

Growing Strawberries in the Home Garden

UC Master Gardeners of Monterey & Santa Cruz
February 2019



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This class covers:

- The different types of strawberries
- When, where and how to plant strawberries
- How to care for strawberry plants
- Nutrient deficiencies and pests that affect strawberries



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Types of strawberries

- Short day: requires temperatures below 15° C (59°F) and days of less than 14 hours of light to induce flowering.
- Day neutral: Day length does not matter, produces fruit regardless.
- Everbearing: Produce a crop in spring and another in fall, and a few throughout summer.



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Short Day Strawberry Varieties



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Chandler

- Fruit
 - Semi Early
 - Sweet
- Planting
 - Winter
- Disease
 - Susceptible



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Camarosa

- Fruit
 - Early
 - Excellent Flavor
 - High yield potential
- Planting
 - Winter
- Disease
 - Tolerant



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Ventana

- Fruit
 - Similar to Camarosa
 - Larger plant yields
- Planting
 - Winter
- Disease
 - Susceptible



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Camino Real

- Fruit
 - Similar to Camarosa
 - Darker fruit/good flavor
 - Larger plant yields
- Planting
 - Winter
- Disease
 - Susceptible
 - leaf spot
 - powdery mildew
 - Resistant
 - Verticillium
 - Phytophthora



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Day Neutral Strawberry Varieties



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Diamante

- Fruit
 - Large
 - Sweet
- Planting
 - Summer/Fall
- Disease
 - Resistant
 - Tolerant
 - Two Spotted Spider Mites
 - Susceptible
 - Fungal Diseases



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Albion

- Fruit
 - The gold standard of the industry in terms of flavor
 - Dark red
 - Consistent
- Planting
 - Summer/Winter
- Resistance
 - Resistant
 - Fungal
 - Tolerant
 - Two Spotted Spider Mites



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Aromas

- Fruit
 - Excellent Flavor
 - Large
 - High yields / Late season
- Planting
 - Summer/Fall
- Disease Resistance
 - Resistant
 - Mildew
 - Tolerant
 - Two Spotted Spider Mites



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Monterey

- Fruit
 - Outstanding Flavor
 - Large
- Planting
 - Summer/Fall
- Disease Resistance
 - Resistant
 - Susceptible
 - powdery mildew.



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Everbearing Strawberries

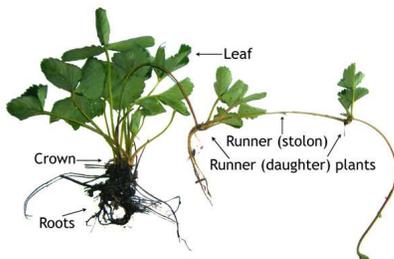
- Quinault
 - Fruit
 - Large / Soft
 - Very flavorful
 - Planting
 - Summer /Fall
 - Disease Resistance
 - Resistant
 - Susceptible
 - botrytis



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Anatomy of a Strawberry Plant



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Site Selection

- Choose a convenient location
- Select a location that is not heavily infested with weeds
- Strawberries will do well on a wide range of soils



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Soil Considerations

- Strawberries need well draining soil
- Adding organic matter
- Texture is an important consideration when choosing an amendment.



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Soil Preparation

- Cultivate and rake.
 - Cultivate top 1" to 2"
 - Remove weeds and crop debris (roots)
- Irrigate the plot deeply.
- Cultivate the new weed seedlings.
- Plant while soil is still wet.

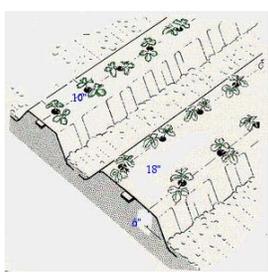


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Bed Preparation

- Make raised beds
- Two rows of plants work well, and you can run a drip line down the middle of the bed between them.
- Orienting the beds in a north-south



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Bed Preparation

- Make sure the furrows between beds are sloped enough in the direction of the rows that water drains away during rainy weather. Standing water promotes root and crown diseases.
- If you are planning to water the strawberries by flooding furrows, make the slope shallow enough that furrows can be filled with water by blocking the ends.
- If you have problems with moles or gophers, place a wire mesh barrier beneath raised beds before you plant.



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Time to Plant

- Middle to late August generally is the best time to plant strawberries in all locations.
- Day-neutral cultivars also can be planted in the fall or in February and March.
- Fruit production is usually highest in the first full season after planting and declines after that.

