Homegrown Tomato Troubleshooting

Faye Kuosman
Extension Agent for Horticulture, Woodford County
Site Requirement

• Warm season crop – plant after frost
• Full sun location for best fruit set
• Well-draining soil
• Soil pH of 6.2-6.8
• Not in a location where tomatoes or related plants were grown last year
• Avoid black walnut trees - juglone
General Pest Control Practices

• Sanitation
• Appropriate Plant Spacing
• Crop Rotation/Cover Crops
• Mulching & Watering Practices
• Minimize Plant Stress
• Regular Scouting!
Planting

• Spacing: 1 ½ to 2 feet apart – small bush types
• Larger plants – 3 to 4 feet unstaked
• Staked plants – 2 feet apart
• Caged plants – 30 to 36 inches
• Between rows – 4 feet
Disease Resistance

• When selecting, look for cultivars with disease resistance:

  V = Verticillium wilt

  F = Fusarium wilt

  N = Nematodes
Disease Resistant Example

• **Tomato Better Boy Hybrid**  
* *Lycopersicum Better Boy Hybrid*

Indeterminate vines just keep producing!

• **Big Yields of Big Fruits -- The Classic Favorite!**  
*Fruits weigh in at 10 ounces or more, crammed with flavor.*

• 70 days from setting out transplants. Indeterminate. A trusted favorite for many years, Better Boy is a great performer with big hybrid-quality yields of succulent, juicy yet meaty tomatoes. A good all-around choice, the plants are resistant to **Verticillium Wilt**, **Fusarium Wilt Race 1**, and **Nematodes**.

• Start seeds indoors 5 to 6 weeks before the last frost date. Plant outdoors when danger of frost is past and night temperatures consistently remain above 55 degrees F. If an unexpected late frost is forecasted, protect young plants with plastic sheeting or other cover. Set plants 2 to 2 1/2 feet apart. Pkt is 30 seeds.
Training

Caging:

• Supports all sides
• No suckers removed
• Fewer cracks, sunburn
• Fewer green shoulders
• Lots of sizes or make your own
Cages
Training

Staking:

• Keeps plants off ground
• Requires stakes, twine
• Periodically tied up further on stake and twine
• Desuckered plants produce fewer, larger fruits
Fertilizing

- When first fruits reach golf ball size
- Repeat 2 weeks after
- Again one month later

1.5 pounds of ammonium sulfate (21-0-0) per 100 feet of row
  OR
0.5 pounds of urea (46-0-0) per 100 feet of row
  OR
3 pounds of Blood Meal (12-0-0) per 100 feet of row
- General rate for sidedressing is 10 Tbs of nitrogen fertilizer per 10 foot row
Watering

• Need 1 to 1 ½ inches of water per week
• Do not use overhead sprinklers – more disease issues
Mulching

• Prevents weed germination
• Moderates extremes in soil moisture
• Moderates soil temperature
• Aids in disease control by reducing splashing water
Weed Control

• Weeds greatly reduce total production
• Compete for water, nutrients, sun, space
• Harbor disease and insect pests
• Prevent weed seed-set
• Avoid un-composted manure
• Keep borders clean
• Avoid infested soils
Environmental & Physiological
Physiological Leaf Curl

- Leaves curl when the weather changes from cool and moist to hot and dry
- Can also be from excessive moisture and nitrogen, heat, drought, severe pruning, and or root damage
- The plants will be fine in a few days
2,4-D Herbicide Injury

- Leaves are cupped, thickened or leathery, and develop an uncharacteristic fan shape
- Plants will overcome moderate damage
- Poor production is likely
- 2,4-D can spread on the wind for a few miles
Environmental Stress Disorders

Blossom-end Rot

- Dry, black, leathery scar at end opposite stem
- Calcium deficiency from extremes in soil water
- Most serious when hot, dry
- Mulch and irrigate
- Prevent by proper watering practices
- Some varieties are very susceptible
Fruit cracking

- Occurs during rainy hot weather above 90 degrees
- Occurs after long dry periods then rain
- Radial cracks form
- Some varieties are more crack resistant
Environmental Stress Disorders

Sunscald

- First as white, yellow patch
- Patch blisters, dries
- From poor foliage cover from disease or pruning
Environmental Stress Disorders

Blotchy ripening

- Uneven color develops from cool temps, root stress
- low potassium
Environmental Stress Disorders

