

SUBJECT: AGRICULTURAL SCIENCE

WEEK: 11

TOPIC: CROP PLANT DISEASES

CLASS: JSS2

TERM: 3RD TERM

A plant disease is defined as anything that prevents from performing to its maximum potential. This definition is broad and includes abiotic and biotic plant diseases.

ABIOTIC OR NON-INFECTIOUS DISEASES:

These diseases are caused by condition external to the plant, not living agents. They cannot spread from plant to plant, but are very common and should be considered when assessing the health of any plant. An example of abiotic diseases includes nutritional deficiencies, soil compaction, salt injury, ice, and sun scorch.

BIOTIC OR INFECTIOUS DISEASES:

These diseases are caused by living organisms. They are called plant pathogens when they infect plants. For the purpose of discussing plant pathology, only plant disease pathogens will be discussed. Pathogen can spread from plant to plant and may infect all types of plants tissue including leaves, shoots, stems, crowns, roots, tubers, fruits, seeds and vascular tissues.

FUNGAL DISEASES

Fungal diseases are plant infections caused by fungi. Fungi can be single or multicellular, but either way, infects plants by stealing nutrients and breaking down tissue. Fungal disease is the most common infection in plants.

SYMPTOMS AND SIGNS

There are some characteristic symptoms or observable effects of the disease, in plants. Fungi infections can be recognized by symptoms like spots on plant leaves, yellowing of leaves and birds eye spots on berries. With some fungal diseases, the organisms itself can actually be viewed on the leaves as molds, mildew or spores. These may appear as growth or malformations on stems or the underside of leaves. These direct observations of the disease-causing organism are called signs of infection.

BACTERIAL DISEASES:

The signs of bacteria are often harder to detect than fungi since bacteria are microscopic. Upon cutting an infected stem, a milky white substance may appear, called bacterial ooze. This is one sign of a bacterial infection. Other signs include water-soaked lesions, which are wet spots on leaves that ooze bacteria. Eventually, as the disease progresses, the lesions enlarge and form reddish brown spot on the

leaves. A common symptom of bacterial infection is leaf spot or fruit spots. Unlike fungal spots, these are often contained by veins on the leaf.

VIRAL DISEASES

Viruses are infectious particles that are too small to be detected by light microscope. They invade host cells and hijack host machinery to force the host to make millions of copies of the virus.

SIGNS AND SYMPTOMS

Viral diseases don't show any signs in plants since themselves cannot be seen even with a light microscope. However, there are symptoms that the trained eye can observe. A mosaic leaf pattern, yellowed, or crinkled leaves are all characteristic of viral infection. This classic pattern of discolorations is where many plant viruses get their name such as the tobacco mosaic virus also, decreased plant growth is also commonly seen in viral infections.

PREVENTION AND CONTROL OF PLANT DISEASES

(A) CULTURAL CONTROL

This involves the use of resistant varieties, crop rotation, use of disease-free seed and planting materials to control plant diseases.

(B) BIOLOGICAL CONTROL

This involves the use of one biological organism to control another. A pathogen's natural enemy is used to control it.

(C) CHEMICAL CONTROL

Insecticides are used to control

insect's vectors which transmit virus diseases. Fungicides are chemicals used to control fungal diseases.

EFFECTS OF DISEASES ON CROPS PLANTS

1. Reduction of yield
2. Reduction of quality of produce
3. Outright death of plants
4. Destroys the embryo of seeds and reduces viability
5. Reduces storage quality.

ASSIGNMENT

1. Define crop diseases
2. Name two mode of transmission of any plant diseases.

