

Symptoms

Symptoms are the expression of the disease caused by the manifestation of physiological reaction of the plant due to harmful activity of biotic or abiotic stress factors.



Signs

Signs are the physical evidence of the presence of disease agents (e.g. mycelium)



Foliar symptoms



Chlorosis

the failure of chlorophyll development, caused by disease or a nutritional disturbance; fading of green plant color to light green, yellow, or white



Foliar symptoms



Necrosis

the death of cells or tissue, usually accompanied by darkening to black or brown



Foliar symptoms



Green Island

Green islands are a characteristic symptom reducing senescence associated with rust and mildew infections. Result of a cytokinin effect.



Foliar symptoms - *Virus*



The pattern produced by tobacco mosaic virus (TMV) in a tobacco leaf (*Nicotiana tabacum*)

Pathognomonic symptoms

Pathognomonic symptoms are so characteristic of a disease that they can be used to make a diagnosis.

Veins yellowing is a virus's pathognomonic symptoms

Virus nomenclature

Host – Symptoms – Pathogen

Sooty moulds



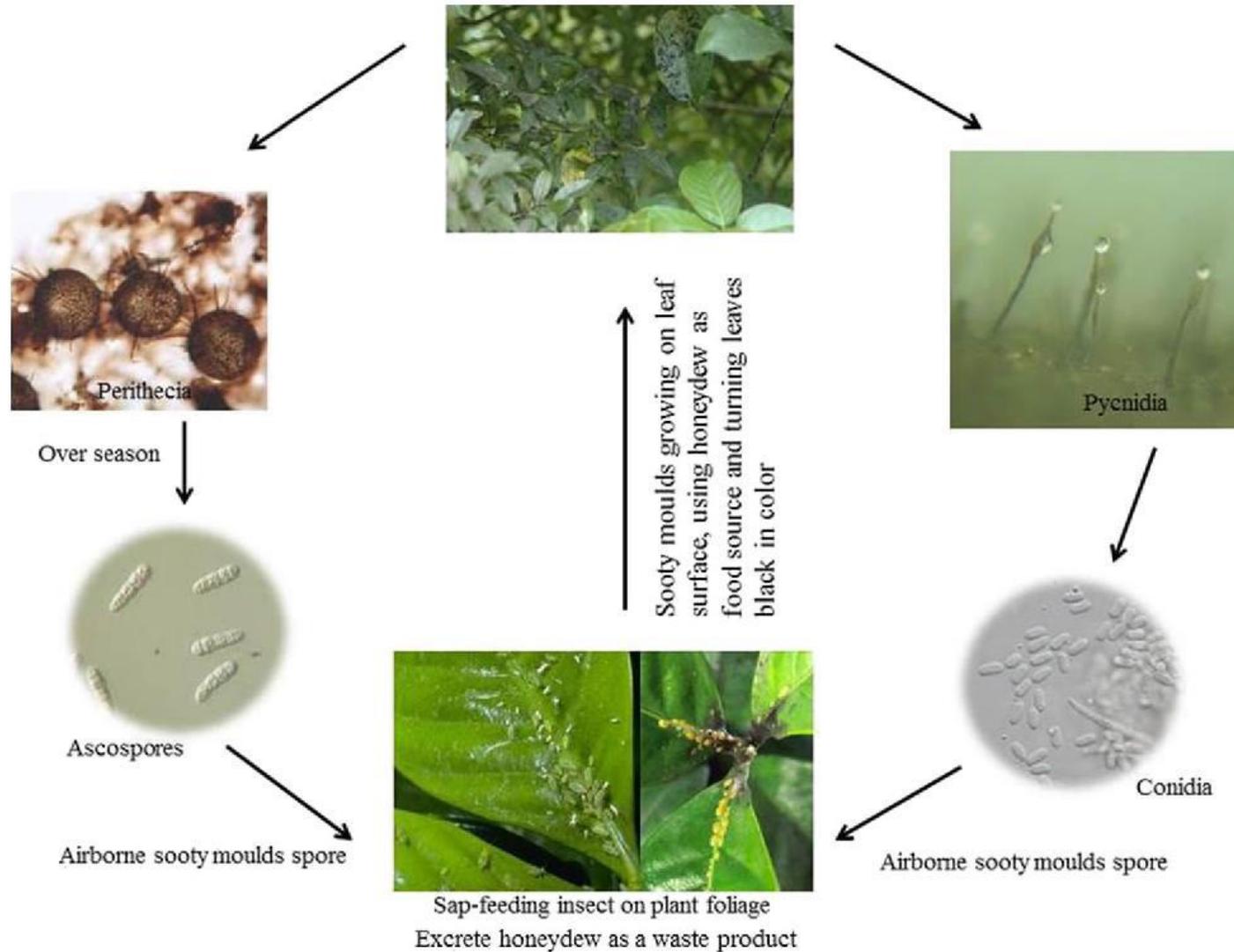
Group of well over 200 epifoliar fungal species that live on plant surfaces where sap-feeding insects feed on plant foliage.

