SAFE-World Project/Initiative Summary

Country: Philippines

Project/Initiative Title: Integrated Pest Management for Highland Vegetables (funded by Asian Development Bank)
1994- 1996

Scale: Many communities Nos. farmers: 1720 Hectares: 1720

Improvement types

1	2	3x	4x	5x	6x	7	8	9x

Success and Limits to spread

Success	Limits
2a, 3a, 7	3e, 5a, 5b

A. Key Impacts

A1 – Productivity

	Before / Without	After / With	% change
Cabbage		Up by 4800 kg / ha	21%
Potato		Up by 3000 kg / ha	

A2 – Impacts on natural capital

?? Before training, 100% farmers used insecticides, after FFS only 25 % using insecticides and not for DBM.

?? Before FFS , 80% farmers preferred Category I and II highly toxic products. After FFS, 90% farmer shifted to Category IV products with lower mammalian toxicity and biopesticides

?? Due to successful biological control of key pest DBM, many farmers now produce insecticide-free cabbage and consumers no longer worry about residues.

?? Conservation of native natural enemies encouraged. More species diversity in IPM fields than regularly sprayed fields (159 vs 125) and lower proportion of pests

A3 – Impacts on local community (social capital)

?? FFS graduates better organized and more responsive to community needs.

?? FFS considered good investment by local government for municipal progress

?? Impact of FFS motivated one mayor to ban avertising hoardings for chemical insectides in his municipality.

A4 – Impacts on households and individuals (human capital)

?? Ability to make better and more independent decisions in farm management

?? Farmers rely less on agrochemical salesmen and more on own knowledge and other farmers for pest management information.

?? 48 IPM Trainers trained, mainly from local government.

A5 – Key changes in farm / regional system
rationale of project was insecticide input reduction / safe cabbage production not yield increase. Major impetus for project was poisoning incidents due to spraying of cyanide on cabbage in farmers' desperate attempt to control diamondback moth, which had become resistant to most available pesticides

?? Cabbage yield increased by 4.8t / ha (21% increase) in dry season cabbage
?? Potato yield increased by 3t / ha.
?? Decreased production costs / ha of cabbage (11%) and potato (2%)

?? Net income of FFs farmers increased by 17 %
?? 80% average decrease in insecticide use (13.8 to 2.9l cabbage crop) in dry season and 55% in wet season.
?? Synthetic fertilizer rate halved without negative effect on yield while organic fertilizer rate maintained.

?? Farmer participatory IPM training can resolve production and pesticide crises generated by pesticide abuse where traditional research and extension methods have failed.
?? FFS farmers now challenge agrochemical salesmen to prove harmlessness of products to natural enemies
?? Training in conjunction with policy support at local level can influence agrochemical industry (local outlets now supply biopesticide, Bt, chemical insecticides advertising reduced)

B. Types of Sustainable Agriculture Improvements

Type 1: Better use of available renewable natural capital
Type 2: Intensification of single sub-component of farm system
Type 3: Diversify by adding new productive natural capital and regenerative components
Type 4: Better use of non-renewable inputs and technologies
Type 5: Social and participatory processes leading to group action for making better use of natural capital
Type 6: Human capital building through training-learning programmes
Type 7: Access to Finance
Type 8: Add value by processing to reduce losses and increase returns
Type 9: Add value by direct or organised marketing of produce to consumers

	Yes / No	Narrative
Type 1		
Type 2		
Type 3	x	?? Successful community introduction of parasitic Diadegma wasp for DBM control achieved via farmer awareness training about natural enemies and harmful effects of pesticides ?? Conservation of natural enemies through flowering plants on field borders ?? Farmer use and local sales of biopesticide Bacillus thuringiensis for DBM control
Type 4	x	Soil testing kits used in FFS training to rationalize fertlizer use
Type 5	x	FFS as key mechanism for SC formation

Type 6	x	?? Pest and disease control decision-making based on field observation / agroecological principles rather than calendar applications ?? Discovery-learning via FFS field-based training / non-formal education methods ?? Extension staff trained in participatory IPM technical and methodological methods ?? Farmer-consultative workshops to discuss ideas, impact, follow-up ?? Farmer-trainer workshops with local government, project team, research and Min Ag participants to brainstorm on experiences and suggestions for improving programmes
Type 7		
Type 8		
Type 9	x	Insecticide-free vegetables now produced by some farmers

C. Key Lessons: Success, Spread and Constraints

C1 – Key Lessons Learned

?? Preliminary groundwork in villages with local leaders / local govt reps essential for good start-up and farmer involvement.

