Common Tomato Problems in the Home Garden

Presented by the San Joaquin UC Master Gardeners

Help Us Grow!

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

When trying to identify tomato plant problems, use these steps

- **Identify the affected part of the plant** — Is it the tomato itself, the leaves, stems, flowers or roots?
- **Note differences** — When you compare your tomato plant to a healthy plant, how does yours differ?
- **Look for insects** — What insects do you see on your plants?

Identify the problem BEFORE you treat it!

General Control Methods

Crop Rotation

- Avoid planting tomatoes or other nightshades (eggplants, peppers, potatoes) in the same location more than 2 years consecutively.
- Rotating crops enhances soil fertility and helps minimize insect and disease pests

Disease Resistant Varieties

- F: Fusarium wilt
- FF: Fusarium, races 1 and 2
- N: Nematodes
- T: Tobacco mosaic virus
- TSW = Tomato Spotted Wilt
- V: Verticillium wilt

VF Resistant

Planting

- Plant deeply for more roots, better growth
- Pick off foliage on lower third before planting
- Plant up to a few inches from lowest leaves
- Give plenty of room - spacing 24-36”

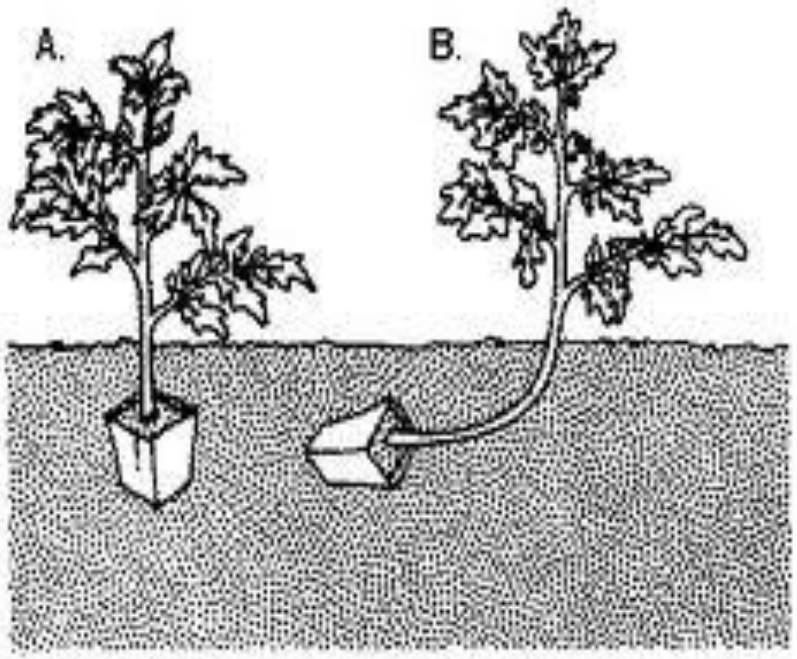


Fig. 2. Plant tomatoes slightly deeper than they were originally growing (A). If plants are leggy, set them as shown (B).

