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# Measurement of yield losses & plant disease:-

The 2 Factors of Disease incidence & disease severity are the most important.

## 1. Disease Incidence:-

The number of population of plant unit that are diseased

$$\text{Disease Incidence} = \frac{\text{Diseased plant}}{\text{Total No. of plant}} \times 100$$

## 2. Disease Severity:-

The proportion of the area or part of the plant that is diseased is called disease severity.

$$\text{Disease Severity} = \frac{\text{Diseased tissues}}{\text{Total tissues}} \times 100$$

On the case of smut, neck blast of rice Brown rot of stone fruit verticillium wilt of cereal crops. the  $DI \times DS$ .

The root lesion, leaf spot, Rust have less relation b/w the disease incidence & disease severity.

## 3. Rating Scale:-

The study of Disease incidence & Disease severity required the scale from 0-10 called rating scale or scoring scale.

For the disease incidence the data should be collected from the different

of inoculum of virus and <sup>nima tide</sup>  
Low temperature reduce or stop the  
multiplication of vector.

Temp also (low) effects many activities  
of the pathogen. including

i. pathogenicity

ii. spore germination

iii. egg hatching

iv. pathogen growth reproduction, developm

v. invasion on host & sporulation.

## Effects of Human cultural practises Control Measures:-

soil selection and preparation  
low lime, poor drainage, well cration  
cause more epidemic.

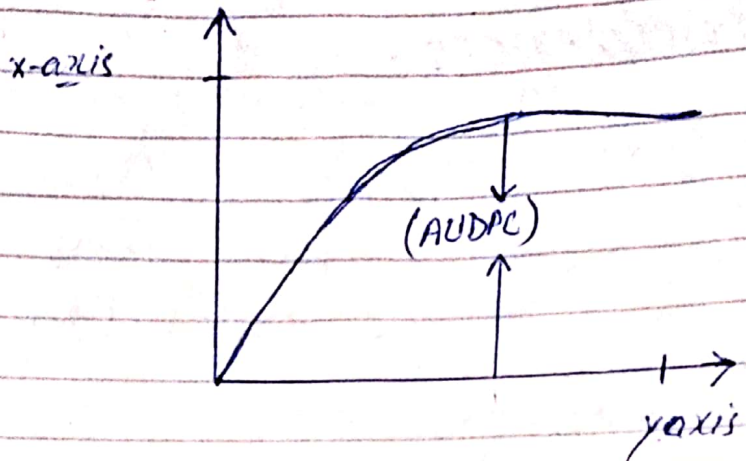
selection of propative material (seed  
tuber, root stock, bulb) favour the epidemic.  
cultural practises:- continuous manuring can  
enchorage planted with same variety

high level of  $N_2$  fertilizer, dense  
planting, non tillage practises, overhead  
irrigation, herbicide injury and poor dridge

Disease control measure: different  
type of fungicide and herbicide are applied  
then chance of more relevent agent  
then that species become susptible.

introduction of new pathogen i.e import  
by negligence of quarantine department.

stages of the plant. If you don't do so, the (AUDPC) Area under disease progressive curve should be taken.



When there is more AUDPC, then there will be more yield loss. If more are the yield losses then more will be the Economic losses.

### **Economic thrush-hold levels-**

If the inputs are increased, then the output / yield will be increase. But when by increasing input, the yield remains same and don't increase then there will be the loss of input. The level where the critical input cost is just equal to the output cost is thrush-hold level. It depends upon the tolerance / damage thrush-hold level.

## 1. Moisture:-

Have the significant effect. When there is prolonged, there will be the abundant and more effect of epidemic. Then abundant moisture will favour the fungi and oomycete. Moisture will be in the form of dew drop, relative humidity, rain drop. Diseases that are favoured by the high moisture are: Blights, downy mildew, powdery mildew, leaf spot, rust, anthracnose.

**Bacterial diseases:-** soft rot, powdery blight, leaf spot and also favours the nematodes.

**Host:-** succulent, vegetative growth is also effected. In fungi, the high moisture favour the fungi sporulation. In bacteria, oozing occur in the high moisture, spore germination, zoospore of bacteria, nematode multiplication. If there is less moisture or no moisture, then these function will be stoped. If the disease is cause by the soil borne fungi (fusarium, streptomycetes) then moisture will have no effects. The moisture can increase or decrease the population of vector. aphid and leaf hopper.

## 2. Temperature:-

Epidemic favours by low and high temperature. It will cause the stress on the the variety. The variety may break partial/complete <sup>resistance</sup>. Low temperature reduce the amount of oomycetes bacteria and nematode. High temperature reduce the amount of