Identifying and Managing Plant Disorders in Greenhouses Production

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Tennessee State University

- College of Agriculture, Human and Natural Sciences
  - Otis L. Floyd Nursery Research Center
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- **Provide Education to Our Wholesale Nursery Producers in Middle Tennessee**
  - Site Visits
  - Disseminate New Research
  - Fact Sheets / Newsletters / Publications / Magazine Articles (Writing is Important)
  - Assist With Other Research Projects

Insect Pests in Greenhouse and Garden Environments

- Insect problems can arise very quickly in a greenhouse environment.
  - Ideal environment
  - No natural predators

http://en.wikipedia

Aphids


S.Bambara

theaphidroom.wordpress.com

Google this phrase:

"Commercial Insect and Mite Control for Trees, Shrubs and Flowers"

Commercial Insect and Mite Control for Trees, Shrubs and Flowers

Frank A. Hale, Professor
Entomology and Plant Pathology

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Credit: This publication was adapted from "Insect and Mite Control on Woody Ornamentals and Herbaceous Perennials," Bulletin 504, an Ohio State University Extension publication authored by D.J. Shetlar, Department of Entomology, The Ohio State University, Columbus OH; "Insect Control for Shade Trees," EC 851, and "Insect Control for Shrubs," EC 780, authored by H.E. Williams, Professor Emeritus, Entomology and Plant Pathology, Agricultural Extension Service, The University of Tennessee.

Table 2. Insect and Mite Control Recommendations for Flowers

Listed Insecticides can be easily measured and/or mixed in amounts sufficient to treat small to medium size areas

Pest	Insecticide Formulations	Amount to use per gallon	Precautions and Remarks
ANTS	Malathion 57% EC	2 tsp	Locate nests or trails. Apply as a localized treatment to nesting area. A general area treatment may be necessary. Slow acting insecticide baits are recommended for certain ants including imported fire ants. See Commercial Turfgrass Insect Control, PB 1342.
APHIDS	Malathion 57% EC	2 tsp	Repeat applications are usually needed. Malathion is ineffective during cool, wet weather. Use Orthene with caution on Gloxinia, Philodendron and Salvia when repeated applications are needed. Dimethoate should not be applied to chrysanthemums or any other plant not on the label. Dimethoate is for commercial ornamental (nursery) use. Dimethoate for use on poinsettia, roses, iris, honeysuckle, gladiolus, gardenias, gerberas, carnations, daylilies, azaleas and camellias.
	Orthene 9.4% EC	2 Tbs	
	Dimethoate 400 4 lb/gal EC	See label	
	horticultural oil (SunSpray Ultra-Fine Spray Oil)	2.5-5 Tbs	
	Marathon 60% WP	see label	
	Marathon II	see label	
	Merit 75% WP	0.25 tsp/2.5 gal	
	Merit 2 lb/gal F	0.46-0.6 fl oz per 1000 sq ft	
	Discus	see label	
	Safer Insecticidal Soap	5 Tbs	
	Bayer Advanced 2-in-1 Systemic Rose & Flower Care 1%G	see label	
ARMYWORMS	Sevin 80% WP	2 1/2 Tbs/3 gal for each 100 sq ft	Sevin injures Boston Ivy, Virginia creeper and maidenhair ferns.

