



The Field Alliance



Agroecology program in Xuan An and Ngoc Son, Vietnam

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Crop intensification and problems associated with pesticide use in agriculture

- ▶ Harms vital ecosystem services, agrobiodiversity



- Raises food safety concerns and jeopardizes export potential



- Causes frequent poisoning and chronic health problems
- Exposes women and children to risks

Xuan An and Ngoc Son - Bac Giang

Agroecology programme has been implemented since 2013

Support by:

- ▶ The Initiatives on Community Empowerment & Rural Development (ICERD), and other The Field Alliance (TFA); other support is FAO Asia Regional IPM/Pesticide Risk Reduction Programme.

ICERD, TFA, FAO-IPM support for Xuan An and Ngoc Son within the Sida funded regional program "Towards a non-toxic environment in South-East Asia".

- ▶ Department of Plant Protection (PPD)- Ministry of Agriculture and Rural Development (MARD) and the Department of Continuing Education - Ministry of Education and Training (MoET).

Survey status of agrobiodiversity, impacts of pesticides on public health and environment conducted jointly by students and farmers.

Results:

- ▶ Over use of pesticides
- ▶ Health problems related to pesticides
- ▶ Children are at risk as the residential areas and schools are surrounded by crop fields where pesticides are sprayed
- ▶ PPE are rarely adopted by farmers
- ▶ Storage and disposal of pesticides was not carried out safely
- ▶ Agro-biodiversity erosion related to pesticide use
- ▶ Pollutions from livestock
- ▶ Loss of sources of manure from livestock
- ▶ Work load on the shoulders of women
- ▶ Vegetable area decreased due to the high production costs (fertilizers, pesticides, labor), pests, diseases

Survey results are reported to commune people's committee, mass organizations for solicit support and use for dissemination to raise awareness



Students survey on pesticide risks



Students and farmers survey on agro-biodiversity

Training programme

- ▶ Training of Trainer (TOT): 7 person (Vice chairman of commune People's Committee, teacher of secondary school, Extension staff) attended TOT
- ▶ Organized 15 FFS for 378 in which 299 Woman (80% Woman); Training for pesticide dealers

Participants	Training topics
Training of farmers	<ul style="list-style-type: none">- Agro-biodiversity conservation and use- Pesticide Impact Assessment (PIA) & Pesticide Risk Reduction (PRR)- Biological control, System Rice Intensification (SRI), integrated production and pest management (IPPM) on rice, vegetables- Integrated rice-fish cultivation- Bio-bedding/Bio-mats, and Composting,- Crop-livestock integration to strengthen nutrient cycling within farms.
Training of students	<ul style="list-style-type: none">- Agro-biodiversity conservation and use- Pesticide Impact Assessment (PIA) & Pesticide Risk Reduction (PRR)



FFS ABD Bac Giang

Follow up activities for sustainable the programme

- ▶ Activities on pesticide risk reduction and ecological agriculture have been absorbed into the mainstream of the Commune People's Committee strategic Plan on agricultural production and rural development.
- ▶ Variety of follow up activities organized by social organizations, farmers, students, and commune Peoples' Committee with their own resources to sustain the program