?? Active involvement of and benefits for local government at mayoral and field staff level provided backbone support and encouraged matching of projects funds.

?? Successful introduction of natural enemies for control of exotic pests like DBM in intensive vegetable smallholder systems depends on effective farmer training and community-wide action (provision of parasitized cocoons from university to farmer groups and farmer release via wooden "Diadegma Hotels")

C2 – Aspects of local/national context contributing to success

?? Supportive national policy (National IPM Programme for FFS training) and widespread consumer concern about pesticide residues

?? Direct involvement of local government in project area

C3 – Limitations preventing spread

?? Continued influence of agrochemical industry

?? Logistics of communication on poor mountain roads

?? Unfavourable marketing conditions for small farmers (distance, middlemen, prices)

C4 – Policy issues

?? Bureaucracy in releasing national funds for project support

?? Limited vehicle provision in local government to mobilize on larger scale

C5 – Scaling-up

?? More curriculum development in other crops and broader crop / soil management remit

?? Action research on ICM for new pests / diseases replacing DBM dominance

?? Local sales outlets for insecticide-free produce

?? Set up Farmers' Federation for collective action on marketing, inputs
?? Regional programmes at Agric. and other ministry level to use FFS as entry point for community organization and farmer empowerment

D. Contact Point for Project/Initiative

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E. Project Narrative

Philippines: Integrated Pest Management for Highland Vegetables

The CABI Bioscience IPM for Highland Vegetables project in the Philippines was set up in 1994 and is funded by the Asian Development Bank. Cabbage production had become fraught with difficulties for local farmers desperately attempting to control the diamondback moth, which had become resistant to most available pesticides and was devastating crops. The main impetus for the project was the growing number of poisoning incidents caused by the spraying of cyanide and the desire, therefore, to promote safe cabbage production through reduced dependence on insecticides.

The IPM project set up Farmer Field Schools (FFS) to increase awareness about the harmful effects of pesticides, to increase knowledge of natural enemies and to encourage discussion on best husbandry practice amongst farmers themselves. The project reached 1719 farmers in 65 FFS groups, with 48 trainers trained, mainly from local government.

As a result of their membership of Farmer Field Schools, farmers are able to make better and more independent decisions in farm management, they rely less on agrochemical salesmen and more on their own knowledge and that of other farmers for pest management information. Field observation and agroecological principles determine pest and disease control decision-making rather than routine calendar applications of pesticides. Alternative sustainable biological technologies were developed to control the diamondback moth such as i) conservation of natural enemies through flowering plants on field borders, ii) successful community introduction of parasitic Diadegma wasp that preys on the moth and iii) farmer use and local sales of biopesticide *Bacillus thuringiensis*. In addition to encourage the reduction and rationalization of artificial fertilizers use, soil testing kits were used in the FFS training.

After the farmer field schools project there has been an 80% decrease in the amount of artificial pesticides used in the wet season (55% in the dry season) and the synthetic fertilizer rate has halved giving the FFS farmers a net rise in income of 17%. Although the project was designed to cut the use of external inputs as a priority there have been other resulting benefits to the farmers, their communities and the natural environment. These include:

- ?? Increased yields - cabbage yield increased by 4.8t/ha (21% increase) in dry season
  potato yield increased by 3t/ha.
- ?? Decreased production costs – per ha of cabbage (11%) and potato (2%)
- ?? FFS graduates are better organized and more responsive to community needs.
- ?? FFS are considered good investment by local government for municipal progress
- ?? Impact of FFS even motivated one mayor to ban advertising hoardings for chemical insecticides in his municipality.
- ?? Due to successful biological control of key pest DBM, many farmers now produce insecticide-free cabbage and consumers no longer worry about residues.
- ?? Conservation of native natural enemies encouraged more species diversity in IPM fields than regularly sprayed fields (159 vs 125) and a lower proportion of pest species