Canna Leaf Roller

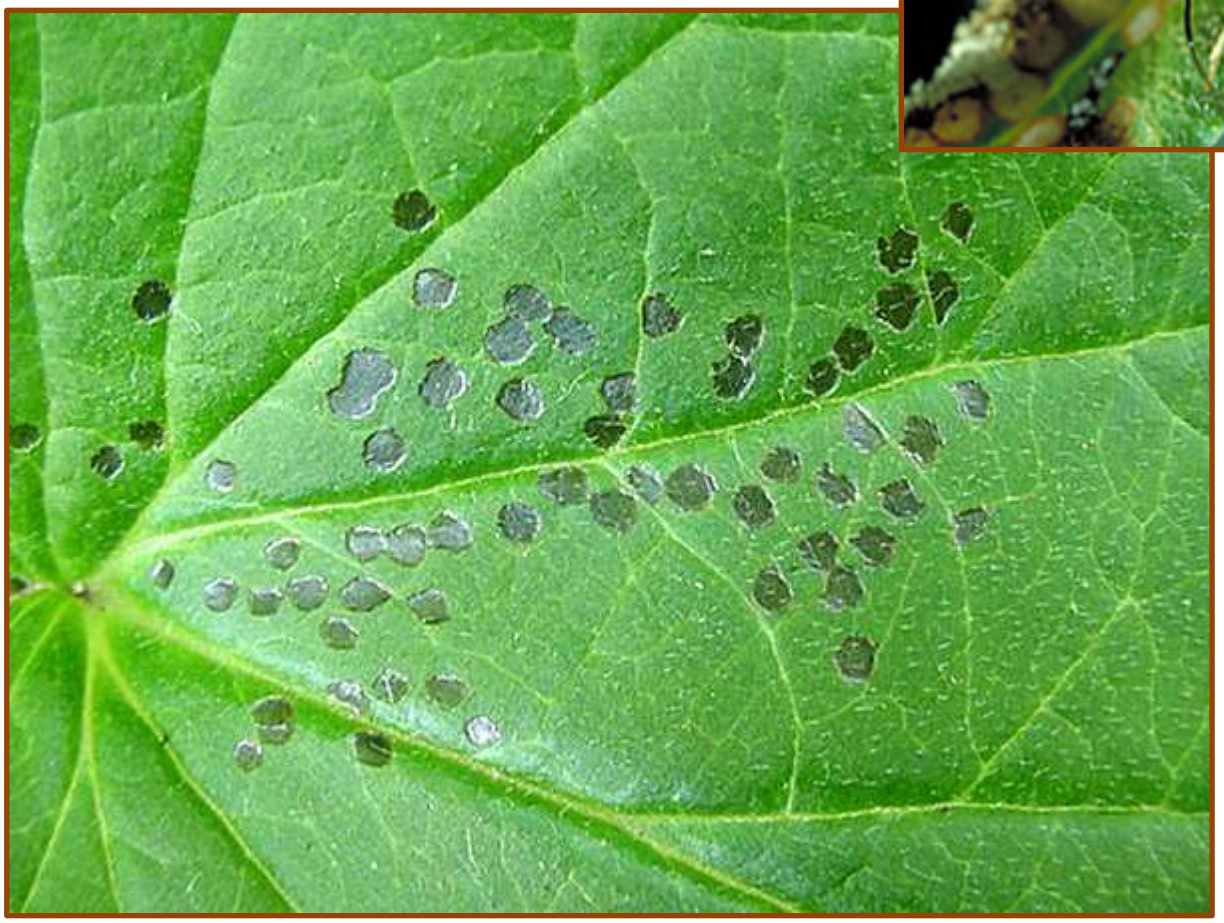
Leafhoppers


http://plant-pest-advisory.rutgers.edu/been-burned-by-leafhoppers/

Leafminers

