

Dissemination by Water

- **Surface running water** : after heavy rains, during irrigation: canals and wells, e.g. The mycelial fragments, spores or sclerotia of fungi, *Colletotrichum falcatum*, *Fusarium*, *Macrophomina*, *Pythium*, *Phytophthora*, *Sclerotium*, etc.,
- **Long distance:** floods
- **Rain splash:** Most efficient means for bacteria. Rain drops falling with force on sori, pustules, cankers or even soil surface may splash the propagules in small droplets and enable them to land on neighboring healthy susceptible surfaces or the water droplets may be carried to long distances by air. E.g. Bacterial leaf spot of rice (*Xanthomonas campestris* pv. *oryzae*)
- **Deposition:** Fungal spores and bacteria present in the air or plant surface are washed downward by rain splash or drops from overhead irrigation and are deposited on susceptible healthy plants.

DISSEMINATION OF THE PATHOGEN

1. Wind
2. Water
3. Soil
4. Seed
5. Animal
6. Human
7. Machinery used in agriculture
8. Transport system

Dissemination by Wind

- Short distance dissemination e.g. conidia of powdery mildew fungi
- Long Distance dissemination e.g. uredospores of rust fungi
- Wind-disseminating fungi: are characterized by: numerous spores, discharge of spores with sufficient force, lightweight, small size, thick outer wall.