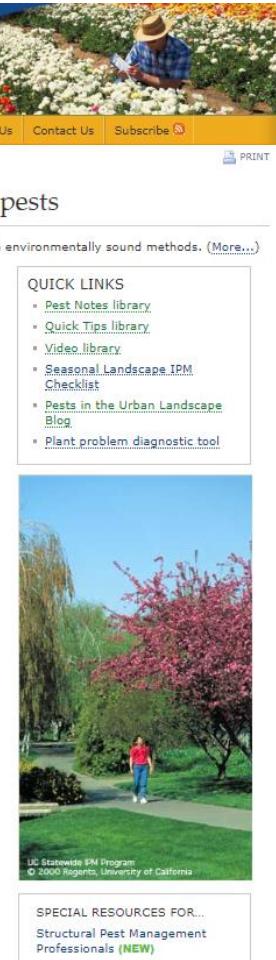
- Pesticides in homes and landscapes
- Alternatives to pesticides
- Biological control

**More information**

- Plant problem diagnostic tool
- Seasonal Landscape IPM Checklist
- UC IPM Kiosks
- UC Statewide Master Gardener Program: find your local Master Gardener professional

**SPECIAL RESOURCES FOR...**

Structural Pest Management Professionals (NEW)



[Natural environment pests](#)

[Exotic & invasive pests](#)

[Weed gallery](#)

[Natural enemies gallery](#)

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

[Pesticide information](#)

[Research](#)

[Publications](#)

[Events & workshops](#)

[Online training](#)

[Links](#)

[About us](#)

[Contact us](#)

## [Household pests](#)

- [Pests that sting, bite, or injure](#)
- [Wood-destroying, food, fabric, and nuisance pests](#)
- [Vertebrate pests: birds, mammals, and reptiles](#)

## [Pests in gardens and landscapes](#)

*Choose a plant to find the most likely source of your pest problem*

- [Flowers](#)
- [Fruit trees, nuts, berries, and grapevines](#)
- [Lawns and turf \(including comprehensive lawn guide\)](#)
- [Trees and shrubs \(including roses and other ornamentals\)](#)
- [Vegetables and melons](#)

## *Some common pests*

- [Birds, mammals, and reptiles: vertebrate pests](#)
- [Insects, mites, mollusks, and nematodes: invertebrate pests](#)
- [Plant diseases](#)
- [Weeds](#)



[MAKE A GIFT](#)



## [Pesticides and alternatives](#)

- [Pesticides in homes and landscapes](#)
- [Alternatives to pesticides](#)
- [Biological control](#)

▪ [Qui](#)  
▪ [Vide](#)  
▪ [Sea](#)  
▪ [Che](#)  
▪ [Pes](#)  
▪ [Blood](#)  
▪ [Plan](#)



## HOME

### ON THIS SITE

[What is IPM?](#)[Home & landscape pests](#)[Agricultural pests](#)[Natural environment pests](#)[Exotic & invasive pests](#)[Weed gallery](#)[Natural enemies gallery](#)[Weather, models & degree-days](#)[Pesticide information](#)[Research](#)[Publications](#)[Events & workshops](#)[Online training](#)[Homes, Gardens, Landscapes, and Turf](#)

## Vegetables and melons

- [Artichokes](#)
- [Asparagus](#)
- [Beans](#)
- [Broccoli](#)
- [Brussels sprouts](#)
- [Cabbage](#)
- [Cantaloupe](#)
- [Carrots](#)
- [Cauliflower](#)
- [Corn](#)
- [Cucumbers](#)
- [Eggplant](#)
- [Lettuce](#)
- [Onions and garlic](#)
- [Peas](#)
- [Peppers](#)
- [Potatoes](#)
- [Pumpkins](#)
- [Spinach](#)
- [Squash](#)
- [Tomatoes](#)
- [Watermelon](#)



# Questions?



University of California  
Agriculture and Natural Resources

# Help Us Grow!

Our follow-up email survey provides us the tools we need to grow and improve the quality of our program.



University of California  
Agriculture and Natural Resources