

are. i) Alternaria, 2) Cochliobolus  
 iii) Septoria, iv) Colletotrichum  
 v) Phoma.

Wheat rusts are also controlled by  
Verticillium lecanis

⇒ Biological control of Post harvest Diseases.  
 Saprophytes + yeast.

→ yeasts can control post harvest diseases like  
 Rotting disease of Peach & Apple

→ Citrus Green Mold (Penicillium digitatum)  
 are effectively control with yeast &  
Trichoderma viride

→ Botrytis rot of strawberry effectively control  
 by spray of Trichoderma spp. spore  
 suspension. This can be used in Pre harvest  
 when spray on parts after pruning.

→ Penicillium rot of Pineapple control by mild  
 antagonists / saprophytic species of Penicillium  
 by dipping pineapples in their suspension.

⇒ Tomatoes + Grapes dip in yeasts spore suspension  
 you can effectively control Rhizoctonia, Botrytis,  
Penicillium.

⇒ Two type of yeasts → Candida saitoana &  
Candida oleophila These are used against  
 Postharvest Decay of Apple & Citrus + Against

Apple fruit rot and also produce systemic resistance and in systemic resistance produce enzymes like i) Chitinase & ii)  $\beta$ , 1, 3 glucanase and by increase in production of these enzymes systemic resistance produce.

10/12/19

Practical

## ⑧ Low volume sprayer.

It involves superfine sprays of fungicides to cover a large area of single crop. The liquid is injected into an air stream of high velocity & an air blast is used to carry mist.

The liquid breaks into fine particles at point of entry into the air stream and larger particles into finer particles through the air. It is run by a small 0.1 Horse power Petrol engine connected with a hard plastic tank and a big nozzle with a wild mouth which ejects superfine mists and aerosols. The nozzle pressure may be upto 100 kg.

## ⑨ Air Craft spraying Apparatus:

Spraying apparatus of 1000 liter is connected to Air craft. The apparatus are of different types.

## ⑩ Need based spraying apparatus:

## ⑪ Dusters

### Evaluation of Fungicides:

- i) Spore Germination Method,
- ii)

11/12/19 Theory

### Bacterial antagonists to Control Soil borne Diseases.

→ Agrobacterium Tumefaciens causing Crown gall of stone fruit can effectively control by spraying of a non-pathogenic strain K-84 of this bacteria commercially available as Gall<sup>less</sup> ~~K-84~~ strain. This strain produce an antibiotic AGROICIN-84 & kills this bacteria. but K-84 is not effective against many strains so they modify it with K-1026 & it kills many strains.

→ Bacillus subtilis strain-A13 commercially available with name "Kodick" & effectively control soil borne fungi & bacteria.

→ Pseudomonas fluorescense strains such as P. putida, P. cepacia & P. aureofaciens. & effectively control Damping off disease & soft rots.

Pseudomonas fluorescense also commercially available with name "Dagger G".

→ By using these bacterial antagonists yield also increased.