The insects excrete **honeydew** as a waste product. The honeydew drips on the foliage below and covers leaves, twigs and even plants, soil and rocks below with a sticky sugary coating.

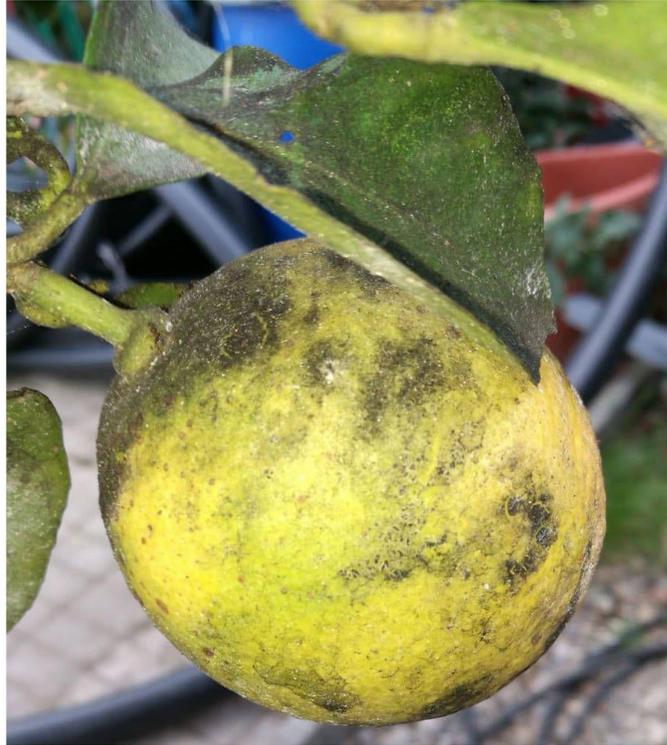
Honeydew is largely composed of sugars with smaller amounts of amino acids, proteins, minerals, vitamins and other organic compounds. The sooty moulds grow on this and produce a thin superficial network of dense, dark hyphae.



Sooty moulds's cycle



Sooty moulds on *Citrus limon*



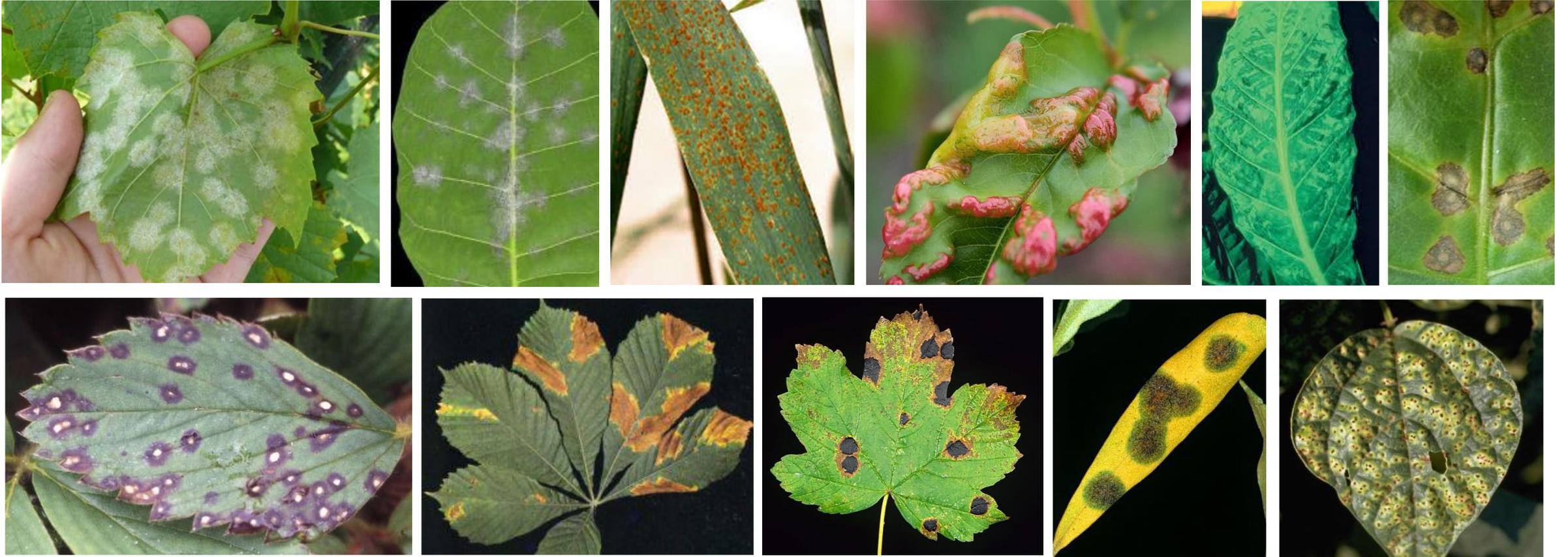
Symptoms can be observed
at leaf and fruit level

