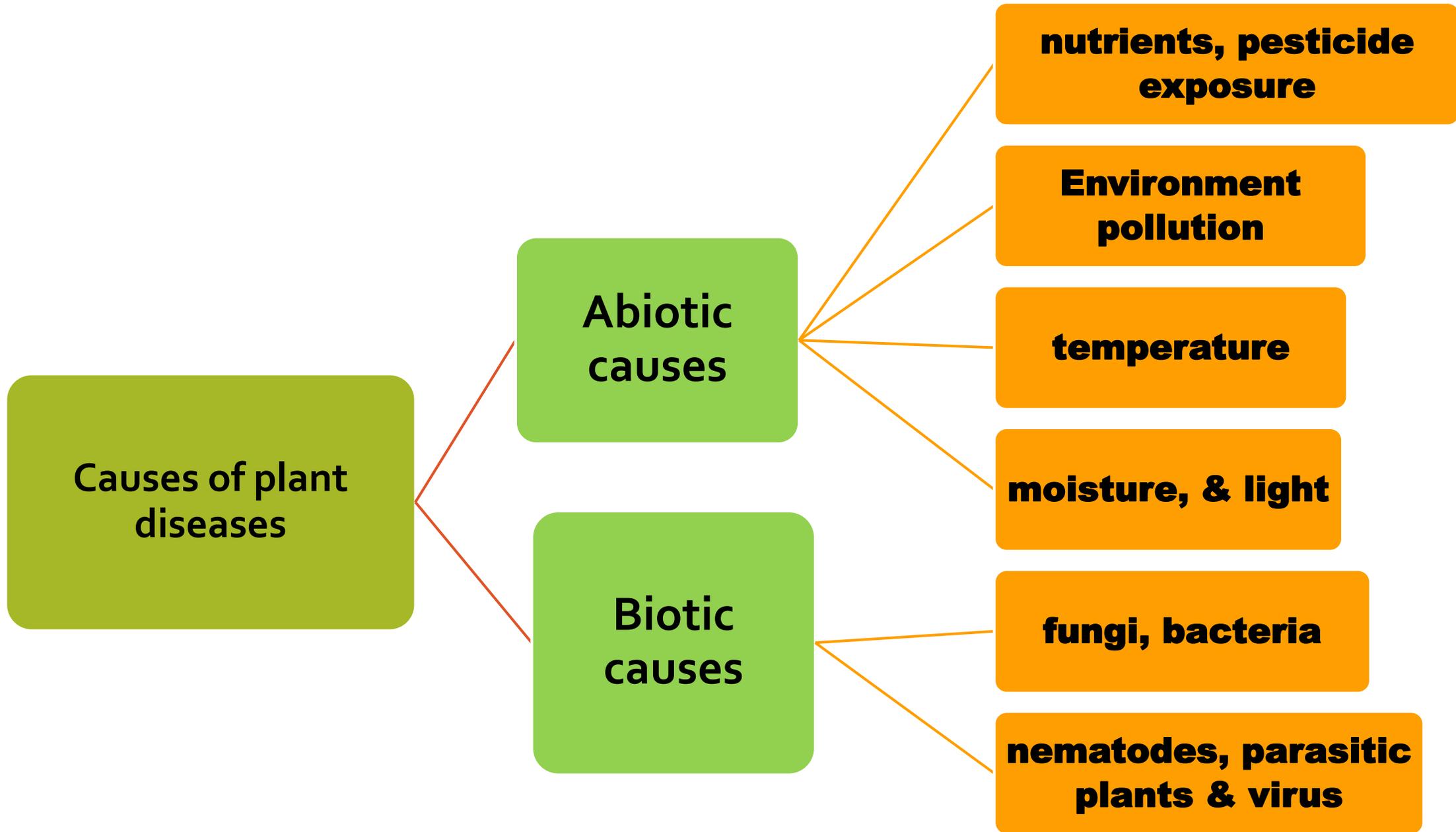


Causes of plant diseases

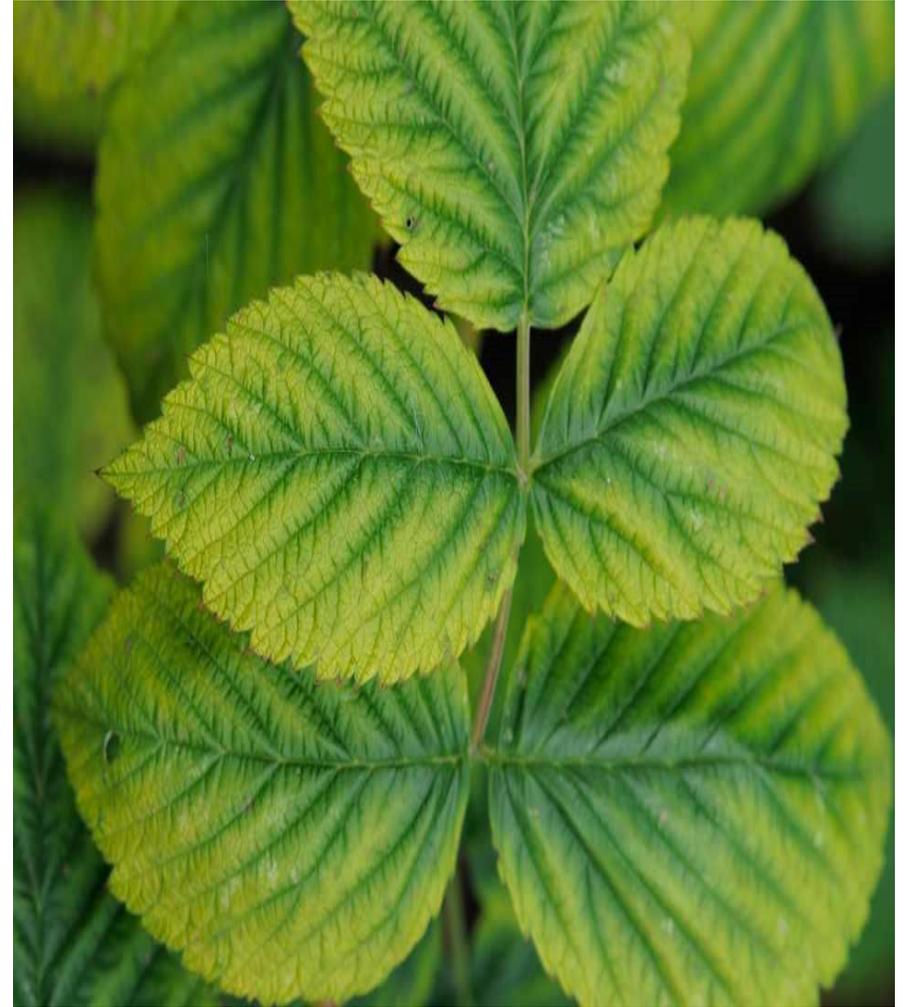


1) Nutritional abnormalities

- Often nutrient abnormalities show up as discoloration of foliage
- Common discoloration symptoms include:
 - a) Yellowing
 - b) Chlorosis
- Two types
 - a) Nutrient deficiencies
 - b) Mineral toxicity

a) Nutrient deficiencies

- ❑ Plants require several major (N,P,Ca,Mg) and minor (iron,copper,Zn) elements for normal growth.
- ❑ Deficiency or lack of any of these essential nutrients results in disease symptoms in the plant.
- ❑ The symptoms in this photo occur due to a lack of molybdenum (minor plant nutrient)



b) Mineral Toxicity

- Presence of excessive available amounts of certain minerals in the soil can lead to mineral toxicity to the plants.
- The extent of injury depends on the mineral, its concentration & species of the plant.
- The plant in this photo has received excess manganese, which has proved toxic and led to yellowing.



2) Pesticide Exposure

- ❑ Some pesticides , if improperly used can cause serious damage to plants.
- ❑ However, the most common type of chemical injury to plants is due to soil residue or spray drift of herbicides.
- ❑ Examples of pesticide toxicity are:
2,4-D damage to beans and tomatoes
- ❑ Glyphose (Roundup) damage to fruit trees
The common symptoms of herbicide exposure are curling and cupping.
- ❑ This plant was exposed to the herbicide 2,4-D



**Curling and cupping
of leaves**

3) Environmental Pollutants

- High level of fluoride in water or fluorine gas in the air can cause symptoms like this.
- The damage is concentrated towards the margins of the leaf where fluorine tends to accumulate.

E.g. Air pollution

