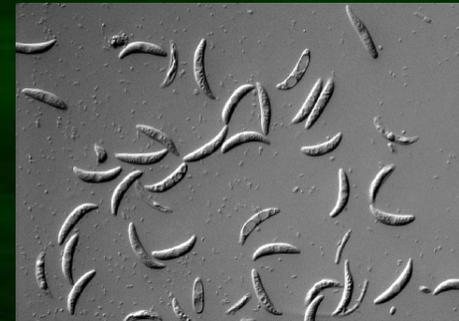
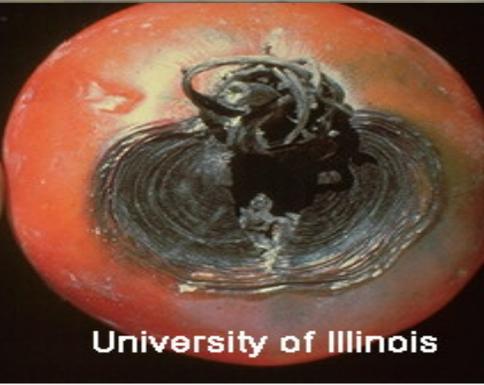
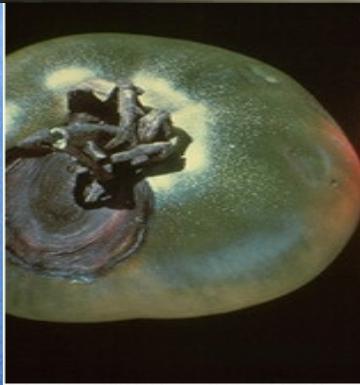




DISEASES ON VEGETABLES, ORNAMENTALS AND TURF 2010

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Early Blight - Fruit Symptoms

