

Probs There are some predicting devices that use micro-chips, micro computer and still minicomputer, are adjusted to the pole and give information. All data is collected into that disease, the model is also adjusted into that disease. Now a days the micro chips itself tell the forecasting. No agent & worker, ~~from~~ agri-officer is required.

New Tools in epidemiology:-

1. Geographic information system
2. Molecular tool.
3. Global positioning system
4. Remote sensing
5. Image Analysis
6. Information technology.

1. Molecular tools:-

1. **PCR** - polymerase chain reaction.
 The specific genetic prob can be copied upto millions by using polymerase enzyme and can do study for experiments. They can be use for identification of pathogen in the tissues or on the surface of tissue. Can also be used for the identification of pathogen from the mixture. Further you can identify the different strain of pathogen.

ultimately you can identify before the time and can do prediction.

2. **RAPD** - Random Amplified Polymorphic
3. **SCAR** - Sequence characterized Amplified

2. Geographic information system:-

Computer system, can be operated in any device. It manipulates the data and give the display. The data comes from geographical quadrant and then assemble, manipulate and display the data. It help in the spatial study and temporal study in space and time. It will also give the severity of disease and give high resolution data of Environment. It will give critical information used in model.

* Bay of Bengal → bring the rust

* Bay of persia

ultimately these statistically technique are to save Resources + time.

3. Geographic Positioning system

It is any device that position the pin point of diseased plant. It tell which part of field is diseased. On the base of symptom you can predict the disease.

4. Geostatistical technique which uses

geostatistical information and spatial pattern and development of disease in space and time. It help to quantified the discrete and random variables. It no need the assumption of severity stationarity of objects/units. It is semi-variogram that's picture and give info. when disease come and How much inoculum. It is before the crop growing.

5. Remote Sensing:-

It refers to used the electrical magnetic wave that are reflected and emitted by the oblique object. The device got reflected ray in the form of U.V, I.R, Visible part of λ spectrum. Handheld camera (ground based camera / having film / filters to record) digital camera, radiometry. They are adjected over crop, balloons, in satellite. The remote that data from the crop and can print and analyse the data. you can also feed the data in computer.

6. Image Analysis:-

It referred to photography & electrical im. a. photography taken the image photography G.B.P., Air born sensor, Air born multi-structural scanning

array.

It is widely used for surveillance of disease and pest. (M.S.S). They all use infra red light of different wavelength which help for detection and occurrence of disease even single plant is damage can be identified. Intensity of disease and level of inoculum can be measured. It also give the information of disease progress.

7. Information Technology:-

Information technology give all devices, all data, all computers. It also beneficial through internet and can do in advance the management. plants, report development spatial pattern can be study, genotype, sequence study, sequence blast and so more data.