http://lpm.uga.edu/ornamentals/hollyleafminer.html

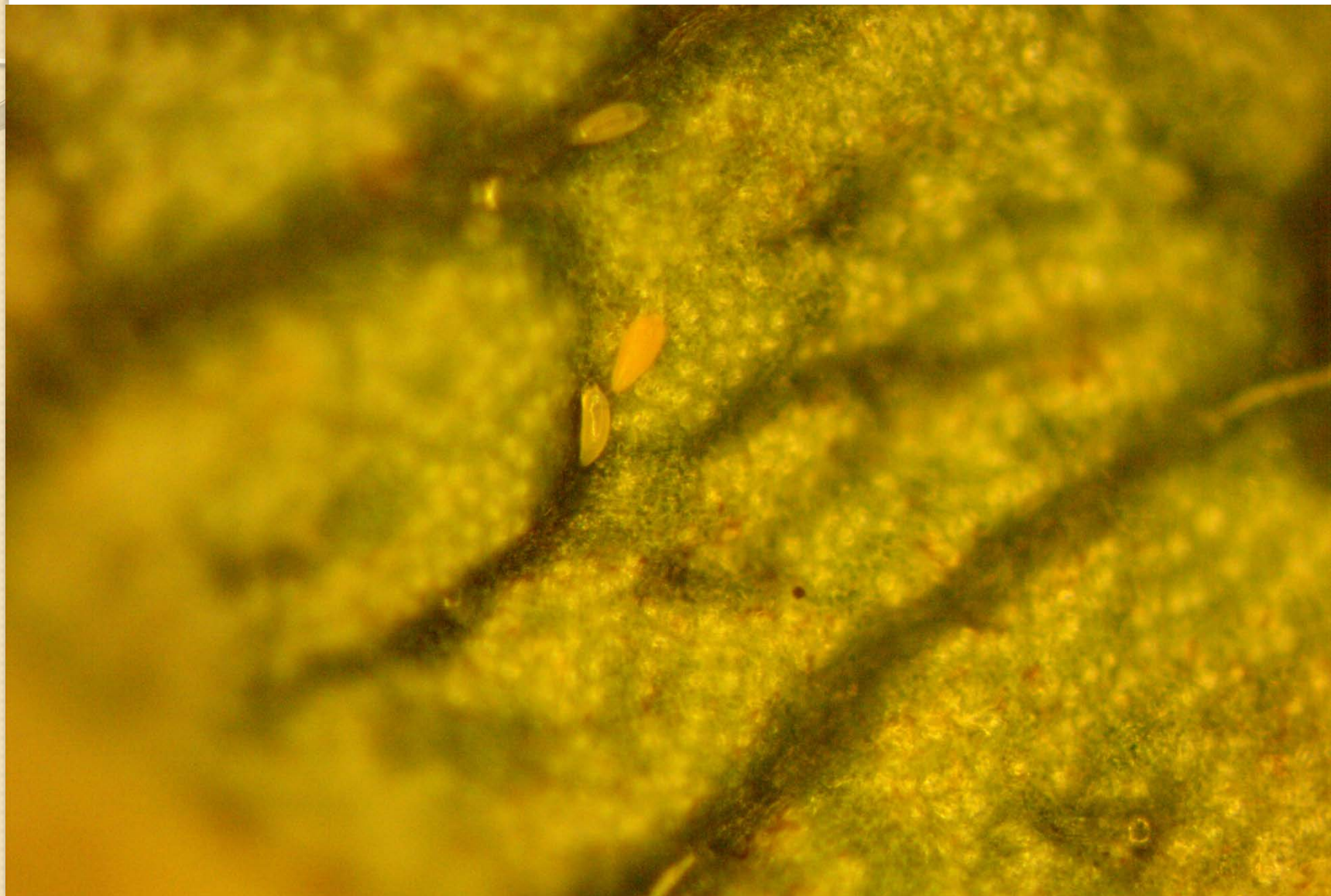
Plant Bugs



http://entomology.osu.edu/bugdoc/Shetlar/factsheet/ornamental/FSplantbugPerennials.htm