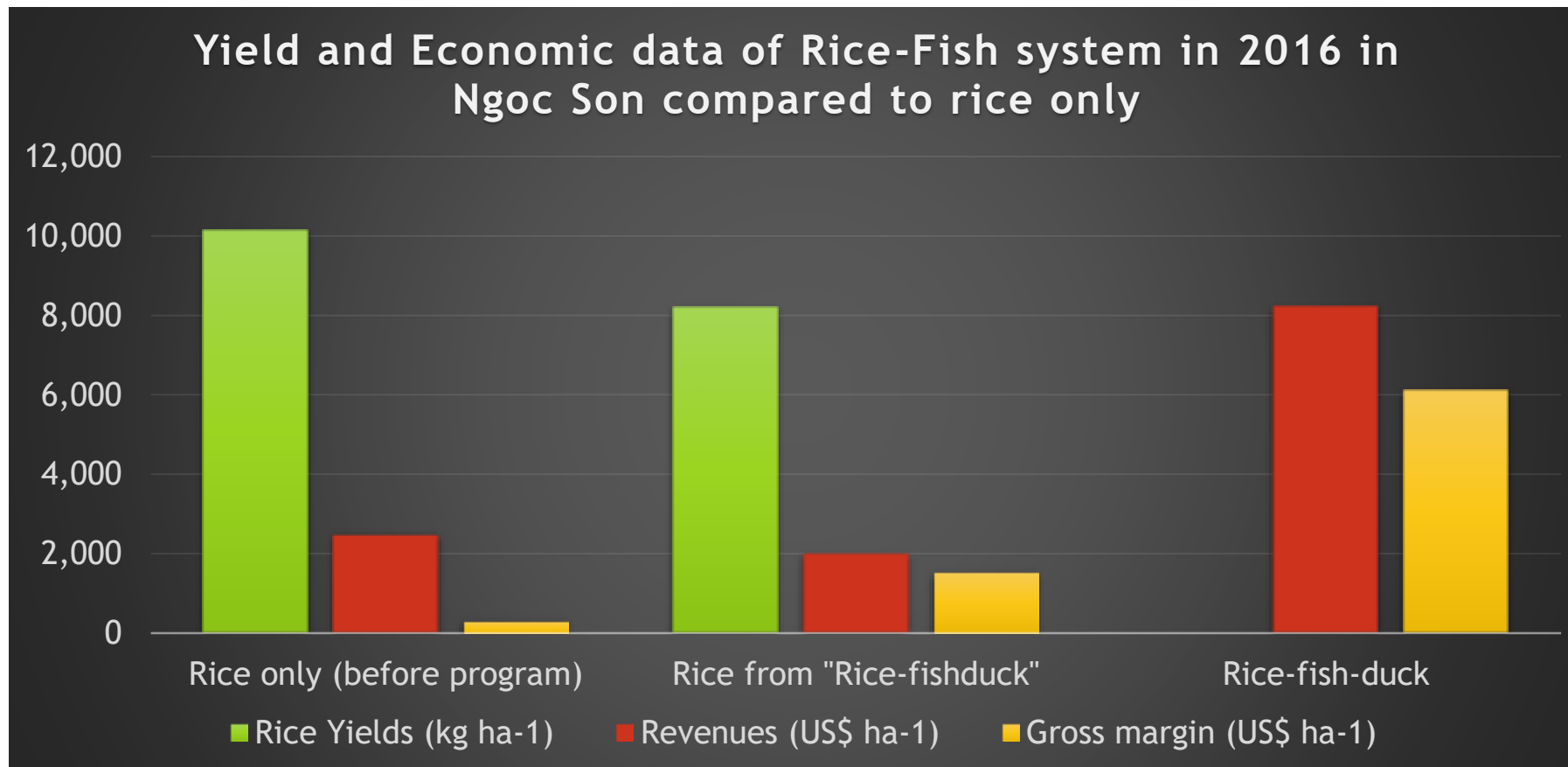
Follow up activities - Conservation and use of fish and aquatic animals in rice field

- Conservation and use of fish and aquatic animals in rice field/integration rice-fish-duck: Fish and ducks play a role in weed and pest control and thereby reduce herbicide and pesticide use and labour cost. More than 30 women involved in rice-fish farming