Recommended Planting Dates for Strawberries in California

Short-Day Cultivars		
Area	Summer planting	Winter planting
Central coast	Aug. 15-Sept. 5	Oct. 15-Nov. 5
Day-Neutral Cultivars		
Area	Summer planting	Winter planting
Central coast	Sept. 25-Oct. 10	Oct. 25-Nov. 26



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Transplanting

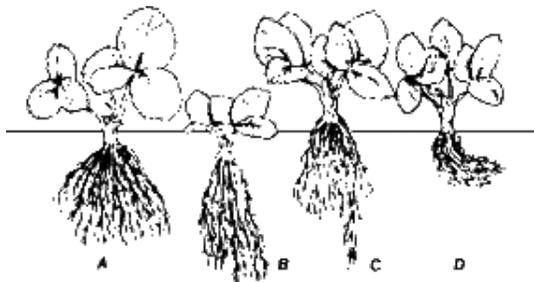
- Use a trowel to open a hole from 6 to 8 inches deep.
- Add fertilizer (slow release or organic fertilizer such as blood, feather or fish meal) and cover with an inch of soil.
- Insert plant, fill in and pack with soil.
 - Spread roots out
 - Keep growing point above soil line
- Space plants about 12 inches apart in each row with rows about 12 inches apart in two-row beds, and stagger the plants in the two rows to give them maximum growing room.
- In single-row beds, space plants about 10 inches apart.



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Proper Transplant of Strawberries



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A Discussion on Mulching

- Mulch with straw, sawdust, compost, wood chips, grass clippings.
- Plastic mulch in commercial agriculture.
- Purpose of color in mulch:
 - clear
 - opaque



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Irrigation

- Overhead irrigation at first, drip irrigation later.
- Do not leave free moisture on flowers for any length of time!!
- Strawberries require 1 to 2 inches of water per week during the growing and fruiting season. Soil should remain moist at all times.



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Fertilizing

- Slow release fertilizers.
- Addition of fertilizers six weeks after planting of strawberries.
- Broadcast ammonium nitrate, or fish, or feather, or blood meal at the rate of 0.5 lb per 100 sq. ft. and irrigate in.
- Strawberries need additional fertility through the growing season – continue to fertilize, especially with nitrogen.



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Pruning



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Pruning strawberries

- For best results with your garden strawberries, remove runners to encourage single plants to produce several crowns.
- During the first year of your strawberry planting, allow a few runners to form daughter plants, which can be used to replace any plants that die.
- If growth of day-neutrals is weak after they are planted, cut off the first two flower clusters that form, which increases the vigor of the plants.
- Prune off most leaves from short-day plants in the late fall after the first full year of growth.
- From day-neutrals, remove the older leaves that are turning color.
- Be sure to remove any leaves that show signs of disease. Collect all prunings and discard them well away from the planting; they can be a source of disease inoculum.



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Harvesting

- Harvest when fully ripe or when pink to three-fourths colored. Overripe fruit is more easily damaged and decays more quickly after harvest. Leave the calyx and stem on fruit to help prolong its shelf life.
- Handle fruit carefully during harvest and discard all overripe fruit and any fruit with signs of decay
- Provide shade for fruit held in the garden, protect fruit from warm winds, and remove fruit from the garden within 1 to no more than 2 hours following harvest.



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Rotating Plants

- **Possible rotation sequences**
- Remove old strawberry plants in late summer.
- Plant a winter crop of cauliflower, cabbage, or another crucifer.
- In spring, spread all crop residue from the crucifer over the planting area, allow it to dry and rototill it in.
- Solarize the soil in summer. (<http://ipm.ucan.edu/PMG/PESTNOTES/pn74145.html>)
- After removing plastic film at end of summer, water the treated area regularly for two months.
- Plant new strawberries in late fall or late winter.
- **Variations**
- As an alternative to steps 2 and 3, plant a winter crop of ryegrass and rototill it in with dried crucifer residue collected from another area of the garden.
- As an alternative to steps 5 and 6, follow solarization with ryegrass, rototill in spring, and plant in August.



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Nutrient Deficiency Issues



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Yellow Plants

- **Nitrogen**
 - plants are stunted and yellowing occurs in older, outer leaves first (mobile nutrient)
- **Iron**
 - first indications of deficiency appear in young leaves, with the development of interveinal chlorosis
- **Zinc**
 - Older leaves are vaulted downward or contorted and show interveinal chlorosis



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Leave and Fruit Distortion

- Calcium
 - younger leaves develop tip burn
 - become cupped and distorted
 - marginal leaf yellowing
 - fruit are smaller and have a hard texture
- Boron
 - flowers are smaller, petals deformed or fail to develop
 - fruit fails to fully expand and are deformed and bumpy
 - Leaf symptoms can mimic calcium deficiency



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Pest Issues



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Twospotted spider mite



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Damage of twospotted spider mite



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Twospotted mite control



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Mite Predator



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Cultural Management of Twospotted Spider Mite

Use practices which give the plant strength and power.

1. Adequate vigor
2. Adequate water
3. Reduce dust



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For More Information

- See the UC Davis IPM site:
- <http://ipm.ucanr.edu/PMG/GARDEN/FRUIT/strawberries.html>



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Where to buy

- StrawberryPlants.org
 - The ONE stop for EVERYTHING related to strawberry plants and growing strawberries
 - <https://strawberrypants.org/>



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Help Us Grow!

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



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