Watering

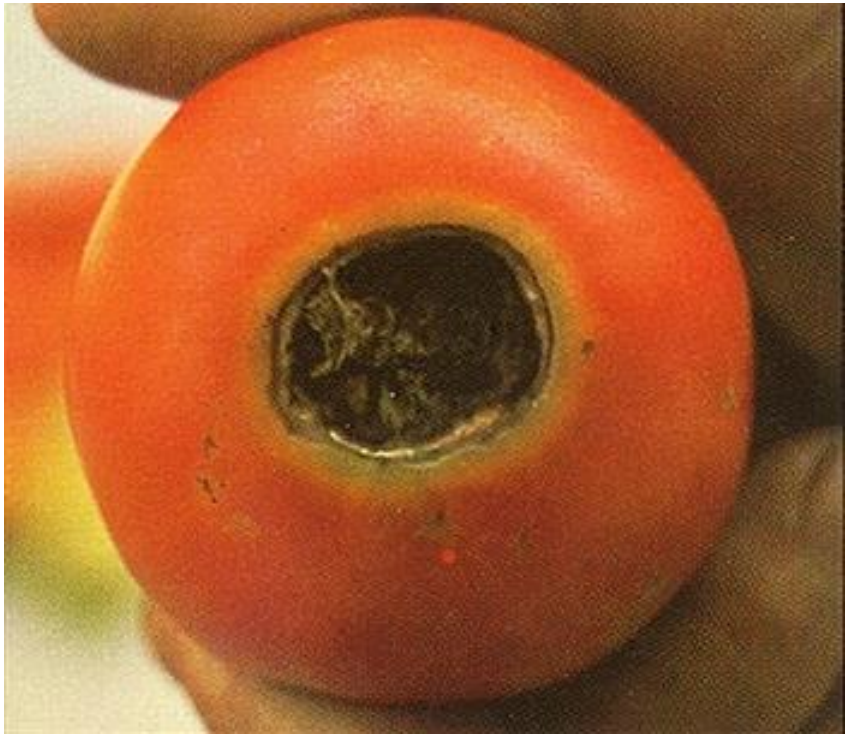
- Regular watering to maintain uniform soil moisture
- Over-watering results in tasteless fruit
- Irregular watering can result in cracking, BER
- Avoid wetting foliage - this promotes disease
- Tomatoes are deep rooted, so water deeply

NEXT UP:
ABIOTIC DISORDERS

Before we move onto the next section, do you have any questions?

Abiotic (Environmental) Disorders

- Abiotic disorders result from nonliving causes and are often due to environmental or cultural factors, or simply to the plant's genetic makeup.



Blossom End Rot (BER)

- A physiological disorder which causes a dark, sunken area on the lower (blossom) end of tomato.
- Usually an early season problem and the first fruits are most severely affected.
- Fast growing cultivars with extensive foliage and determinate cultivars, which set all their fruit in a short period, are frequently affected.

Blossom End Rot

- BER involves a low level of calcium in the fruit, not the soil (adding egg shells won't help)
- Fruits in the rapid expansion phase (⅓ to ½ of full size) are very susceptible to water stress.
- Even a temporary water stress in this period can induce blossom-end rot
  - Water preferentially goes to the leaves reducing calcium delivery to the developing fruit.

BER Prevention

- Blossom-end rot can be prevented with good soil management and careful monitoring of soil moisture so as to limit stress.
- Incorporate compost to increase soil organic matter and diminish soil moisture fluctuations
- Reduce plant stress by irrigating before periods of high heat.
- Cut off BER area and enjoy the rest of the tomato

Catfacing

- Cool and cloudy weather at bloom time cause this disorder.

- Plant tomatoes a little later in the season.
- Make sure the weather has truly warmed up enough to support proper tomato development.

Flower Drop & Failure to Set Fruit

- Night temps below 55°F
  Daytime temps above 90°F
- Excess nitrogen fertilizer
- Too much shade
- Plants set out too early in spring
- Tomatoes planted too closely together and wind can't pollinate

Flower Drop & Failure to Set Fruit

- Plant tomatoes in full sun
- Keep soil evenly moist
- Avoid excessive application of nitrogen
- Tapping on blossom stems 3 times a week at midday when flowers are open may improve pollination and help set fruit
- Plant according to spacing on the label to allow good airflow

Fruit Cracks

- Occurs during rainy periods, when rains follow long dry periods.
- Fruit exposed to the sun may also develop cracks.

- Maintain a uniform water supply
- A full leaf canopy will also help protect fruit from the sun and reduce cracking.

Leaf Roll

- Firm and leathery leaves are common symptoms
- The lowest leaves roll upward in wet spring conditions.
- The tomato plant may look wilted.
- No action is needed, it will not harm plants.
- Tomato leaf roll symptoms disappear when temperatures become warmer and soils dry out

Sunburn/Sunscald

- Sunscald causes fruit to become brown and leathery on the side exposed to the sun.
- Maintain plant vigor to give adequate leaf cover
- Avoid over-pruning
- Provide partial afternoon shade

NEXT UP:
COMMON DISEASES

Before we move onto the next section, do you have any questions?

