Top Ten Fruit and Vegetable Diseases

Tomato Leaf Blights

- **Causes**
  - *Septoria lycopersici* (Septoria leaf spot)
  - *Alternaria solani* (early blight)
  - *Phytophthora infestans* (late blight)

- **Hosts**
  - Tomato
  - Potato (early blight, late blight)

- **Favorable environment:** Cool, wet weather

**Control (early blight, Septoria leaf spot)**
- Remove and destroy infested debris
- Move tomatoes to new location (?)
- Plant resistant varieties (?)
- Space plants far apart
- Mulch around the base of plants
- DO NOT over-mulch

**Control (early blight, Septoria leaf spot)**
- DO NOT overhead water
- Remove infected leaf tissue (?)
- Use fungicides to prevent infections
  - Chlorothalonil, copper, neem oil
  - Alternate active ingredients (FRAC codes)
  - Apply at 7-14 days intervals
Top Ten Fruit and Vegetable Diseases

Tomato Leaf Blights

• Control (late blight)
  – Remove and destroy
    • Infected plants, fruits, tubers
    • Volunteer tomato and potato plants
    • Weed hosts
  – DO NOT use last year’s potatoes as seed potatoes
  – DO use certified seed potatoes

Blossom End Rot

• Cause: Calcium deficiency
• Hosts
  – Tomato
  – Pepper
  – Eggplant
  – Cucurbits (cucumber, squash, pumpkin)
• Favorable environment: Drought

Top Ten Fruit and Vegetable Diseases

Tomato Leaf Blights

• Control (late blight)
  – Grow resistant tomato varieties

Top Ten Fruit and Vegetable Diseases

Blossom End Rot

• Management
  – Test soil to determine calcium level
  – Add calcium as needed
    • Bone meal
    • Egg shells
  – Water plants adequately
Top Ten Fruit and Vegetable Diseases

**Powdery Mildew**

- **Causes**
  - *Sphaerotheca fuliginea*
  - *Erysiphe cichoracearum*
  - *Oidium* spp.
- **Hosts**
  - Cucurbits (cucumber, squash, pumpkin)
  - Other vegetables (and fruits)
- **Favorable environment**: High humidity

- **Control**
  - Plant resistant varieties
  - DO NOT crowd plants
  - Thin vines
  - Apply fungicides for control
    - Elemental sulfur
    - 1.5 Tbsp baking soda + 3 Tbsp light-weight horticultural oil in 1 gal water
    - Apply at 7-14 day intervals

**Aster Yellows**

- **Cause**: Aster yellows phytoplasma
- **Hosts**
  - Carrot
  - Potato
  - Other vegetables
- **Favorable environment**
  - None in terms of weather
  - High aster leafhopper populations

- **Control**
  - Remove infected plants
  - Control leafhoppers (?)
Top Ten Fruit and Vegetable Diseases
Herbicide Injury

• Causes
  – Growth regulator herbicides
    • 2,4-D
    • Dicamba
  – Other classes of herbicides
• Affected plants
  – All vegetables, particularly tomato
• Favorable Environment: High wind

Top Ten Fruit and Vegetable Diseases
Herbicide Injury

• Management
  – DO NOT use herbicides
  – If you or your neighbors do use herbicides, make sure that you or they
    • Follow application directions exactly
    • Apply herbicides at low wind speeds (< 5 mph)
    • DO NOT apply herbicides too close to sensitive plants
    • Apply herbicides at low pressure
    • Use amine rather than ester forms of herbicides

Top Ten Fruit and Vegetable Diseases
Scab (Apple and Pear)

• Cause: Venturia inaequalis (V. pirina)
• Hosts
  – Apple
  – Crabapple
  – Pear
  – Mountain ash
• Favorable environment: Cool, wet weather

Top Ten Fruit and Vegetable Diseases
Scab (Apple and Pear)

• Control
  – Plant resistant varieties
  – Remove and destroy diseased leaves
    • Burn (where allowed)
    • Deep bury
    • Hot compost
  – Thin trees to promote air flow
Top Ten Fruit and Vegetable Diseases

**Scab (Apple and Pear)**

- **Control**
  - Use fungicides to prevent infections
    - Chlorothalonil, copper, mancozeb, myclobutanil, propiconazole, thiophanate-methyl, sulfur
    - Alternate active ingredients (FRAC codes)
    - From bud break through the end of favorable weather
    - Apply at 7-14 day intervals

**Black Knot**

- **Cause**: *Apiosporina morbosa*
- **Hosts**
  - *Prunus* species
  - Plums
  - Cherries
- **Favorable environment**: Wet weather

**Fire Blight**

- **Cause**: *Erwinia amylovora*
- **Hosts**
  - Many rosaceous plants
  - Apple, crabapple, pear, mountain ash, cotoneaster
- **Favorable environment**
  - Wet weather
  - Hail

- **Control**
  - DO NOT plant infected *Prunus* stock
  - Buy black knot-resistant varieties if available (*Prunus 'Accolade', Prunus sargentii, Prunus maackii*)
  - Remove volunteer plums/cherries
  - Prune diseased branches
  - DO NOT use fungicides
**Top Ten Fruit and Vegetable Diseases**

**Fire Blight**
- Control
  - Plant resistant varieties where available
  - Prune diseased branches
  - Do not over-fertilize with nitrogen
  - Use bactericides to prevent infections (?)
    - Copper-containing fungicides, antibiotics
    - During flowering
    - Applications every 7-14 days (3-4 days)

**Brown Rot**
- Causes
  - *Monilinia fructicola*
  - *Monilinia laxa*
  - *Monilinia fructigena*
- Hosts
  - Stone fruits (apricot, cherry, peach, plum)
  - Apple
- Environmental trigger: Wet weather

**Brown Rot**
- Control
  - Remove mummified fruits
  - Prune out diseased/dead branches
  - Remove volunteer stone fruit trees/shrubs
  - Dispose of contaminated plant materials
    - Burning
    - Burying
  - Prune healthy branches to increase air flow

**Brown Rot**
- Control
  - Decontaminate pruning tools
    - 10% bleach
    - 70% alcohol
  - DO NOT overhead water
  - Carefully handle fruits at harvest

**Brown Rot**
- Control
  - Use fungicides to prevent infections
    - Captan, myclobutanil, propiconazole
    - Apply at 10% flower (flower infections)
    - Apply 3 weeks prior to harvest (fruit infections)
    - Alternate active ingredients (FRAC codes)
  - Manage insects that injure fruit
Top Ten Fruit and Vegetable Diseases
Root/Crown Rots

- Pathogens
  - Pythium spp.
  - Phytophthora spp.
  - Rhizoctonia solani
  - Fusarium spp.
  - Cylindrocarpon spp.
  - Thielaviopsis spp.

- Hosts
  - Any fruit crop
  - Strawberry
  - Raspberry
  - Apple

- Favorable environment
  - High soil moisture
  - Cool soil temperatures

- Control
  - Moderate soil moisture
  - Grow plants in well-drained sites
  - Use a soil with adequate drainage
  - Improve drainage in poorly drained soils
    - Add organic matter to improve drainage
    - Use raised beds
  - DO NOT overwater
  - DO NOT overmulch

- Control:
  - DO NOT move contaminated soil or plants to non-infested areas
  - Decontaminate infested tools, pots, work areas
  - Pretest soils/mulches/composts for the presence of root rot fungi

- Control
  - Use fungicides to prevent infections
    - Etridiazole, metalaxyl, mefenoxam, fosetyl-Al, (PCNB, thiophanate-methyl, fludioxonil)
    - Use granular formulations if possible
    - Use during periods of wet weather