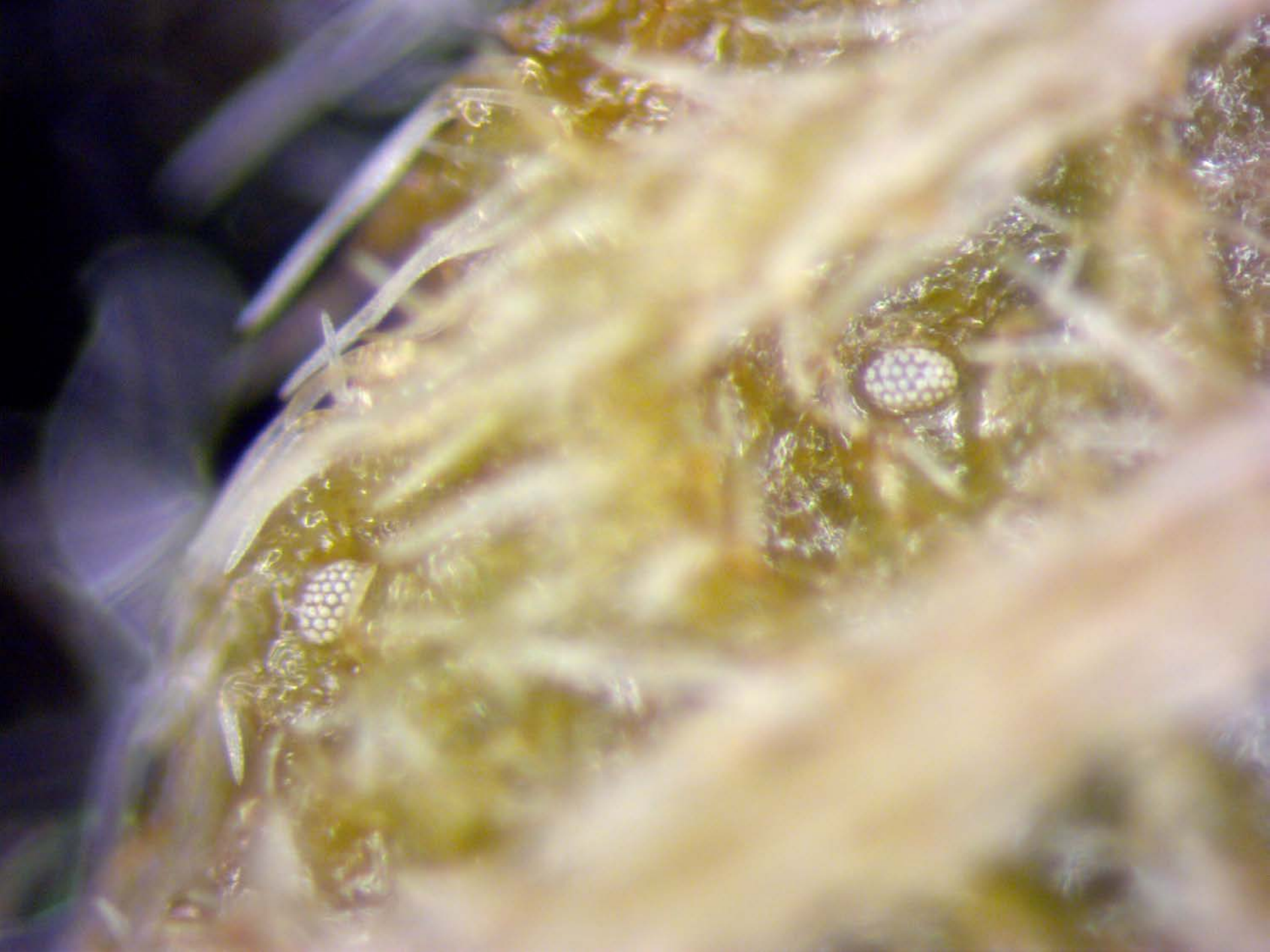
Spider Mites

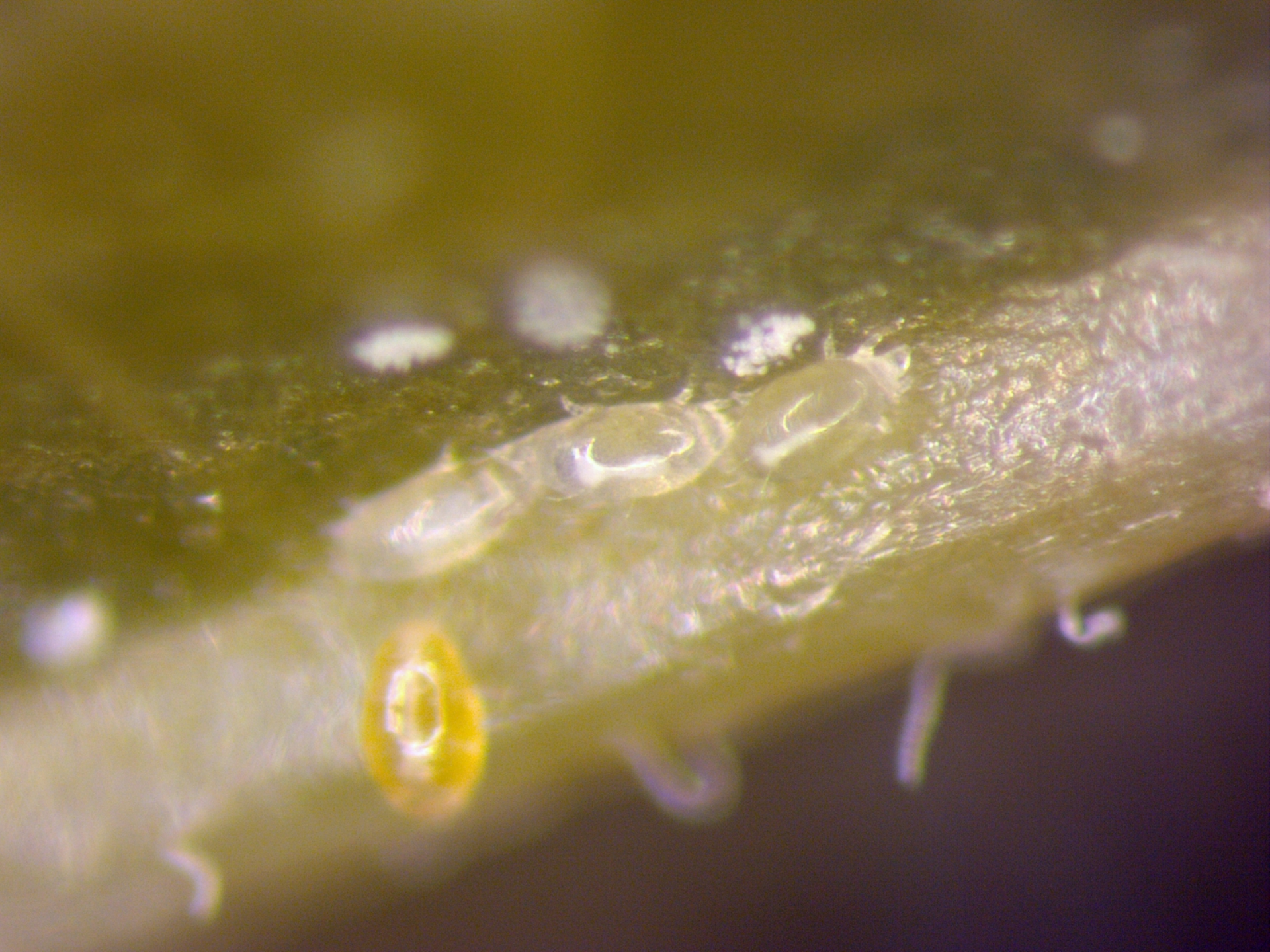
Eriophyid Mites



Rose Rosette Virus (vectored by eriophyid mites)