Black Mold

- Black mold favors wet conditions and high humidity
- Avoid overhead sprinklers, watering late in the day
- Keep plants dry
- Pick fruit as soon as it ripens
- Some varieties may show resistance
- Black mold is favored by wet conditions and high humidity.

Fusarium Wilt

- Plants infected with the fungus turn yellow starting with one side or branch and gradually spreading through the plants, eventually killing them.
- Plant resistant varieties (F or FF)
- Rotate crops
- Bag up and place infected plants, including roots, in the trash.

Phytophthora Root Rot

Soil dwelling fungus that is favored by wet conditions

- Avoid prolonged saturation of the soil or standing water
- Provide good soil drainage

Tobacco Mosaic Virus

- Light green, yellow, or white mottling on leaves that may resemble symptoms of some nutrient deficiencies.
- Leaves may be stringy or distorted.
- Fruit is edible with poorer yield, size, and quality

Tobacco Mosaic Virus

- Virus is usually carried on the hands and clothing of those who use tobacco products
- No cure for viruses in infected plants
- Remove diseased plants

Shoestring leaf symptoms of tobacco mosaic virus.

Tomato Spotted Wilt Virus

Tomato spotted wilt virus is transmitted by thrips

- Control thrips with applications of insecticidal soap.
- Removing and destroying infected plants can help control the spread of virus

Verticillium Wilt

Diseased Healthy

Source: Pmocek

- Often starts as a yellowing between the major veins of the leaves & spreads to entire stems which wither & die
- Plant resistant varieties, labeled ‘V’
- If you grow susceptible varieties, remove all residue, including roots
- Practice crop rotation

NEXT UP:
COMMON PESTS

Before we move onto the next section, do you have any questions?

Cutworms

Feed on blossoms and leaves

- Young plants cut off at ground
- Holes may be chewed in young fruit
- Found on or just below the soil surface, on lower parts of plants & are active at night
- Seen mainly in the spring

- Destroy crop residues; keep garden weed-free in winter
- Hand-picking at night with a flashlight is very effective

Hornworm

- Entire leaves and small stems may be consumed
- Large pieces from green fruit may also be chewed
- Handpick or snip hornworms with shears
- Natural enemies normally keep populations under control

Photo credit: HelpfulGardener.com

Hornworm

- Tilling the soil destroys pupae in soil
- Look for frass!

Photo credit: HelpfulGardener.com

Leaffooted Bug

- Feeding on small fruit can cause the fruit to abort
- Feeding on medium-sized fruit can result in depressions or light colored pithy spots

- Remove overwintering sites (weeds)
- Handpick and crush the bugs or brush them off plants into soapy water

Nematodes

Root knot nematodes cause characteristic galls on roots which interfere with the flow of water and nutrients to the plant (nematodes are microscopic)

- Symptoms:
  - Infected plants have poor vigor, yellowed leaves, slow growth, wilt in hot weather even when soil is moist, and responds poorly to fertilizer.

Nematodes

- Practice good sanitation and plant resistant varieties
- Reduce existing infestations through fallowing (not planting anything), crop rotation, soil solarization

Snails & Slugs

- Chew irregular holes with smooth edges in leaves and flowers
- They also can chew fruit

- Eliminate/reduce hiding places
- Handpicking can be very effective
- There are many ways to trap snails
- Baits can be effective when used properly in conjunction with a cultural program

Stink Bugs

- Two of the most common pests in California gardens are the consperse stink bug and the harlequin bug

Harlequin bug

Consperse stink bug

Stink Bugs

- On green fruit, damage appears as dark pinpricks, surrounded by a light discolored area that turns yellow or remains light green on ripe fruit
- Areas beneath spots on tomatoes become white and pithy but remain firm as the fruit ripens.