Early Blight of Tomato

Alternaria solani

Dark Foliar lesion



Concentric rings, yellow halos

Starts in lower leaves and moves upward

Defoliation



Control

Avoid excessive moisture on leaves

Mulching, resistant varieties

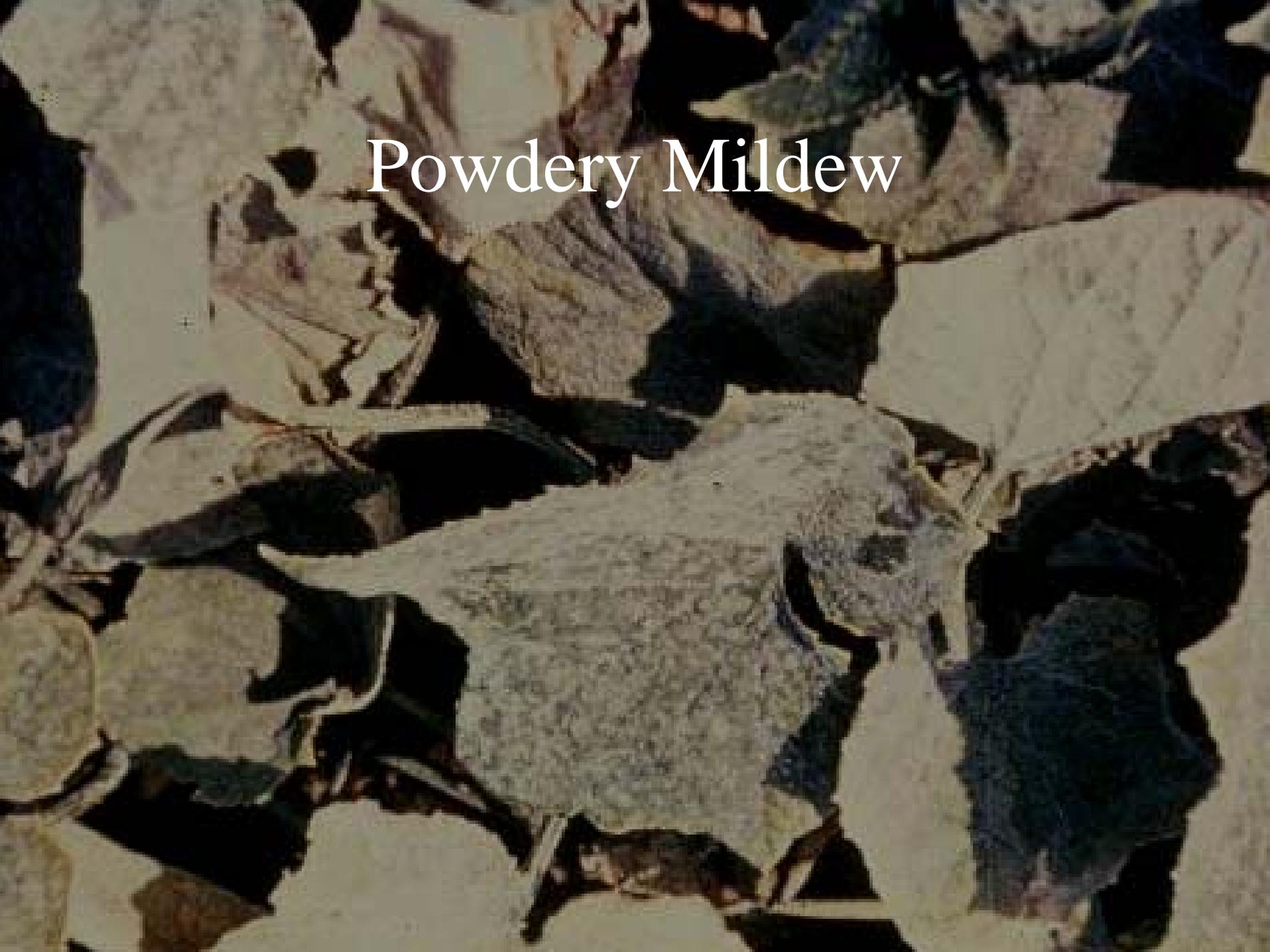
Sanitation, crop rotation

Fungicides

Bean Rust



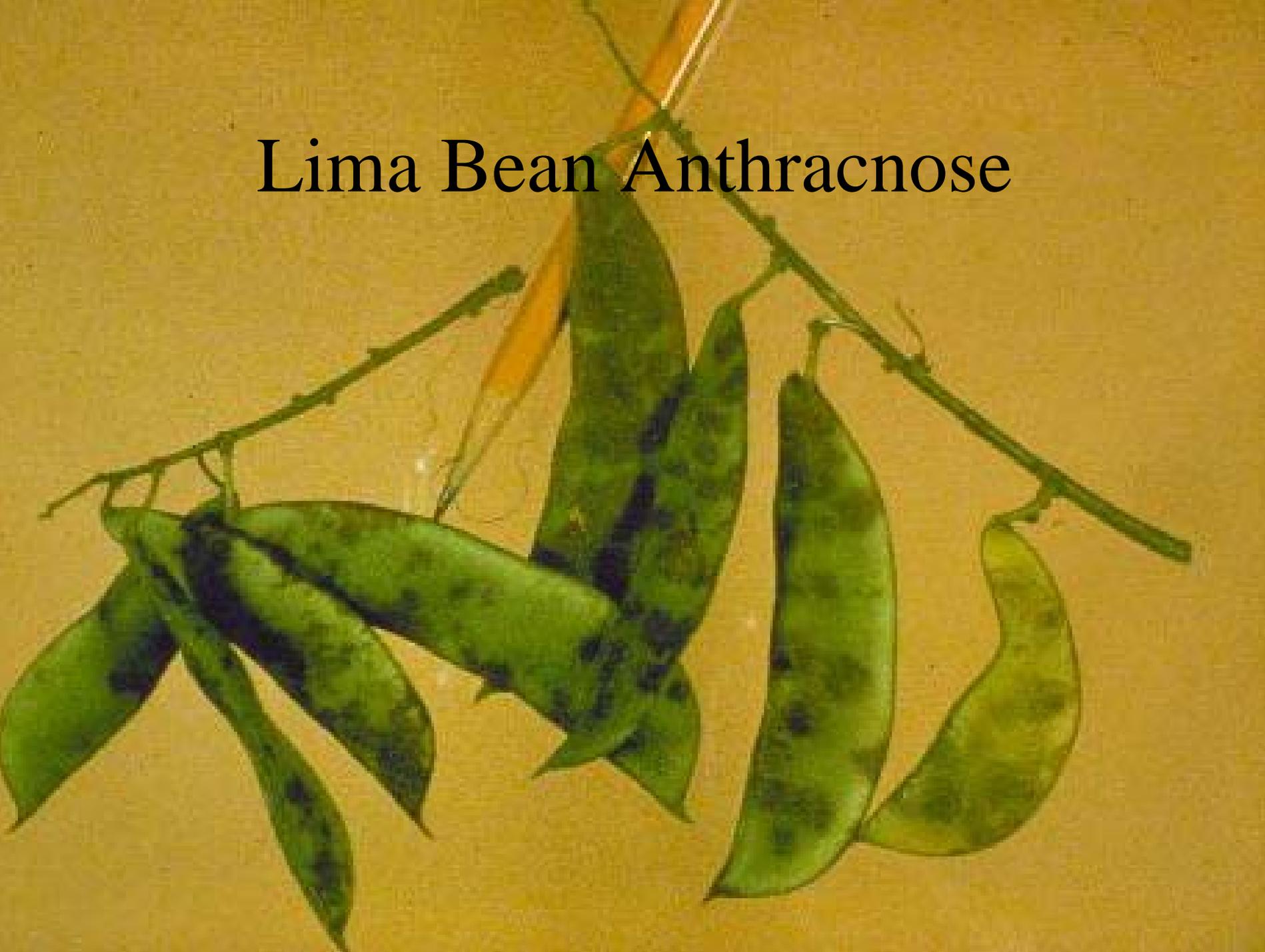
Powdery Mildew



Anthracnose



Lima Bean Anthracnose



Tomato Spotted Wilt Virus



Wide host range (Tomatoes, potatoes, lettuce, peppers, Eggplants, peas, spinach, squash etc)

Dark Brown streaks in the main stem

Young foliage show inward cupping, off color leaves

Characteristic yellow concentric rings

Yellowing

Wilting

Caused by Thrips (insects)