Broad Mites

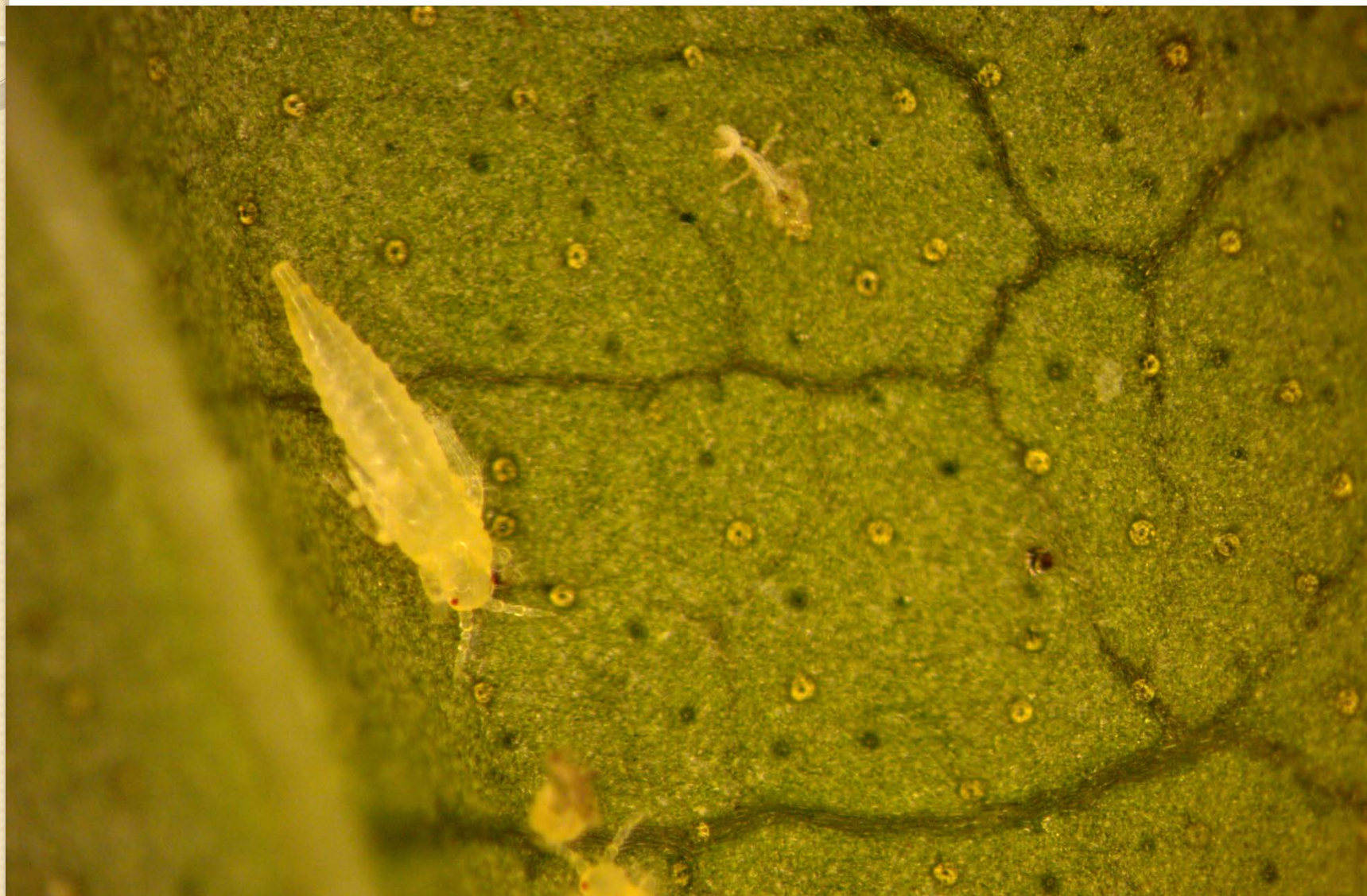




Scale Insects

Mealybugs

Thrips



oregonstate.edu

Whiteflies

en.wikipedia.org

Diseases in Greenhouse and Garden Environments

Diseases in Greenhouse and Garden Environments

- Fungi

Diseases in Greenhouse and Garden Environments

- Fungi
- Bacteria

Diseases in Greenhouse and Garden Environments

- Fungi
- Bacteria
- Viruses

Diseases in Greenhouse and Garden Environments

- Fungi
- Bacteria
- Viruses
- Very few plant diseases are "curable"
  - Plant diseases are best controlled through prevention:
    - Sterilize pruners, improve air flow, don't use dirty containers, irrigate in the morning, etc.