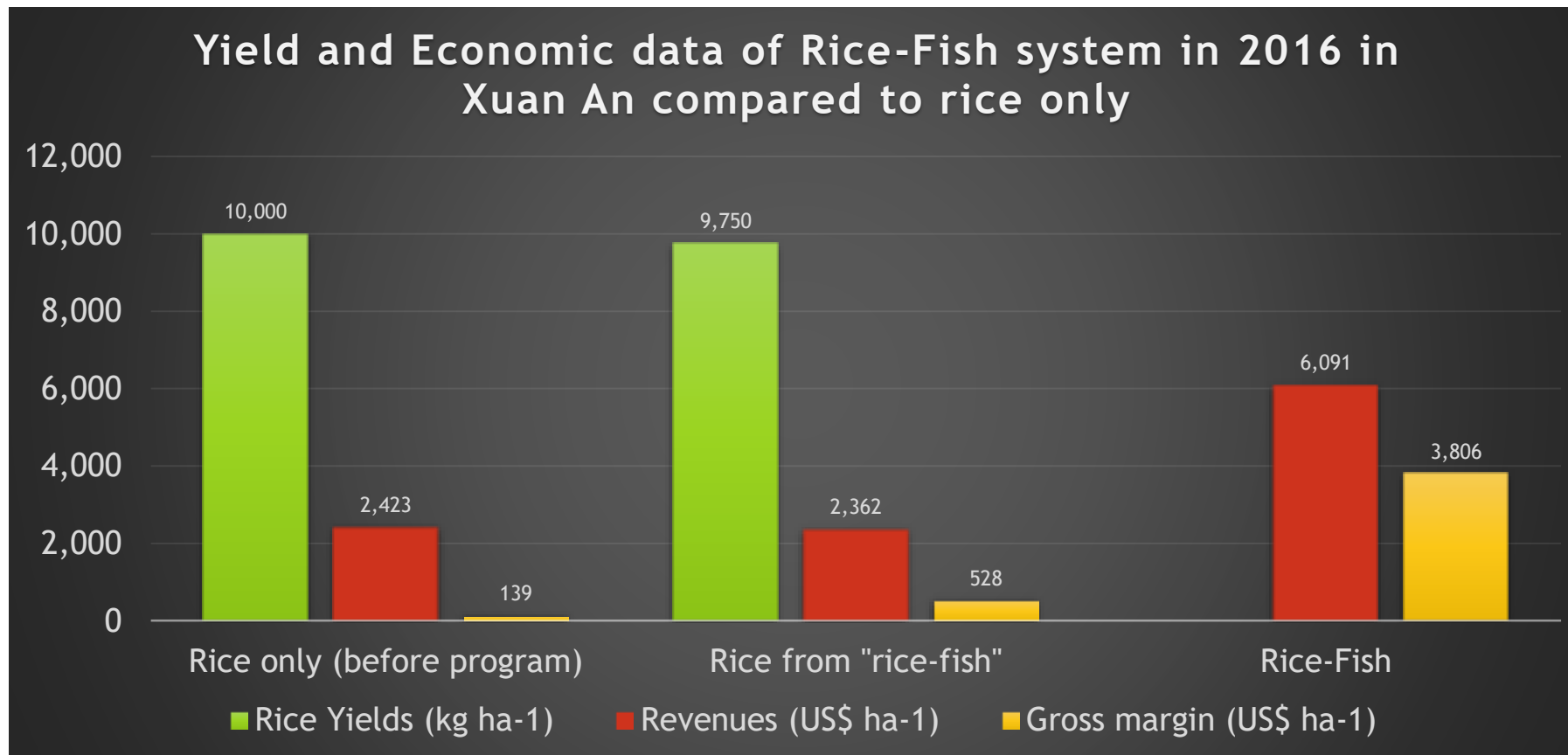


Woman farmer of Ngoc Son - Bac Giang harvesting fishes from rice field

Follow up activities - Conservation and use of fish and aquatic animals in rice field



Follow up activities - Conservation and use of fish and aquatic animals in rice field



Follow up activities - Home garden and "integration of vegetables-livestock production" through bio-mats and composting

- ▶ Livestock is kept nearby the house and cause pollution. Bio-mats are formed by a mixture of fermented bio-agents with biomass and mulch from the floor of the livestock's stables. This accelerates manure decomposition, and deodorize foul-smelling and poisonous gas from the shed.
- ▶ The residues of bio-mats is ultimately used to make compost as alternative to chemical fertilizer in "home gardens".



- Contact with restaurants for vegetable production: 7 farmers
- Sell vegetables at local markets: 46 farmers
- Apply Bio-mats: 71 households



Follow up activities - Apply System of Rice Intensification (SRI)

- ▶ Improve rice production and to create a suitable ecosystem for fish
 - ▶ Over 70% of rice area is now cultivated under IPPM and SRI principles
 - ▶ Rice-duck-fish cultivation has been adopted by 60 households
- ❑ Pesticides were reduced by about 74.6% and 78.6% in rice production
 - ❑ Pesticides were reduced by 100% in rice-duck-fish plots
 - ❑ Increasing numbers of natural enemies (35%) and aquatic animal species (11.5%)



Follow up activities - "Green environment day" organized by students

"Green environment day" to sensitize local communities on environmental issues and the need for sustainable farming practices

- ❖ Collecting empty containers of pesticides; Campaigning "plant the trees" in schools, public places and roadsides.
- ❖ "Green environment day" has attracted the participation of Farmers, Students, Teachers, Commune leader, and CSOs (Farmer Union, Woman Union, Youth Union). Trees were planted and taking care.

Involvement of students in the programme:

- ▶ Conducted Survey Jointly by students and farmers
- ▶ Presenting to the Commune authorities, Women's Club, Farmer's Union the results of their survey
- ▶ Raising awareness
- ▶ Sharing with family members and the community on pesticide risk reduction and agrobiodiversity conservation and use



Follow up activities - Construction of tanks for pesticide containers for disposal

- Construction of tanks for pesticide containers for disposal (mobilized fund from communities)



Follow up activities - Creation of Woman's Club

- Creation of a Woman's Club: Participating women in FFSs organized themselves into a woman's club. Activities: exchanging and sharing experiences on the conservation of aquatic animals and fish in rice fields, IPM, SRI, vegetable growing techniques, alternatives to chemical inputs, health and nutritional issues, input supply companies and dissemination of environmental friendly farming techniques.