Control

Nothing you can do once plants are infected

Remove infected plants

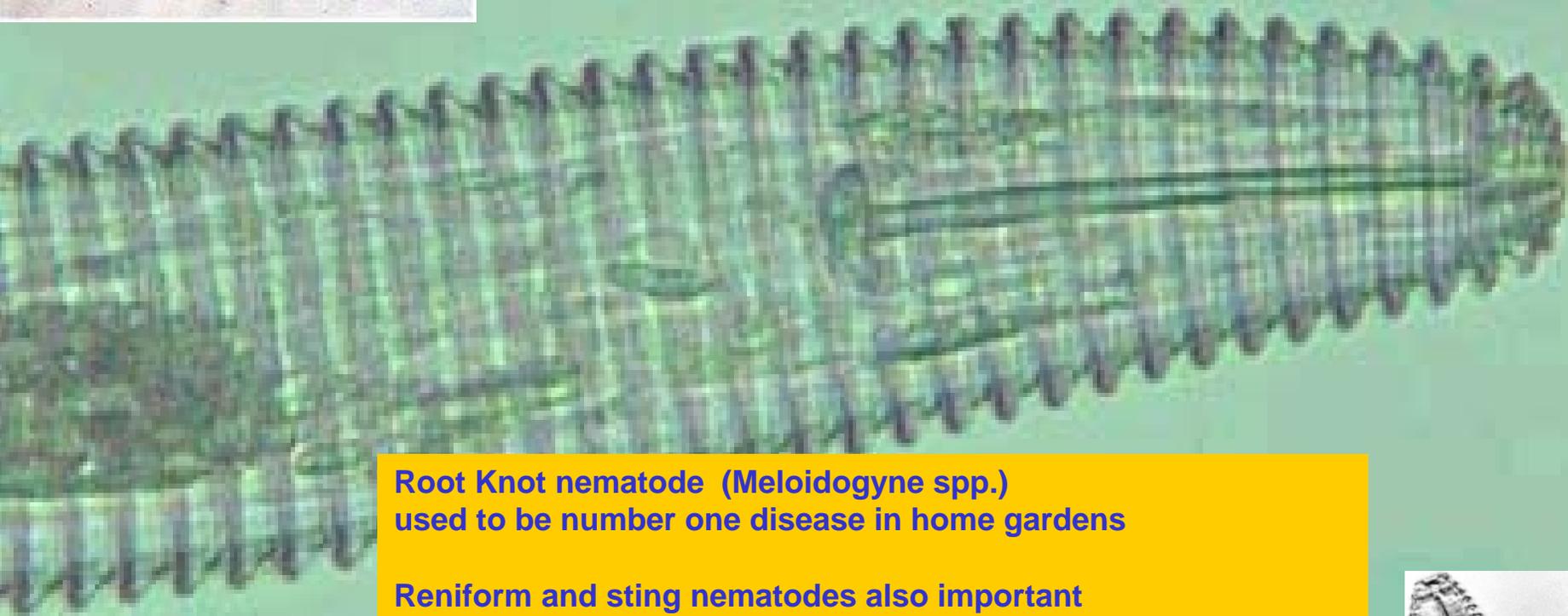
Sanitation=remove infected debris

Pull weeds

Control insects

Sanitize hands after handling infected plants
To avoid infecting healthy plants

Diseases caused by Nematodes on Vegetables

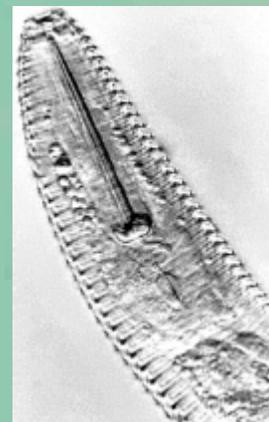


**Root Knot nematode (*Meloidogyne* spp.)
used to be number one disease in home gardens**

Reniform and sting nematodes also important

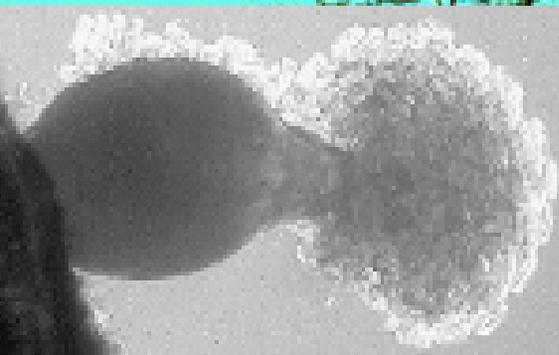
**Diagnosis; Observe the root system-knots and
Short roots. Yellowing, stunted growth, thin,**

**Soil test for nematodes. Take random samples
Collect and mix thoroughly. Send sample
Immediately. April-September (avoid cold months)**





second-stage
Root Knot juvenile



Control

No Chemical control available

Avoid plant stress: Drought, fertility

Water deeply and infrequently increases root growth

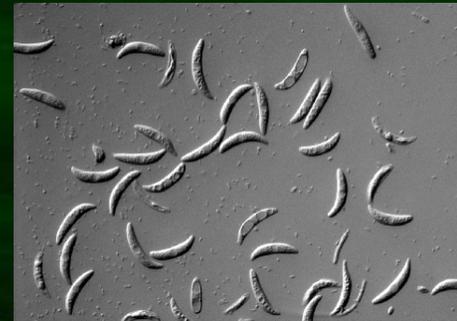
Avoid excessive nitrogen fertilization

Avoid soil compaction

Soil amendments



DISEASES ON ORNAMENTALS



Root rots

Pythium
Phytophthora
Rhizoctonia

All year around

Peak in March-June and August-October



Symptoms

Affects most herbaceous
ornamental plants

Plants wilt, yellow foliage
Roots are light to dark brown
and soft outer root cortex
sloughs-off leaving the thread-
like inner root

