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PEST SURVEILLANCE

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Pest surveillance is the systematic monitoring of biotic and abiotic factors of the crop ecosystem in order to predict the pest outbreak

or

it is the study of the ecology of the pest which provides the necessary information to determine the feasibility of a pest management programme

Advantages

1. Patterns of pest multiplication
2. Minimize the cost of plant protection
3. Timely Initiation of Pest control measures
4. Pest forecasting
5. Natural enemy population
6. Influence of weather parameters on pests
7. Mark endemic areas
8. Maintain the stability of the agro ecosystem

Pest surveillance and monitoring in India:

Directorate of Plant Protection , Quarantine and Storage (DPPQS), Faridabad, is organizing regular rapid roving pest surveys on major field crops in different agro ecosystems in collaboration with **ICAR and SAU's** and a consolidated report then issued by **Plant Protection Adviser (PPA) to the Government of India.**

Forecasting for Pest Management

Insect forecasting service may serve to find out

- (1) **Prediction** of Infestation levels
- (2) **critical stages** of insecticide application

1941- Nation wide pest forecasting system was established in Japan

1939- Locust warning station in India was established

Forecasting is mainly of two types

- 1) **Short term:** Covers one or two seasons mainly based on the populations of the pest within the crop by sampling methods
- 2) **Long term:** Covers large areas and based mainly on the possible effects of weather on the insect abundance. **Eg. Locust warning stations**

Forecasting is made through

1. **Population studies** carried over several years
2. Studies on the **pest life history**
3. **Field studies** on the effect of climate on the pest and its environment
4. Predictions form the **empirical data** on the pests of the previous season

INSECT PESTS -Latin word 'Pestis' meaning Plague

- An insect reaches status of a pest when its number increases and inflicts significant damage
- 'Pest' is an insect or other organism that causes damage to crops, stored produce and animals
- Damage boundary is the lowest level of injury where the damage can be measured

Insect pests are divided into

- 1) **negligible**- less than 5% loss in yield
- 2) **minor**- loss ranging from 5 to 10%
- 3) **major**- a loss of 10% or more

Different Categories of Insect Pests

1. **Regular pest:** Occur frequently in a crop and have **close association** with that particular crop
Eg: Chilli Thrips *Scirtothrips dorsalis*, brinjal shoot and fruit borer, *Leucinodes orbonalis*
2. **Occasional pests:** No **close association** with a particular crop and they occur **infrequently**
Eg: Rice case worm, *Nymphula depuctalis*, mango stem borer, *Batocera rufamaculata*
3. **Seasonal pests:** Occur during a **particular part of year**, incidence is governed by **climate**
Eg: Red hairy caterpillar on groundnut-June – July
Rice grasshoppers –June-July

4. Persistent pests: Occur on a crop almost **throughout the year**

Eg: Scales and mealybugs on many crops, **thrips on chillies, paddy stem borer**

5. Sporadic pests: Occur on a few isolated localities

Eg: coconut slug caterpillar – *Macroplectra nararia*, *Contheyla rotunda*, Rice earhead bug - *Leptocorisa acuta*, castor slug caterpillar-*Latoia lepida*

6. Epidemic pest: Occur in severe form in a **region or locality at a particular season or time only**

Eg: Rice hispa, *Dicladispa armigera*, rice leaf roller, *Cnaphalocrocis medinalis*

7. Endemic pest: Occur **regularly and confined mostly to a particular area or locality**

Eg: Red hairy caterpillar *Amsacta albistriga* on groundnut in Kurnool, Ananthapur, Kadapa, Chittoor, Srikakulam and Vizag districts, stem borers of rice, paddy gall fly in Warangal districts