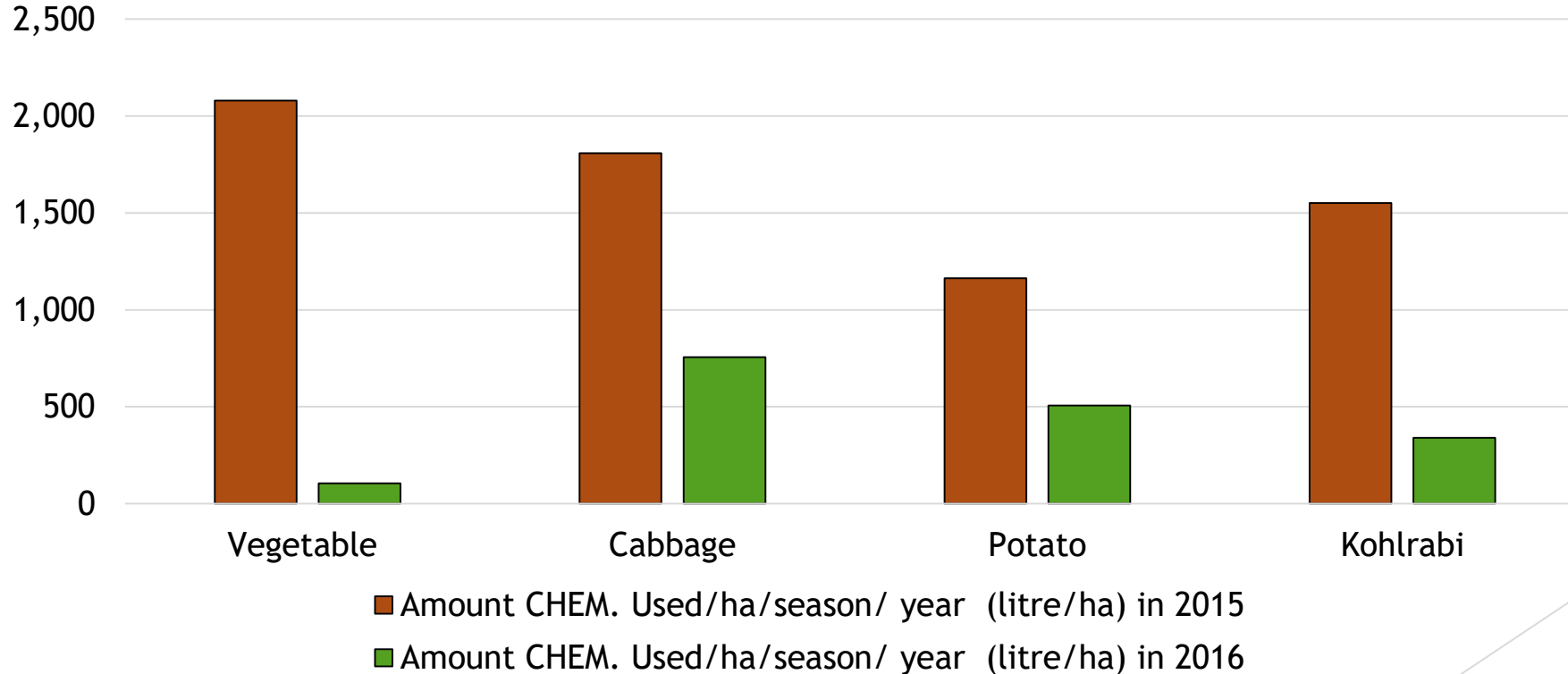
Woman's Club Xuan An Community

Follow up activities - Farmers are increasingly wearing Personal Protection equipment (PPE)

Use of personal protective equipment (PPE)		
Protective Equipment	2015	2016
Uses monkey cap	0	33
Uses helmet	10	37
Uses other hat	0	40
Uses eye glasses=safety goggles	20	43
Uses mask with filter	0	27
Uses with long sleeves	93	97
Long pants	90	93
Medical gloves (white color and thin rubber gloves	3	77
Boots	73	93

Follow up activities - Reduce pesticide use in vegetables

Reduce pesticide use in vegetables after farmers received training - Xuan An



Agroecology Elements

- Nutrient cycling (biomat, compost, crop-livestock integration, rice-duckfish)
- Diversity (rice-duck-fish, vegetable garden)
- Recycling (biomat, compost, crop-livestock integration, rice-duck-fish)
- Synergies (rice-duck-fish)
- Co-creation of knowledge (FFS, women club, students training)

- ▶ Straw burning is not practiced anymore and reduce chemical (pesticides and Nitrogen fertilizer) help to improve recycle organic matter in soils
- ▶ In no-tilled Rice-fish-duck fields compost and rice straw are crucial to improve the trophic relationships between insects, ducks and fish.

- *Organic material stimulates insect communities which are basic elements of fish and ducks diet along with weeds.*

- *Ducks droppings represent an additional nutrient source for rice and also stimulates the phytoplankton growth which complements the fish diet.*

- ▶ Home garden/ "integration of vegetables-livestock production" through biomats and composting: Bio-mats mulch from the floor of the livestock's stables, this accelerates manure decomposition, and deodorize foul-smelling and poisonous gas from the shed. The residues of bio-mats is ultimately used to make compost as alternative to chemical fertilizer in "home gardens".



Drawing by student about agrobiodiversity

Thank you for your attention