Root stele visible are dark
brown or black

Causes damping-off



Control

Infection is favored by wet soils and high soluble salts

Improve soil structure and drainage

Avoid planting too deeply

Remove infected plants from the area

Avoid plant stress

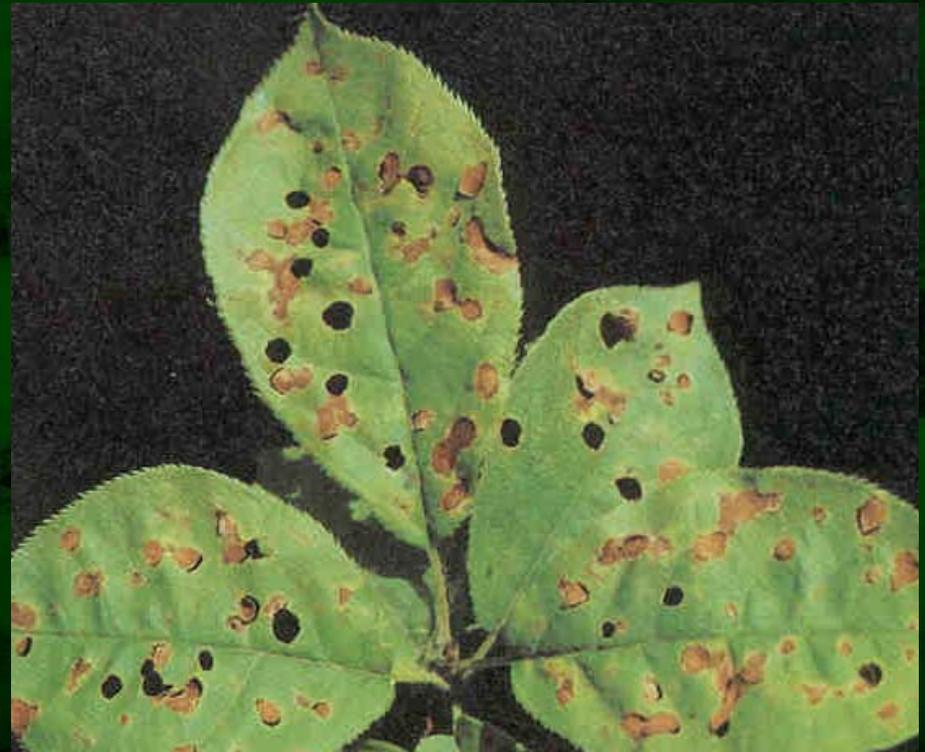
Fungicide drenches may reduce disease

Fungal Leaf Spots

Leaf spots are produced by a number of fungi
e.g. *Septoria*, *Cercospora*, *Entomosporium*



Leaf spots can be observed ALL year around
Peaks on April-May and August-September



Rose Black Spot

Symptoms

Randomly distributed definitive spots on leaves



Spots typically have a tan to gray center with a brown black or dark purple border

Black pimple-like fungal fruiting bodies can sometimes be seen at the center of the spot



May be associated with yellowing leaves and premature defoliation

Leaf spot Septoria

Control

Rake and remove fallen leaf litter from the base of plants

Avoid long duration of leaf wetness

Do not water late in the day so the plants go through the night wet

Increase plant spacing or selectively prune branches to improve air circulation

Use of protective fungicides preventively or at first sign of disease

Alternaria Leaf Spot

- Zinnia
- Dianthus
- Impatiens
- Marigold
- Geranium



- Purple spots

- Dry gray centers

- Center may drop out

Septoria Leaf Spot

- Dogwood
- Rudbeckia
- Phlox
- Mums



- Spots- small round
- Centers- white - light tan or gray
- Purple or brown border
- May have zone of yellow tissue
- Pimple like structures
- Spots may grow together

