Welcome
to
IPM Presentation From Bangladesh

IPM CRSP GOALS

- Develop Improved IPM Technologies
- Develop Effective Institutional Changes

MAJOR OBJECTIVES

- Reduce crop losses
- Increase farmer's income
- Reduce pesticide use
- Reduce pesticide residues on crops and other products
- Improve and/or complement existing IPM research, education and technology transfer programs
- Improve ability to monitor pests and protect biodiversity and human health, and
- Increase involvement of women in IPM decision making and program design

IPM CRSP PROGRAMS IN BANGLADESH ARE TARGETED FOR MAJOR VEGETABLES AND PESTS

Crops and the related problem

- **Eggplant**

FSB, jassids, RKN, BW and soil-borne fungal pathogens

- **Cabbage**

Leaf-eating insects and soil-borne pathogens

- **Okra**

Virus diseases

- **Tomato**

Bacterial wilt, virus disease and nematodes

- **Beans**

Pod borers, aphids and virus diseases

- **Cucurbits (sweet gourd, bitter gourd, cucumber)**

Fruit fly, virus diseases and soil-borne pathogens

MAJOR TECHNOLOGY DEVELOPMENT ACTIVITIES

- Developing pest-resistant vegetable crop varieties
- Grafting of eggplant and tomato for pest control
- IPM practices to control leaf-eating pests of cabbage
- Soil amendment practices for disease management
- Bait trapping for fruit fly control of cucurbits
- Economic weed control practices in vegetables
- Biological control for vegetable pests (FSB)

Achievements

Four pest resistant/tolerant egg plant varieties have been released (BARI Begun-6,7 & 8) in 2006 and one (BARI Begun-9) in 2010

Two virus resistant pumpkin varieties (BARI Misti Kumra-1&2) have been released in 2007

Grafting technique for eggplant and tomato have been developed

EGGPLANT GRAFTS

DISEASE MANAGEMENT BY ORGANIC SOIL AMENDMENT PRACTICES

- Poultry refuse, mustard oil-cake and Tricho-compost are highly effective to control/suppress soil-borne pathogens
- This practice can reduce disease attacks by more than 50% and produce healthy crops and seedlings without pesticide use
- Farmers have obtained 50% more yields and economic returns by using this practice

Soil amendment with poultry refuse and mustard oil-cake

Production and use of Tricho-compost and Tricho-leachate to improve soil fertility, soil health and plant growth and to control disease

Tricho-compost production

Tricho-compost house constructed by NGOs

(MCC & GKSS)

Low cost Tricho-compost house constructed by Farmer

Tricho-compost use

Tricho-compost used in farmers field

Control

CABBAGE PEST CONTROL BY IPM APPROACH

•Leaf eating caterpillars are the most serious pests of cabbage and cauliflower crops. Farmers fail to control the pests effectively by repeated pesticide applications.

• Pheromones traps are used for controlling S. Litura

•Removal and destruction of the caterpillars 3-5 times by hand-picking starting from the 3rd week of planting can effectively control the pest and minimize damage by more than 80%.

•Farmers have obtained, on an average, 22% higher yields of cabbage and gained 32% more economic returns.

•By using this practice, farmers have been able to produce healthy cabbage crops skipping pesticide use completely and saving pest control costs by 75-80%.

Control of leaf-eating pest of cabbage/cauliflower using IPM approach

(manual destruction of caterpillar)

Fruit fly control in cucurbit crops by using pheromone bait

CUCURBIT FRUIT FLY CONTROL BY BAIT TRAPS WITHOUT PESTICIDE USE

- Fruit fly is widespread in Bangladesh and damages 50-60% of the cucurbit fruits
- Bait trapping by indigenous lures and pheromones reduces fruit damage by more than 90%
- Farmers have obtained 2-3 times higher yield

Biological control of vegetable pests

Larval parasitoids
(*Bracon hebetor*)

Egg parasitoids
(*Trichogramma* sp.)

COST EFFECTIVE WEED MANAGEMENT

Farmers keep their vegetable field weed free by 4-6 times hand weeding that highly increases the production cost

Only two hand weeding at critical stages of crop growth can effectively control weeds and reduce weeding cost by 50%

By using this practice farmers have produced crop yields similar to that of their traditional practice and have earned about 50% higher economic returns

Recent Change in pest management scenario in Bangladesh due to IPM CRSP intervention

- Several bio-rational based pest management packages have been developed and became highly popular among the farmers communities.
- Four private companies are active in bio-pesticide business.
- Toxic pesticide free vegetable production is not a dream, now it’s a reality.
- Non-profit private organization such as B-SAFE Foundation, IPM Forum, FASAL etc. are facilitating the production and marketing of bio pesticides as well as toxic pesticide free products in Bangladesh at a limited scale.

Future Thrust

- Sucking pests, viz. whitefly, jassid, aphids, thrips and mealy bugs are becoming great threat to vegetable production. So, thrust should be given to develop IPM packages for sucking pests.
- Cheap and effective mass production protocol of several parasitoids have been developed, however mass production protocols for predators and some more parasitoids should be developed.
- Classical biological control should be done by introducing parasitoids for papaya mealy bug management.
- Necessary steps to develop virus resistant germplasm of different vegetables should be taken.
- Capacity building of the scientists on bio-rational based pest management are very much essential.


Thank You