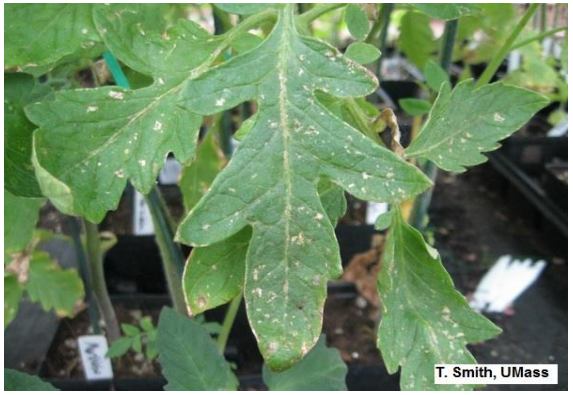
Stink Bugs

- Handpick bugs or their eggs
- Eliminate groundcovers & weeds in early spring before populations build up
- Insecticides are not recommended in gardens for stink bugs

Eggs and nymphs of stink bug

Thrips

- Stunt plant growth, damaged leaves become papery and distorted, develop tiny pale spots (stippling), & drop prematurely
- Western flower thrips carries Tomato spotted wilt virus



Thrips

- Many beneficial insects are predators
- Prune and destroy injured and infested vines
- Row covers, hot caps, and other types of cages with a fine mesh can exclude thrips

Tomato fruitworm aka corn earworm

- Common caterpillar pest
- Destroy seedlings, make deep watery cavities in fruit, and leave frass

- Handpick
- Avoid insecticides
- Bacillus thuringiensis is a biological control that may kill 40 to 60% of them
  - if applied just after eggs hatch and before caterpillars enter fruit

Tomato Pinworm

- Pinworms cause leaf mines and folded shelters on leaves.
- They bore into fruit at the stem ends, creating narrow, blackened tunnels.
- Tomato pinworms are difficult to control with insecticides, and natural enemies are not effective.
- Disc all plants immediately after harvest.

Whiteflies

- Whiteflies suck sap from plant stems and leaves
- Leaves turn yellow, appear dry, or fall off
- Excrete honeydew, leaves can have sooty mold
- Whiteflies have many natural enemies

Whiteflies

- Remove heavily infested leaves and plants
- Yellow sticky traps can be posted around the garden to trap adults
- Whiteflies can be difficult to control with insecticides
- Control dust and ants
- Reflective mulch may help

Don’t Forget About…

- Rats, rabbits, birds, opossums and other critters like to nibble on tomatoes

- Herbicide drift can also cause damage to tomato plants.

Tomato Resources on UC IPM Site

How to Manage Pests

Pests in Gardens and Landscapes

More vegetables

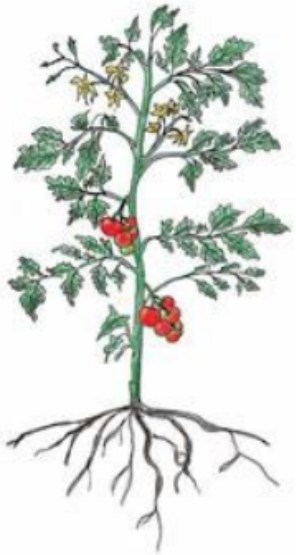
Tomatoes

Cultural tips

- Fertilizing
- Harvesting and storage
- Planting
- Pruning
- Site selection
- Soil improvement
- Soil preparation
- Soil recommendations
- Time to plant
- Watering

Pests and disorders of Tomatoes

Invertebrates	Diseases
• Aphids	• Black mold
• Armyworms	• Curly top virus
• Buffalo treehopper	• Damping off
• Cutworms	• Early blight
• Flea beetles	• Fusarium wilt
• Hornworms	• Late blight
• Leaffooted bug	• Phytophthora root rot
• Leafminers	• Powdery mildew



http://ipm.ucanr.edu/PMG/GARDEN/VEGES/tomato.html

Have More Gardening Questions?

- Contact Us! Call us at 209-953-6112

  or email us at anrmgsanjoaquin@ucanr.edu
- During the shelter in place restrictions, we are checking messages remotely and are unable to take samples at this time.