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M T W T F S S

## ⇒ Induced Resistance or Systemic Acquired Resistance.

Many diseases which are controlled by using spraying of different other fungi & bacteria so that plant become resistant.

→ e.g. If you inoculate beans and sugarbeet early with some viruses so induced resistance against rust & powdery Mildew. plant also show resistance against this virus.

→ If you spray tobacco mosaic virus before the occurrence of disease at early stage so resistance induced against oomycetes like Phytophthora nicotiana & a bacterium

Pseudomonas tabaci & against a vector Aphid

→ If you spray or inoculate tobacco plant with Pseudomonas syringae or

Thrievalliposis basicola so tobacco plant

become resistant against Tobacco Mosaic Virus.

→ If you spray or inoculate Colletotrichum lagenarium then pees become resistant against Fire blight.

→ Also If you take protein coat, polysaccharides or any other proteinous structure of pathogen & rub it or infiltrate it on tobacco it induce resistance against tobacco Mosaic Virus.

⇒ Plant defense activators:

Many viruses, fungi & bacteria create resistance against Fungi, Oomycetes, bacteria like Peronospora tabaci & Pseudomonas syringae by spraying plant defense activators.

examples:

- i) Actigard: (Benzothiadiazole) a defense activator, it induce systemic resistance.
- ii) Blokade: (Acibenzolas - S-Ethyle) It is derivative of benzothiadiazole. Application of it causes resistance against the Downey Mildews of vegetables.
- iii)  $\beta$ -Aminobutyric acid or use low dose of U.V radiations (at frequency 254nm) it activates defense genes which produce defense enzymes like i) Chitinase ii) Phenylalanine lyase iii)  $\beta$  1,2 glucanase.

These enzymes cause cell death of plant this is abrupt resistance or localized resistance and further spread of pathogen stops.

- iv) → Some studies available where in which Silicon is applied which induce resistance localized resistance like Papilla formation, Callose deposition & production, Accumulation of Phenolics.

→ Application of Bacillus spp. when use as seed treatment, soil drench or by dipping roots the plant become resistant.

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Improving the growth conditions.  
→ through Cultural practices.

Cultural practices include

- i) proper fertilization
- ii) Field drainage
- iii) Irrigation
- iv) Proper spacing (between the  $R \times R$  &  $P \times P$ )
- v) Weed Control
- vi) Improving

By these practices you can improve vigor of the plant and resistance of the plant.

⇒ seed priming with inorganic salts or Silicon dioxide

is it will reduce the hydration of the seed & protect the crop from Pythium spp. diseases. (damping off diseases)

⇒ Use of Resistant Varieties.

- i) Least expensive method.
- ii) Safest way.
- iii) Easiest way to control the disease
- iv) Most effective way
- v) These will help us to eliminate losses
- vi) Reduce chemical sprays
- vii) Avoid the pollution
- viii) Resistant varieties or ~~can~~ controlled the viral resistance also help