

# **Cultural Practices**

# Cultural Practices for Reducing Crop Diseases

- Certain cultural practices are invaluable in reducing plant disease losses. A control program is enhanced whenever one can utilize as many methods of control as possible. New strains of an organism may develop that will attack resistant varieties or become tolerant to certain pesticides when these practices are used alone. Combining practices reduces the risk of failure.

- Cultural practices involves all the activities carried out on the farm before, during and after planting of crops. They are grouped into: pre-planting, planting and post-planting operation.
- **Pre-planting operations:** These are the operations done before planting.
  - Choice of site
  - Clearing of land
  - Stumping
  - Ploughing
  - Harrowing
  - Ridging

- **Planting operations:** These are activities done during planting.
  - Planting
  - Transplanting
  - Nursery practices

- **Post-planting operations:** These are the activities that are done after planting.
  - Thinning
  - Supplying
  - Mulching
  - Manure or application
  - Watering
  - Weeding
  - Pest and disease control
  - Harvesting
  - Processing
  - Storage

# Important cultural practices

- **Rotation with unrelated crops** is probably the most utilized cultural practice for disease control. This helps keep populations of pathogens from building up to damaging numbers. One should not expect rotation to eliminate disease development, but it certainly aids in reducing damage from most diseases.



- **Fertilizer usage** may have some bearing on development of certain diseases. It differs with each crop and each disease but, in general, nitrogen out of balance with other nutrients enhances foliage disease development and predisposes some plants to other diseases. Potash, on the other hand, helps reduce disease development when it is in balance with other elements.

- **Deep burial of crop residue** helps control certain diseases by placing the organism contained in the residue at a depth where there is an oxygen deficiency. This reduces the population of the disease-causing organism and permits the crop to escape much of the damage.





- **Planting on a raised bed** is helpful in preventing certain diseases such as Southern blight and certain of the wilt diseases. This practice is advisable when growing leguminous crops such as peanuts, soybeans, and guar, and when growing vegetable crops in tight, poorly drained soils.



- **Burning of crop residue** has been discouraged because of destruction of valuable organic matter and creation of an air pollution problem. The fact remains, however, that it is a highly effective means of eradicating some disease-causing organisms associated with crop residue.



- **Time of seeding** has an important bearing on disease prevention in many cases. Delayed planting of wheat will help escape the chances of wheat streak mosaic virus. Early spring planting of cotton may effectively help escape cotton root rot.

- **Removal of undesirable plants** that might serve as a host reservoir for virus diseases that attack cultivated crops aid in preventing infection. Infected rhizomes of Johnsongrass are the primary overwintering host for the maize dwarf mosaic virus that attacks grain sorghum, forage sorghum, and corn. Wild Solanaceae weeds, such as jimsonweed, horsenettle and silverleaf nightshade harbor viruses that attack potato and tomato.



- **Volunteer plants** from a harvested crop are often means of carrying a disease organism from one crop season to the next. Rusts of cereal crops and spinach constitute an example of this type disease dissemination.



- **Roguing (removal) of diseased plants** as they appear is often an effective method in helping reduce the spread of a destructive disease. Virus diseases of stone fruits and bacterial wilt of cucurbits are examples where roguing is worthy of consideration.



- These cultural control practices have been found to be economically feasible in reducing disease losses.
- Growers should properly identify the diseases that limit production and then use a variety of controls in combination.