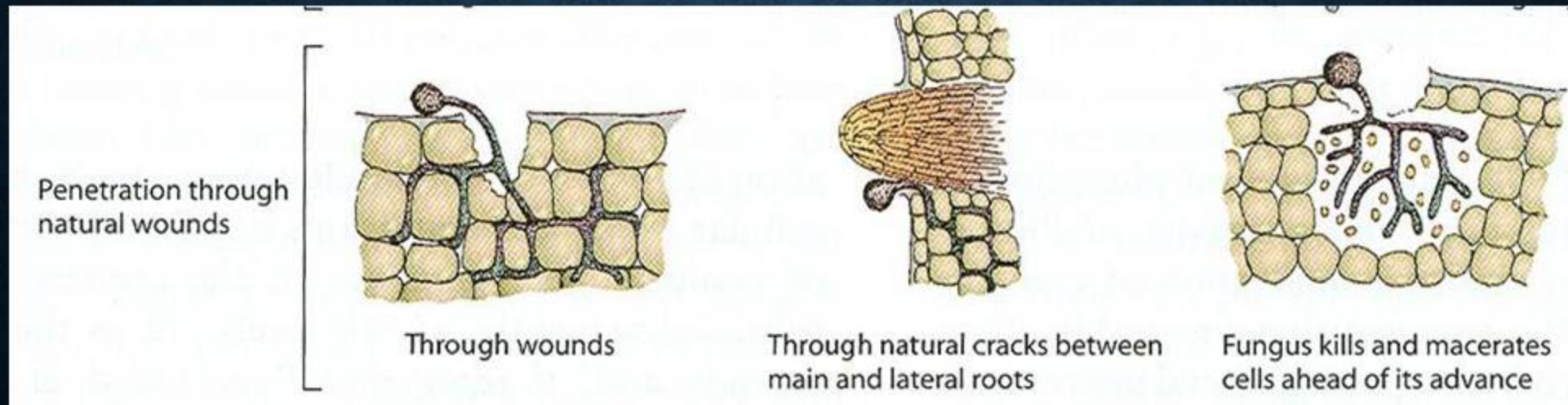


# PENETRATION PROCESS - INDIRECT

- **Penetration through wounds**

- Examples: Hail, Frost, Insect feeding, Cultivation, heat scorching, topdressing, mowing, traffic damage.
- Pathogen firstly multiply on wounds in the presence of moisture and then penetrate host cell (directly, by haustorium, or by enzymes or toxins).



# PENETRATION PROCESS - INDIRECT

- **Entry through hydathodes:**
  - *Xanthomonas campestris* pv. *Oryzae*,  
Bacterial leaf blight of rice
- **Entry through lenticels:**
  - *Erwinia amylovora*, Fire blight of  
apple and pear

