REPACAGING OF OP PESTICIDES

WATER CONTAMINATION?

- PESTICIDES ALTERNATIVES TO PREVENT PRESENT SITUATION

Integrated Pest Management and Biocontrol

WHAT IS IPM ?

- **IPM IS :**

Pest management system that, in the context of the associated environment and the population dynamics of the pest species, utilizes all suitable techniques and methods in as compatible a manner as possible and maintains the pest population levees below those causing economic injury

THREE ESSENTIAL COMPONENTS OF IPM

- **MULTIPLE TACTICS (e.g. natural enemies, resistant varieties , pesticides)**
- **PEST POPULATION MAINTAINED BELOW LEVEL THAT CAUSE ECONOMICALY SIGNIFICANT DAMAGE**
- **CONSERVATION OF ENVIRONMENTAL QUALITY WITH IN AND BEYOND THE CROP**

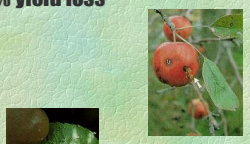
ELEMENTS OF IPM

- **Use of natural enemies and other biological agents**
- **Ecological management of the Crop Environment**
- **Conventional insecticides**
- **Host-plant resistance**
- **Modifying insect development and behavior**
- **Sterile insect release and genetic techniques**

PESTS PROBLEM IN UKRAINE

There are approximately 400 pests in Ukraine

•Among them one hundred and fifty key pests species cause a significant 28% yield loss



PEST CONTROL

•Chemical control was used widely a s pest control for last 40 years
•Ukraine used to produce and consume high quantities of pesticides
•Ukraine, Moldova, Russia and Uzbekistan together accounted for 72 of the use if pesticides products in the Commonwealth of 15 republics of Former Soviet Union



PESTICIDES REGISTRATION

- Ukraine operated a pesticides registration system, which include 300-400 pesticides
- For the last twenty years from insecticides, synthetic pyrethoids and organophosphates are the most common
- On applied amount diazinon is the most applied, followed by alpha cypermethrin and deltamethrin
- Carbomates are prohibited in Ukraine

PESTICIDE USE DECRASING

- The peak of pesticide use (5.5 kg/ha) was 1986
- Since that time pesticide production and use have both dropped significantly during the last ten years
- The decrease results not from ecological concern, but from:
- An increase in the appearance of new pesticides on the market that are active in considerably lower concentration
- Economical realities which mean that agricultural enterprises and farmers cannot afford to by pesticides
- Currently pesticides use consist of 0.7-1 kg/ga

PESTICIDES MARKET

- PESTICIDE MARKET IS TOTALLY IMPORT DEPENDENT
- There are 30 companies supplying Crop protection products to the Ukrainian market
- Only seven plant protections are produced locally in Ukraine

IPM AND BIOLOGICAL CONTROL

•IPM was used on winter wheat, sugar been, sunflower, legumes, cabbage, apples and green house

•Ukraine has successful story of IPM and biocontrol use in the past as well as qualified experts in this area

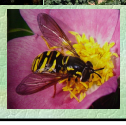


Crop protec-tion system	Crop protection measures	Yield Kg/m²	Yield increasing Kg/m²	Production cost /m² UCD	Cost of the yield addition, UCD
Conven-tional system	Spraying: Fungicides 3-5* Insecticides 2-5* Acaricides 2*	18.0	-	4.9	-
IPM	Release of beneficial organism Spraying: Fungicides 2*	24.0	6.0	6.5	1.7

DEFINING BIOCONTROL

Biocontrol is

The use of living organisms to suppress the population of a specific pest organism, making it less abundant or less damaging then it would otherwise be (Ellenberg et al.2001).



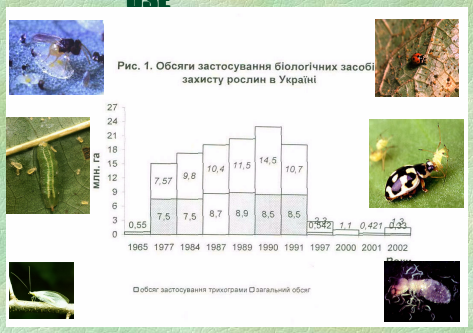
BIOLOGICAL CONTROL IN UKRAINE

- Natural entomopathogens and microbiological pesticides were used widely in the late 1970s to the early 1990s. During that time 268 laboratories to mass rear useful insects and microbiological pesticides existed
- In 1988 Biocontrol was used on 1.7 million hectares and shared 14% of total Crop protection products use
- In 1999, only biocontrol used on 0.9 million

Beauveria bassiana

Parasite pupae on host caterpillar

TOTAL AREAS OF BIOCONTROL USE



BIOCONTROL PRODUCTS FARMS

IPM NOWADAYS

- Currently in time of transition of agriculture toward market, farmers are not so confidant that using IPM and biocontrol can bring then some profit
- Some farmers are not aware of IPM and biocontrol at all

ROLE OF EDUCATION IN IPM

- Education and training is a vital part of IPM implementation
- There are many links in the chain from science developing IPM to farmers and pest control operators practising
- Education and training needs to enable farmers and others trying to manage pests properly, that is IPM is relevant to their local circumctances and that will bring them benefits