

***INTEGRATED PEST
MANAGEMENT
IPM***

About 40% of the potential global crop yield is destroyed by pest before it is harvest. Another 20% is destroyed postharvest in storage. The use of conventional chemical pesticides have a significant negative effects for people and environment. It has led to the development of pest resistance, the destruction of beneficial insects, pollinators and disruption of the natural balance. Many of the chemical pesticides are already not allowed for use in our country, but there are alternatives to chemical pesticides.

IPM is a system for maintaining the population density of the main pests on crops below the Thresholds of economic harm, using the results of the natural regulation and well-known methods for control combined in the most effective way.

ИРЗ е система за регулиране на популационната плътност на най-важните вредители под праговете на икономическа вредност, като се използват резултатите от природното регулиране и познатите методи за борба, съчетани по най-целесъобразен начин.

IPM practices include biological control with Insect pathogenic viruses, bacteria and fungi; Predators and parasitoids; Insects pheromones; Plants extracts; Resistant varieties; Physical and cultural methods; Crop rotation; Use of selective pesticides.

The aim of *IPM* is not 100% pest eradication, rather it is to reduce a pest population below its economic injury level.

Main steps in IPM

- ❑ To know the local agronomic practices and characteristics of the crop to be protected.
- ❑ To know the local insect fauna affecting the crop and identify the key-pest, secondary pests, etc.
- ❑ To know the bio-ecology of the species to be controlled, and the insect-plant interactions.
- ❑ Monitoring of phytophagous and beneficial populations. It is important to know for each pest when to monitor, the proper method and possibly what tools to use. Typical tools for monitoring are sweep nets, sticky traps, and pheromone traps.
- ❑ Collect basic meteorological data (temperatures, relative humidity, rainfall) in order to establish correlations with the biology of insects, apply forecasting models, time sprayings, etc.
- ❑ Planting crops where and when there is no serious risk of economic damage.

- ❑ When the economic threshold is exceeded, first control means with low environmental impact (mechanical, agronomic, biological) should be adopted to control the pest populations.
- ❑ If the measures referred in the previous paragraph are not sufficient to ensure the crop protection, spray applications will be carried out, choosing:
 - active ingredients allowed for the crop,
 - the most selective,
 - with the lowest toxicity,
 - Strip spraying, in periphery of the field or in the hotspots with the highest pest density.

The most important preventive pest management strategies are:

- ① **Field sanitation.** Removing infested plant material including crop residues from the field reduces carryover of pests from one planting to the next and thus prevents reinfestation.
- ② **Cultural practices include** crop rotation, tillage, varying timing of planting or harvesting, planting trap crops, adjusting row width, healthy organic soils, cultivating suitable varieties.

•**Enhancing natural enemies.**

These are stimulated by planting of a border/buffer strip of a variety of insectary plants, shrubs flowering from April to October. By creating farming systems which are high in biodiversity, the self-regulatory mechanisms are increased and the system tends to be more "dynamically stable".



Thank you !