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**Course:-**

Plant disease Epidemiology

**Code :-**

PP-30

**Teacher:-**

Dr. Sulman Ahmad

**Lecture:- 1      Introductory:-**

Epidemiology is a general term that may be used that can be used in case of animal, plant as well as in human. Specially in case of plant, it is known as epiphytotic.

**Terms:-**

**Epidemic:-** The sudden appearance of the disease over a large area.

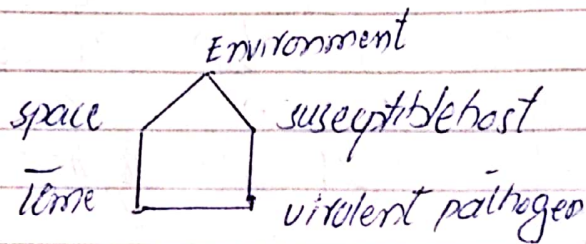
**Endemic:-** It is the appearance of the disease over the small scale and it will appear every year.

**Spontadic:-** It is the appearance of the disease occasionally / off and on / seldom over a large small area.

**Pandemic:-** It is the cosmopolitan disease that occur on large scale and appear on continent to continent / world wide.



**Epiphytotic:-** The study of the plant epidemic is called epiphytotic. It will be only used in case of plant disease triangle is necessary for disease coming. All factors should be conducive. Two more factors can be added to this chain and can become a pentagonal. The other factors can be space and time. If the required time is provided to the pathogen and space distance is maximum requirement then the disease will occur.



All these factors should be the contributors and should act as the model. The model should be first established to study the epidemiology. If the situation is all according to the model then the epidemic will appear.

## Lecture.2

### Epidemic:-

when a pathogen spread to and many individual in the pop



relations are affected by it. It occurs over the large area and for the relative short time.

Any increase in disease in any population or dynamics of the change in plant disease in a time and space.

## Epidemiology:-

study of the epidemic and all the factors that are influencing it.

## Covering areas:-

1. It covers the genetics of the host resistance.
2. It also covers the potential of the pathogenic population.
3. It also covers the race of the pathogen that is virulent the same host varieties.
4. Biotic factors are also covered.
5. Abiotic factors are also covered.

## Epidemic losses:-

1. wheat rust
2. Grapes downy mildew
3. chest nut blight
4. Dutch elm disease
5. coffee rust
6. Irish potato famine (1845 - 1846)



# Practical PP-308 Plant disease Epidemiology

## Practical:- 1

### Surveying & Sampling

#### Criteria of sampling:-

1. Organization and planning. It is required to check whether the disease is present or not. All equipments should be provided.
2. Nature of the sample should be in consideration, the physical and the biological characteristics should be known.
3. When the sample is taken the new biological activities are started. we have to stop that activities of that part.
4. We should have the material that can carry the sample i.e. liquid  $N_2$  ( $-196^\circ C$ ) for freezing.

5. In case of new disease, the sampling should be done the non-random bases. (Random sampling is to reduce the biasness).

6. Disease assessment should be under the prevailing cultural condition. (Rating scale).  
prevaling (Presence),  $\text{Prevalence} = (\text{disease}/\text{total} \times 100)$ .  
Severity =  $(\text{plant part}/\text{plant} \times 100)$ .

7. Sampling is beneficial in 3 ways labour, time and money.

8. Compare the symptoms on the susceptible and resistant genotype.

9. Need based plant protection method (curative and preventive).

10. Social and economical situations be known.

11. Correlation b/w the diseased and non diseased plant

12. Regression analysis to check How much the depend variable relay on.