Cercospora



UGA - Ext. Plant Pathology

- Juniper
- Ligustrum
- Hydrangea
- Pansy
- Azalea

- Frogeye
- Specks on spot center
- Browning progresses up and out



Entomosporium

- Pear
- Photinia
- Indian hawthorn
- Loquat



- Small reddish spots
- Older spots grayish w/ dark purple border
- Spots may join causing leaf blight
- Infected leaves drop prematurely
- Favors cool, wet weather and poor air circulation



PHOTINIA Entomosporium leaf spot

Small reddish leaf spots

As spots age center with a dark purple border

Leaf spots may coalesce causing severe leaf blight

Severely infected leaves drop prematurely

Over time severely infected plants die

Infection is favored by poor air circulation and prolonged periods of leaf wetness



Black spot of rose
Diplocarpon rosae

CONTROL

Selectively prune plants to improve air circulation through plant

Increase plant spacing

Avoid wetting foliage

Apply protective fungicides (Chlorothalonil, Mancozeb, Propiconazole) when leaves emerge in spring and continue at 10-14 days intervals throughout growing season

RUSTS

Leaf rust on daylily



Daylily rust symptoms





Daylily rust



Identified in 25 states on numerous cultivars

Spread mostly through the sale or trading of infected plants

Warm weather, extended leaf wetness, stressed plant can promote the disease

Won't kill the plant right away, but repeated infections will weaken the plant and ultimately, destroy it. Unsightly .

Control: Some fungicides are effective, several cultivars are resistant

Cut foliage and discard (especially over winter), fertilize using nitrogen

Powdery Mildew

Erysiphe spp

Sphaerotheca spp

Uncinula spp

Oidium spp



Attack 7000 plant species.
In Landscape: Begonia,
Chrysanthemum, Euonymus,
Dogwood, Gardenia, Rose,
Hawthorn, Hydrangea, Lilac,
Phlox, Sycamore, Zinnia, etc...



Seasonal Occurrence

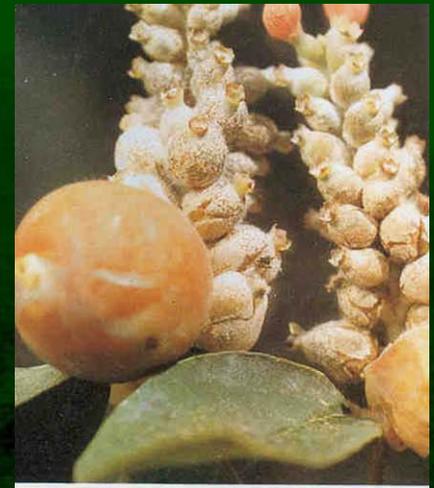
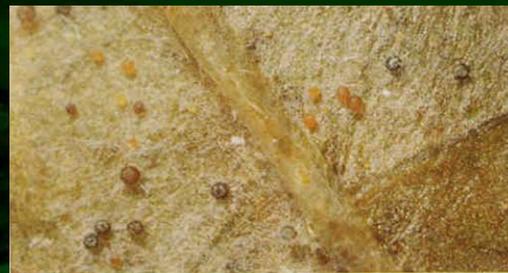
March-October
peak in May-June



Symptoms

White to grayish powdery patches on leaves
stems, flowers

Mostly seen on new growth



Control

Remove affected stems or leaves from the plant

Rake and remove fallen plant litter

Increase plant spacing or selectively prune branches to improve ventilation

Apply a fungicide spray at the first sign of infection

Do not wait until the entire leaf is covered with mildew

Powdery mildew on Crape Myrtle: Same symptoms on different plant hosts



Control

Plant Resistant varieties:

