Agents of Disease - Fungi

Other Ascomycetes and Imperfects - Fruit

**Alternaria** on Tomato

**Botrytis** on Strawberry

**Shothole** on Almond

**Powdery Mildew** on Apricot

**Botrytus** on Strawberry

**Colletotrichum** fruit lesion
Agents of Disease - Fungi

Other Ascomycetes and Imperfects – Flowers, Leaves, Vegetables

- Black Spot of Rose
- Verticillium Wilt of Eggplant
- Anthracnose of Snap Bean
- Powdery Mildew on Grape
- White Mold of Lettuce
- Alternaria on Papaya
Agents of Disease - Fungi

Other Ascomycetes and Imperfects – Trees and Shrubs

Sycamore Anthracnose

Leucostoma Canker

Dutch Elm Disease

Botryosphaeria Canker

Sycamore Anthracnose

Trees with Stem and Branch Cankers

Leucostoma canker on Prunus
Agents of Disease - Fungi

Other Ascomycetes and Imperfects—Postharvest (30% of total loss!)

Black Mold of Carrot
Penicillium on Orange
Aspergillus on Grain
Fusarium Rot of Melon
Rhizopus on Peaches
Sour Rot of Melon
Agents of Disease - Fungi

Basidiomycetes

- **Club fungi** – produce sexual spores in a sac
  - Typically have 4 badiospores on a basidium
- Reproduces asexually as well
- Produces most mushrooms, puffballs, conks
- Cause wood rots, rusts, and smuts
- Majority are wood rotters, important in natural ecosystems.

Photo from: http://www.toxinology.com/generic_static_files/images_generic/MD-fig1E-basidia.gif
Agents of Disease - Fungi

Diseases caused by Basidiomycetes

**Figure 11-92** Common symptoms caused by Basidiomycetes.
Agents of Disease - Fungi

Disease cycle of White Pine Blister Rust (*Cronartium ribicola*)

**Figure 11-102** Disease cycle of white pine blister rust caused by *Cronartium ribicola*.
Agents of Disease - Fungi

Disease cycle of White Pine Blister Rust (*Cronartium ribicola*)

- **AECIOSPORE** (spring)
- **5-needle pines**
- **TWO OBLIGATE HOSTS**
  - *Ribes ssp.* (most commonly)
- **BASIDIOSPORE** (autumn)
Agents of Disease - Fungi

Disease cycle of Armillaria Root Rot (*Armillaria mellea*)
Agents of Disease - Fungi

Basidiomycetes—Flowers, Leaves, Vegetables

- Rust on Roses
- Corn Smut
- Stem Rust of Wheat
- Dampening off by Rhizoctonia
Agents of Disease - Fungi

Basidiomycetes – Trees and Shrubs

Tree Decline Caused by Fungi

Armillaria Root Rot
Agents of Disease - Fungi

“Fungal – Like” Organisms

– More closely related to plants than fungi
  • Cell wall is made of cellulose
– Reproduces sexually and asexually
– Root rots, blights, mildews (underside of leaves), and soft rots
– Cool, wet/humid weather
– Very difficult to control due to cell wall material and soil inhabitance
Agents of Disease - Fungi

Disease cycle of Potato Late Blight (*Phytophthora infestans*)

**FIGURE 11-22** Disease cycle of late blight of potato and tomato caused by *Phytophthora infestans*.
Agents of Disease - Fungi

“Fungal-like” Organisms – Vegetables and Trees

Dampening off by Pythium

Tree loss caused by Phytophthora

Downey Mildew – NOTE: Spores are on UNDERside of leaf