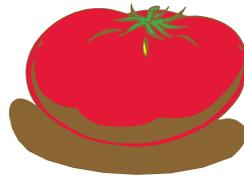


Commercial Production of Staked Tomatoes in the Southeast



APPENDIX

Gallery of Tomato Diseases, Insects, and Physiological Disorders



Figure A-1. Root knot nematode

Swellings, or galls, on tomato roots caused by root knot nematode feeding.



Figure A-2. Fusarium wilt

Symptoms of Fusarium wilt include yellowing of the entire plant.



Figure A-3. Bacterial wilt

Symptoms of bacterial wilt include a sudden and permanent wilt.



Figure A-4. *Verticillium dahliae*

'V'-shaped lesions often appear on leaf margins of plants infected with *Verticillium dahliae*.



Figure A-5. Southern blight

Symptoms of Southern blight include fuzzy white growth on the stem of the plant near the soil line; small white to tan circular structures will often form on this fuzzy growth.



Figure A-6. Walnut wilt
Walnut wilt is characterized by very rapid wilting of plants in a localized pattern, usually in areas close to the border of the field near walnut trees.



Figure A-7. Early blight
Early blight leaf lesions are dark-brown to black leathery-looking spots, often appearing with concentric rings.



Figure A-8. Gray mold
Gray mold is characterized by a dark-brown to gray fungal growth on blighted petioles and leaves.



Figure A-9. Late blight
Late blight is characterized by greenish-brown, water-soaked lesions with a white, downy fungal growth on the undersides of leaves.



Figure A-10. Septoria leaf spot
Septoria leaf spot causes small (about 1/8-inch in diameter) water-soaked, circular spots that typically have dark margins with gray centers.



Figure A-11. Bacterial canker
Symptoms of bacterial canker include small tan spots on leaves, petioles, and pedicels, and brown-black discoloration along edges of leaflets.



Figure A-12. Bacterial spot

Bacterial spot lesions on tomato leaflets are small brown spots about 1/8-inch in diameter, with or without yellow halos; lesions can enlarge and destroy the entire leaf. Stems, petioles, peduncles, pedicels, and sepals can also develop spots. On tomato fruit, bacterial spot causes irregular, light-brown, slightly sunken spots with a rough, scabby surface.



Figure A-13. Bacterial speck

Typical bacterial speck lesions on tomato leaflets look very similar to those of bacterial spot, although spot lesions tend to have a greasy appearance, whereas those of speck do not.



Figure A-14. TSWV

An internal spotting or purpling of leaf tissue (spotted wilt) occurs frequently on tomato foliage infected with TSWV.



Figure A-15. TSWV

Plants infected with TSWV are often severely stunted.



Figure A-16. TEV

Leaflets of plants infected with TEV may show crinkling, distortion, and reduction in size.



Figure A-17. Tomato fruitworm

The tomato fruitworm (adults shown here) is the most common direct pest of field-grown tomatoes in the Southeast.



Figure A-20. Stink bug

Adult stink bugs feeding on developing fruit.



Figure A-18. Tomato fruitworm

Tomato fruitworm moths deposit eggs on tomato foliage.



Figure A-21. Stink bug blemishes

Stink bugs feed on developing fruit with their piercing mouthparts, causing discolored blemishes that render fruit unmarketable.



Figure A-19. Tomato fruitworm

Tomato fruitworm larvae boring into fruit.



Figure A-22. Thrips

Thrips damage is expressed as small dimples in mature tomato fruit. The dimples are sometimes surrounded by a halo.



Figure A-23. Tobacco thrips
The tobacco thrips (*F. fusca*) can transmit TSWV.



Figure A-24. Western flower thrips
The western flower thrips can also transmit TSWV.



Figure A-25. Spider mite
Spider mite webbing on tomato leaves.



Figure A-26. Whiteflies
Whiteflies feeding on leaves.



Figure A-27. Beet armyworm
Larva of the beet armyworm.



Figure A-28. Potato aphid
The potato aphid is the most common aphid that infests tomatoes in the Southeast.



Figure A-29. Green peach aphid
The green peach aphid.



Figure A-32. Tobacco hornworm
Defoliation caused by hornworm feeding.



Figure A-30. Flea beetle
Flea beetle infestations are most common within 3 weeks after transplanting, when adult beetles feed on foliage, leaving small round holes in the leaves.



Figure A-33. Colorado potato beetle
The Colorado potato beetle can be a problem in eastern North Carolina where populations infesting potato have developed resistance to insecticides.



Figure A-31. Tobacco hornworm
Tobacco hornworm feeding on tomato foliage.



Figure A-34. Sencor damage
Sencor damage is very distinctive on tomato foliage. This damage occurred when Sencor-treated soil was mounded around a tomato stem.



Figure A-35. Herbicide damage

Damage on seedling due to herbicide residue left on the plastic and then washed into hole after a rain event.



Figure A-36. Blossom-end rot

Blossom-end rot is characterized by a large, leathery brown or black spot typically on the bottom or 'blossom end' of the fruit.



Figure A-37. Radial cracking

Radial cracking on green fruit fully exposed to the sun.



Figure A-38. Motorized harvesting

A motorized harvesting aid carrying pickers.



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