Management of disease:
pesticides (insect target)

Alternative strategy: use of
soap



Symptoms and Signs on leaves



Diseases of fruits



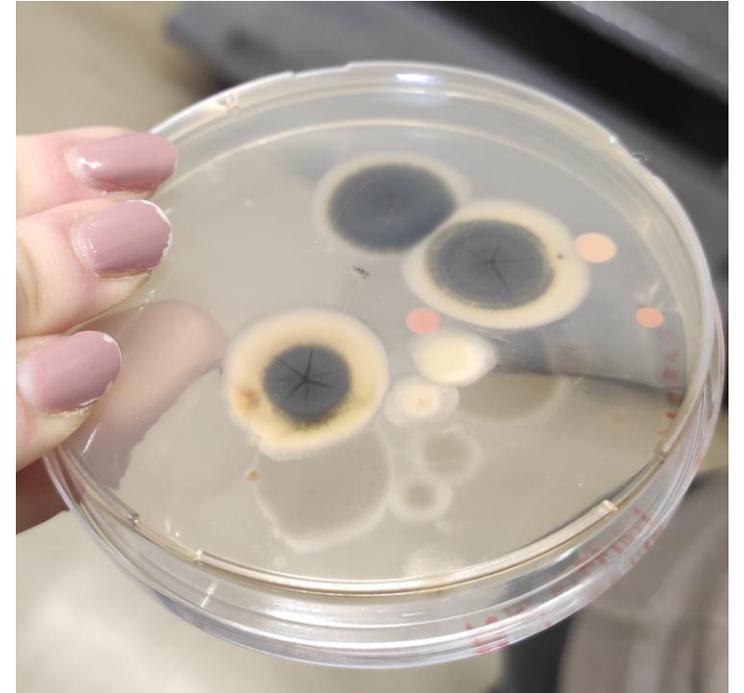
Diseases of fruits – *Penicillium* on chestnut



Moist chambre or Potter pot



PDA
Potato Dextrose Agar



Symptoms on woody organs

Tumor (or gall)

localized proliferation of (woody) tissue forming a swelling or outgrowth, with a characteristic spherical shape and unlike any organ of the normal plant, produced as a result of attack by a bacterium or other organism.

It is a neoplastic formation due to hyperplasia (the abnormal increase in the number of cells) and/or hypertrophy (the abnormal increase in the size of cells).



Symptoms on woody organs

Canker

localized symptom due to the death of cambium tissue and round-to-irregular sunken, swollen, flattened, cracked, discoloured, or dead areas on the limbs, or trunk. Cankers often results in an open wound and may enlarge and girdle a branch, killing the foliage beyond. Nearly all canker pathogens are wound parasites



Symptoms on woody organs

Witches' Broom

a disease symptom characterized by an abnormal, massed, brush like development of many weak shoots arising at or close to the same point
disintegration of plant tissue as a result of fungal or bacterial infection.



Symptoms on woody organs

Wood rot/decay

Disintegration of woody tissue as a result of fungal infection

Brown-rot – fungi break down hemicellulose and cellulose

White-rot – fungi break down lignin, leaving cellulose behind

Brown-rot



White-rot



Decay fungi examples



Fomes fomentarius



Armillaria mellea