Poor fruit set

Caused by:

- temperature extremes
- dry soil
- shade
- excessive nitrogen applications
Diseases
Diseases

Early Blight:

- Leaves with dark brown spots with concentric rings
- Begins on lower foliage and moves up
- Favored by wet, warm weather
- Leaves shrivel and die
- Plants defoliate leaving poor fruit set, sun-scalded fruit
Early Blight Control

• Maintain proper fertility
• Caging or staking, mulching, and rotation will help prevent the disease
• Spray foliage at first sign of disease with: chlorothalonil, maneb, mancozeb, fixed copper
• Apply fungicide weekly as needed
• Make second planting in midsummer
• Buy resistant varieties when possible
Septoria Leaf Spot

- Tiny black spots on lower leaves
- Leaves yellow and die from the bottom up
- Favored by warm, wet weather
- Caging or staking, mulching, and rotation will help prevent the disease.
- Preventative fungicides: Chlorothalonil, maneb, mancozeb, or fixed coppers
Late Blight

- Fruit develops dark brown or greenish blemishes
- Blemishes present on stems
- Found in cool, wet weather
- Dead areas on leaves with mold undersides
Late Blight Control

- Maintain proper fertility
- Spray foliage at first sign of disease with: chlorothalonil, maneb, mancozeb, fixed copper
- Apply fungicide weekly as needed
- Use disease-free transplants
- Control late blight in potatoes
Fusarium and Verticillium Wilt

• Leaves wilt, turn yellow and fall, often on one side of plant then other
• Inner vascular tissue is dark, brown
• Verticillium when cool
• Fusarium when warm

Verticillium Wilt  Fusarium Wilt
Fusarium, Verticillium Control

• Use varieties labeled as resistant with “V” or “F”
• Use crop rotation practices, especially if you have had a previous problem
Viruses

• Distorted leaves
• Mottled leaves
• Distorted or discolored fruit
• Stunting or strange growth
• REMOVE infected plants
• PREVENTION is the cure
Insects
Spider mites

• Suck the juices out of plant leaves
• Stippled appearance
• Horticultural oils and insecticidal soaps
• Hard stream of water
Aphids

- More common in the early summer
- Damage plants by sucking juices
- Most common garden insect
- Insecticidal soap, Neem, Malathion, Pyrethrin
Flea Beetles

• Tiny black beetles
• Very small holes in the leaves in the early spring
• Tomatoes usually outgrow damage
• Controlled with neem oil, spinosad, or permethrin
Blister Beetles

• Very destructive
• Chewing insects
• Adult stage is damaging
• Eat grasshopper eggs!
• Handpicking (be careful – use gloves) Pyrethrin, spinosad, cyfluthrin, permethrin
Tomato Hornworm

- Large, 4” worms with horn on end
- Eat foliage, fruit
- Use handpicking or Bt
Stink bugs

• Suck juice from plant and cause white spots to develop just below fruit skin
• Cyfluthrin, insecticidal soap, neem, pyrethrum (all of these are best on young nymphs)
Cutworms

- Cut off plant close to soil in early season
- Use a cardboard collar at planting
- Later season cutworms can eat leaves.
Root Knot Nematodes

- Microscopic worms
- Causes plants to be stunted, yellow, wilt
- Feed on plant roots
- Use resistant varieties noted by “N” on tag
Resources

• General Use Insecticides for Home Gardening  
  https://entomology.ca.uky.edu/files/ef445.pdf
• Home Vegetable Gardening in Kentucky  
  http://www2.ca.uky.edu/agcomm/pubs/id/id128/id128.pdf
• Vegetable Insect Pest Calendar for Kentucky  
  https://entomology.ca.uky.edu/vegetable-calendar
• An IPM Scouting Guide for Natural Enemies of Vegetable Pests in Kentucky  
  http://www2.ca.uky.edu/agcomm/pubs/ent/ent67/ent67.pdf
• The Solanaceous Scouting Guide  
  http://www2.ca.uky.edu/agcomm/pubs/id/id172/id172.pdf
• Additional Scouting Guides  
  http://veggiescout.ca.uky.edu/
• Sustainable Disease Management of Solanaceous Crops in the Home Garden  
• Missouri Botanical Garden page for a visual guide to problems of tomato fruit  
Questions?

Faye Kuosman
faye.kuosman@uky.edu