Acoma, Tuskegee, Zuma, Apalache, Catawa, Caddo, Sioux, Yuma

**Fenarimol (Rubigan), Myclobutanil (Systhane),
Propiconazole (Banner Maxx), Triadimefon (Bayleton,
Strike)**

Cankers and Stem Diseases



Seiridium canker

Peak in April-May

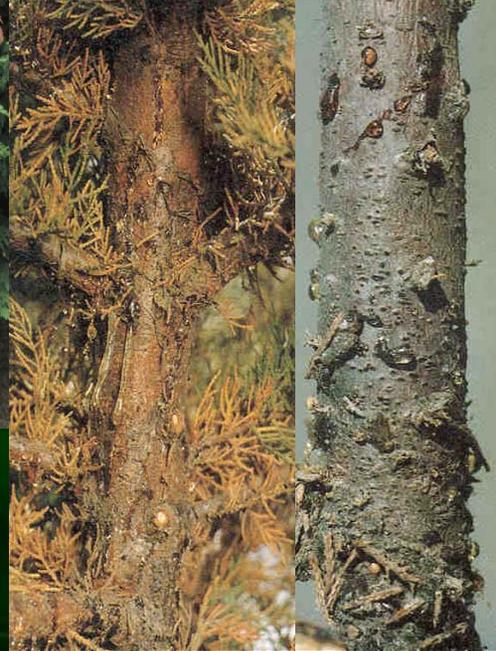
Symptoms

Yellowing and browning of old foliage precedes fading and death of twigs and branches

Infection occurs from the lower branch and upward and from the inside out

Bark is darkened and resin exudes from margins of cankers and upward margins of cankers

Infected trees look thinly branched



Cankers and Stem Diseases

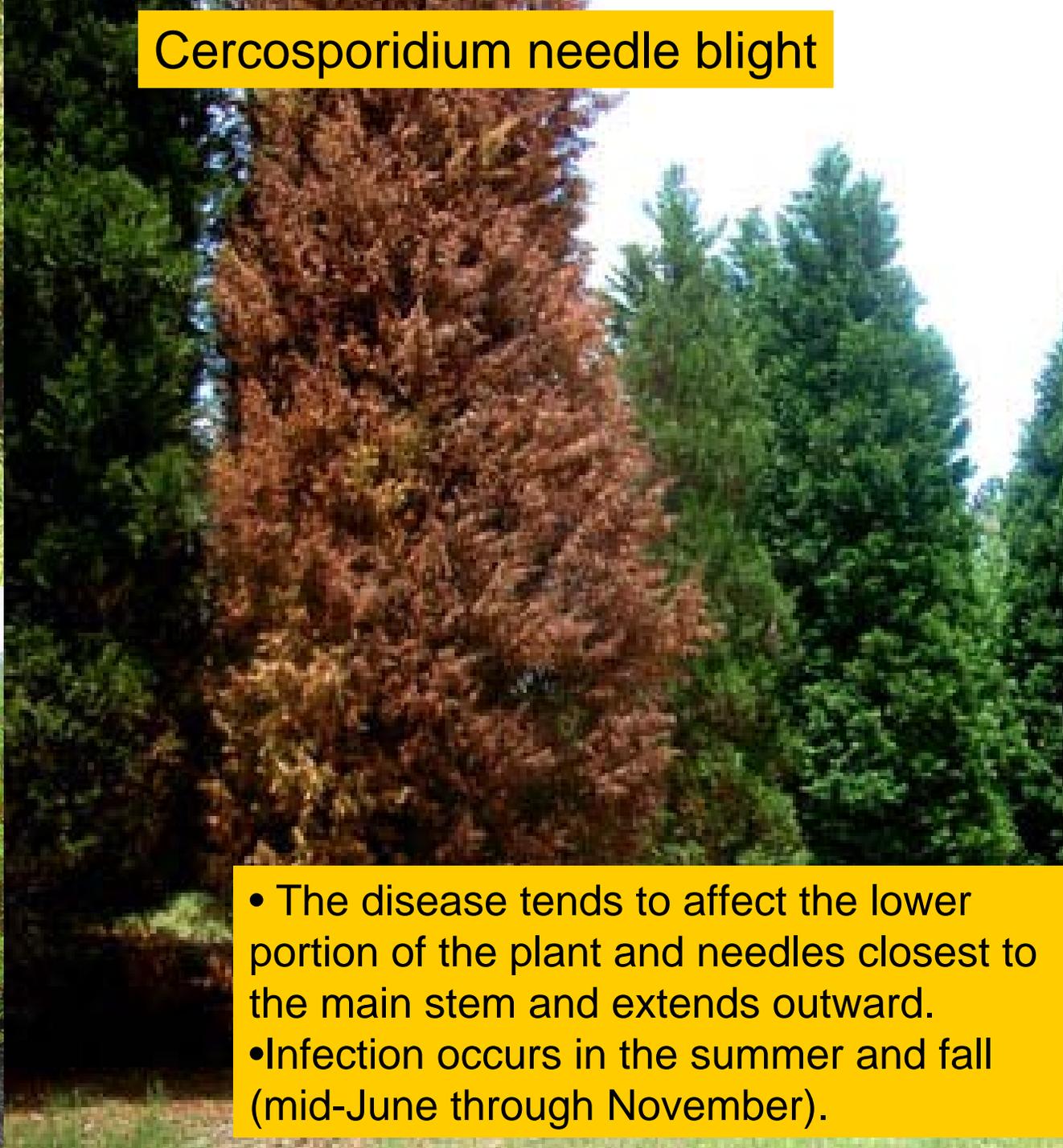
Stressed plants (drought-heat mostly) are particularly prone to the disease