Air pollution

- Certain chemicals such as O₃, SO₂ and NO₂ are released into the air from factories, power plants and automobile exhausts.
- These chemicals can accumulate in the atmosphere insufficient concentration to cause damage to plants.
- Ozone damage appears in the form of chlorosis, spots and bleaching of young leaves.
- This common in certain regions of the country where there is a high ozone concentration in smog
- Some of the air pollutants responsible for acid rain cause damage to vegetation in certain regions.





- Ozone damage on morning glory



- Ozone damage or marijuana leaves



4) Extreme Weather Conditions

- Extreme of weather can also lead to plant injury.

Cold injury

- Low temperature, like frost or freeze can damage the exposed or sensitive organs (buds, flowers, young fruits) or may kill the entire plant.
- As the new branch tips began to expand, a period of cold was severe enough to kill the growing tips.



Heat injury

- In this case the temperature was high enough and damage the plant tissue
- When plants or plant parts are exposed to high temperature for prolonged periods, symptoms of scorching or scalding may develop.



5) High/low soil moisture

- Due to excessive watering poor drainage or flooding may cause plants to turn yellow and be stunted.
- Potted indoor plants may show poor development or root rots.
- At the other extreme, low moisture or drought conditions can lead to poor development, wilting and death of plants.

6) high/low intensity

- High light intensity is usually not a problem but low light conditions, especially for indoor plants, lead to etiolation (tissue are yellowish)
- A normal and etioled shoot under sun and artificial lighting.

Thank you . . .