Plant sometimes get sick!

- What’s a plant disease?
  - Any deviation from normal growth…
Plant Disease

– Any deviation from normal growth that is pronounced and permanent...
Plant Disease

• Any deviation from normal growth that is pronounced and permanent...

• and impairs the quality or value of the plant.
• Abiotic diseases

• Biotic diseases
Abiotic

- Diseases caused by non-living agents
- Cannot be spread from plant to plant
- Temperature extremes, too much or too little moisture, air pollution, nutrient imbalances
Biotic

- Bio: from *bios*, meaning living or alive
- Caused by living, infectious agents
- May spread from plant to plant
- Fungi, bacteria, viruses, and nematodes
Biotic Disease Development

Susceptible Host

Pathogen

Favorable Environment
What do you see?

- To solve plant mysteries, it is important to describe what you see.
Symptom

• External and internal reactions of a plant as a result of a disease

• Wilting, stunting, chlorosis (yellowing), necrosis (death of tissue), distortion, scorch, dry rot, curl, soft rot
Chlorosis

Yellowing of tissue: Chlorosis
Death of tissue: Necrosis
Wilting: droopy leaves and branches
Dark, small, circular spots
Sign

• The pathogen or its parts or products seen on a host plant
• Mushrooms or fungal growth
• Bacterial ooze
• Nematode cyst
Fungi

• Generally microscopic
• Composed of thread-like mycelium
• Lack chlorophyll
• Most fungi are saprophytic (decomposers)
• Usually reproduce by means of spores
• Characteristics of the spores and fungal body are used in identification
Bacteria

• Very small microorganisms
• Usually consist of a single cell
• Multiply rapidly by dividing in half
• Gain entrance through natural openings or wounds
Nematodes

- Microscopic round worms
- Very few nematodes cause diseases
- Plant-parasitic nematodes feed on roots, stems, and leaves
- Plant-parasitic nematodes equipped with a mouth spear (stylet)
plant-parasitic nematode
Symptoms caused by nematodes

• Chlorosis= yellowing
• Necrosis= tissue death
• Galls= growths on roots
• Stunting= poor or no growth
• Wilting= flaccid or droopy tissue
Viruses

• Very small!
• Can’t see them under a regular microscope.
• An infected plant can’t be ‘cured’.
• Multiplies only in living cells.
• Commonly transmitted by insects (aphids, leafhoppers).