There is no control other than pruning out the affected branches

Trees need to be irrigated during dry weather to reduce canker development

No fungicides are effective when once infection takes place

Cercosporidium needle blight



- The disease tends to affect the lower portion of the plant and needles closest to the main stem and extends outward.
- Infection occurs in the summer and fall (mid-June through November).

Control measures include

Avoiding plant stress (nutritional, water), irrigating during periods of drought,

Removal of severely affected branches or plants,

Preventive fungicide applications can help reduce disease.

Copper hydroxide (Kocide), Mancozeb (Fore, etc.), Chlorothalonil (Daconil), or Myclobutanil (Systhane),

Heritage can also reduce disease development.

Fungicides need to be directed to the inside and lower portion of the tree

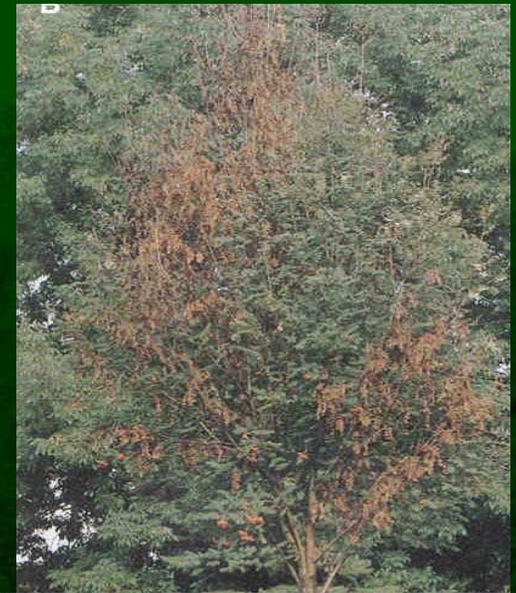
BACTERIAL DISEASES

Fire Blight

Erwinia amylovora

April-June peak in May-June

Affects plants in the Rosaceae family (Pear, Crabapple, Cotonoaster, Photinia, Pyracantha)



Symptoms

Young twigs and branches die from the terminal end and appear burned or deep rust colored

Branch may bend resembling a shepherd's crook

Bad leaves and fruit generally remain on the branch

Infection occurs during blooming and is favored by wet conditions



Control

Prune out branches 6 inches below the signs of damage

Disinfect pruning tools in 70 % isopropyl alcohol or 10 % bleach solution between each cut

Avoid heavy nitrogen fertilization, especially in the summer

Avoid splashing water

Plant resistant varieties

Diseases caused by nematodes

Symptoms: Small swellings on roots; Yellowing of foliage; Stunting; Decline

Laboratory analysis is essential for definite diagnosis
(root knot of boxwood)

Diseases caused by viruses

Symptoms: Chlorosis, mottling, ring spots, dying tissues

Control: Eliminate vectors (insects), Clean tools, prune