Fungal Diseases

Canker

Nectria Canker

Botryosphaeria (Bot) Canker

Anthracnose

Downy Mildew

Powdery Mildew

Leaf Spots

Tar Spot

Cercospora Leaf Spot

Rust Diseases

Daylily Rust

Summer

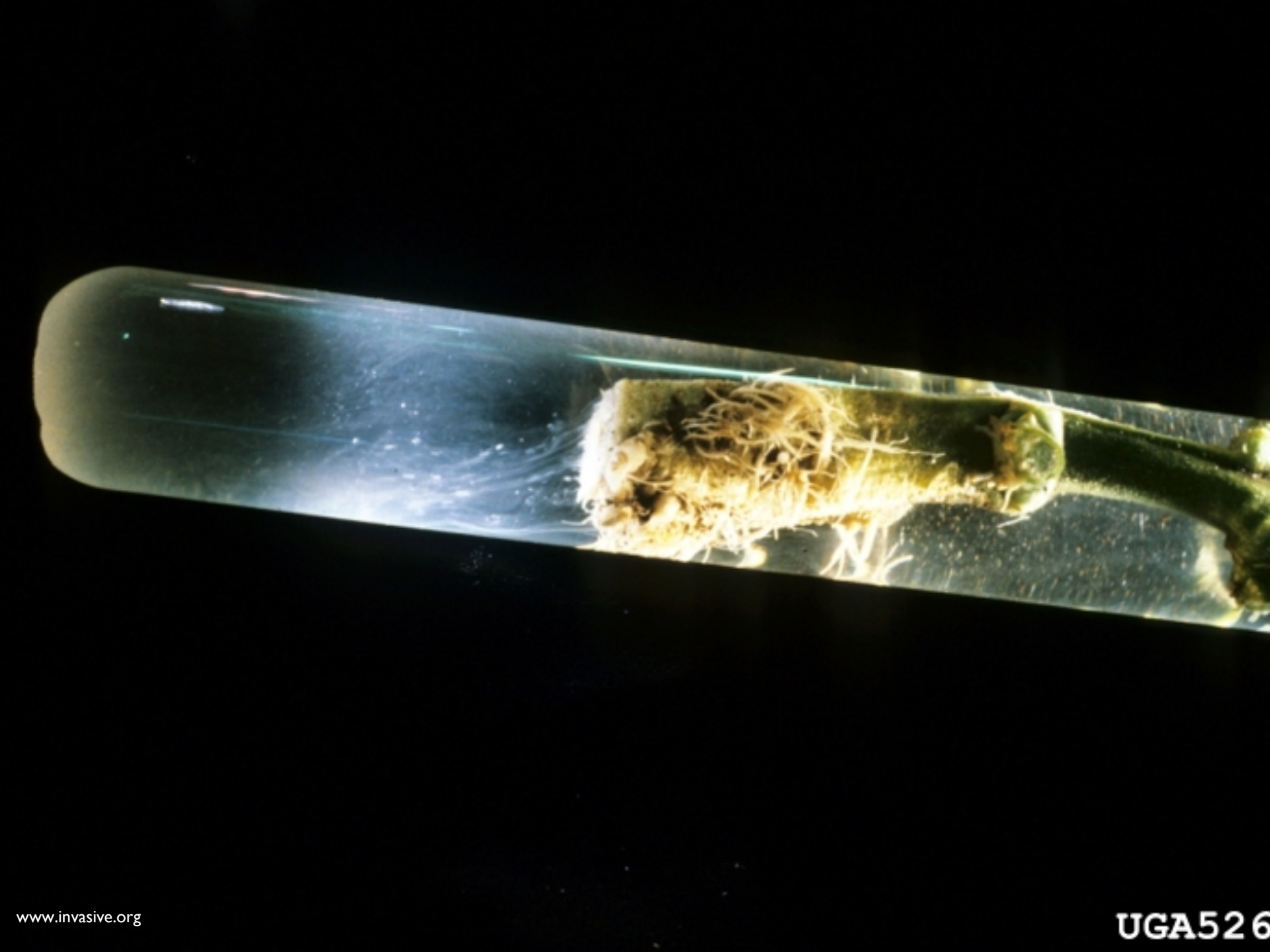
Winter

Early Spring

Spring

Late Spring

Bacterial Wilt



Gall

Phytopthothora Root Rot

Rose Rosette Virus

Squash Mosaic Virus

Abiotic Plant Disorders (Non-living)

Circling Roots

Grafting Incompatibility

Herbicide Damage

Round-Up

2,4-D

Insecticide Phytotoxicity

Nutrient Disorders

Other Plant Abnormalities

- Genetic Mutations
  - Variegation
  - Dwarfs
  - Weeping
  - Columnar
  - Sterility

Variegation

Dwarfs

Weeping

Columnar

Thanks!

- http://www.tnstate.edu/faculty/ablalock/
  - Or just Google "Adam Blalock Tennessee State University"
- Facebook @ TSU Nursery Research Center

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