

Phytopathology

Methods of control of plant diseases

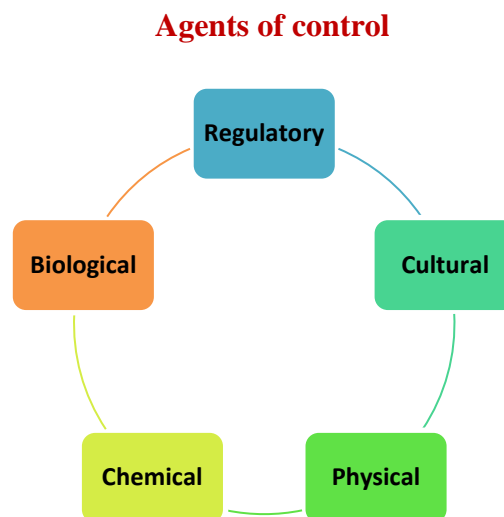
1) Prophylaxis (Prevention) – Protection of host from infection.

3 major ways:

- Exclusion of pathogen
- Eradication or reduction of inoculums
- Direct protection of plants from pathogens
 - Environmental manipulation
 - Chemical methods

2) Immunization – Improvement of host resistance

- Cross protection
- Induced resistance
- Improving the growth conditions of plants
- Use of resistant varieties



Regulatory- Excluding a pathogen from a host or geographic area.

Cultural – Helping plants avoid contact with a pathogen or eradicating or reducing the amount of pathogen inoculum.

Physical- Direct eradication or reduction of inoculums of plant diseases.

Chemical – Protection of plants from pathogen or inoculums that has arrived or likely to arrive.

Biological – Improving the resistance of host or favouring antagonistic organisms for eradication of inoculum.

Regulatory methods

1) Plant quarantine

Quarantine regulations govern the introduction of plant material from high-risk areas. Seed certification schemes also reduce the risk of introducing a new pathogen, and propagating material can be treated to kill any inoculum that is present, before it is introduced to a new area.

2) Evasion or Avoidance of pathogen

Avoiding disease by planting at times when or where inoculum is absent or ineffective due to unfavourable environment conditions.

- Choice of geographic area
- Selection of field
- Choice of time of sowing

3) Use of pathogen –free propagating material

Seed may carry internally one or a few fungi such as those causing smuts, certain spots and blights and certain viruses. Such diseases can be controlled effectively by producing and using disease free propagating material.

Cultural Methods

1) Sanitation - Pathogens that overwinter or oversummer, on the remains of previous year crop in the soil, serve as a major source of primary inoculums, that may be transmitted to the host by various agencies such as wind, water, insects and agricultural tools.

2) Host eradication

3) Rotation of crops - Soil borne diseases can be avoided by following the method of crop rotation.

4) Selection of field - Selection of a suitable area or field for cultivation is very important from the point of view of better yields as well as protection.

Suggested Reading :

Sharma P.D. (2011). Plant Pathology. Meerut, U.P.: Rastogi Publication.

Agrios G.N. (2005). Plant pathology, 5th edition. Cambridge, U.K. Academic Press.