





# FHEN FFS report of Ratnanagar 11, Chitwan, Nepal

Nepal Public Health Foundation (NPHF) Farming, Health and Environment Project (FHEN) Prepared by: Srijana Bhattarai

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### **1 INTRODUCTION**

Farming Health and Environment Project (FHEN Phase III) is a project whose overall objective is to improve the health of farmers and consumers by promoting a healthy and sustainable food production in Nepal with a focus on integrated Pest Management. The project is built around the core spirit of 'Pesticide Minimization Movement'. It aims to engage, empower and mobilize diverse groups and sectors to create a mass movement to advocate ensuring our right to pesticide free foods. To realize this vision, it encourages local farmers to adopt alternative and safe approaches to chemical pesticides through skill based training, onsite coaching and equipment support under the concept of Farmers' Field School.

Farmers Field School, defined as school without walls, is a participatory approach of learning by doing in which farmer's finds an opportunity of gaining knowledge about their crops, share problems, experiences and learn from each other. FFS is a non-formal education where farmers with similar crop problems gather together to get basic understanding about their crop problems, its identification, share experiences and gathers solutions by themselves. Participatory discussions, group decisions and agro-ecosystem analysis (AESA) are the fundamentals of IPM-FFS. FFS integrate the basic agro-ecological knowledge and crop management skills that provides platform to farming communities for improvement of their existing practices through experimental learning process.

Farmer field schools not only provide specific technical skills but also organizational skills and practice, analytical skills and practice, and basic group assets such as trust and confidence required for joint enterprises. An IPM FFS was conducted in Ratnanagar 11 of Chitwan district, Nepal and was named as Dharmadham IPM FFS School. Through FFS farmers were able up to the point of being good agriculturist in close interaction with experienced farmer field school facilitators and the agriculture technician of government bodies.

### 2 Objectives of the training

- Introduce suitable agricultural farming practices bitter gourd to the farmers.
- Improve knowledge and skills of farmers regarding bitter gourd cultivation based on concept of IPM.
- Help farmers to help themselves in finding solutions to their problems by enhancing their ability to make decision.

- To enable farmer to diagnose real pest and disease problems.
- To sharpen farmers ability to make critical and informed decisions.
- To provide skill and knowledge on IPM including their basic methods, principles and using techniques IPM tools
- To motivate the farmers to use the PPE and prevent other hazards of pesticides

## 3 Selection and number of the participants

Meetings were conducted in the ward 11 of Ratnanagar municipality in coordination with Dirghayau Jadibuti Cooperative in order to inform, introduce and collect information for successful implementation and completion of Farmers Field School. The meetings were useful to take the commitment and assign the role and responsibilities of the different agencies as well as from the participants. Participants were selected by the Dirghayau Jadibuti Cooperative based on following specific criteria.

- Area of land size holding
- Farmers especially involved in vegetable production
- Number of participation on trainings
- Those participants who have not previously participated on IPM training

In general there were two meetings before start up the farmer's field school.

- First preparatory meeting
- Second preparatory meeting

The main objectives of the meetings were to identify and explain their need, select crops based on problems, profitability and market demand, selection of proper site and appropriate venue, make cropping calendar based on their own existing practices, analyze their problems that are useful for selecting experiments, trials, treatments, plot size, soil sampling for testing, socio-economic analysis, subgroup division and selection of leader, norms Setting, date and time setting, expectation matching.





## 4 Major Crops Selected for the IPM FFS

For the selection of crops matrix ranking method was done. There were two main trail plots in Dharmadham IPM, FFS, in which generally, IPM Plot is of 250 m<sup>2</sup> and farmers Plot is of 250 m<sup>2</sup>. But on accordance on the availability of land and crop we have 169.2 m<sup>2</sup> of IPM plot and 169.2 m<sup>2</sup> of FFS plot.

### 5 Mandatory Trial: IPM vs. Farmers plot

Farmers have been mostly adopted their own traditional knowledge and practice for crop management. It is essential to validate, test and demonstrate the effectiveness of recommended practices with farmer's participation. Scaling up of IPM technologies is only possible if farmers learn and adopt them by their own observations.

### **Components of Farmers VS IPM practices (Mandatory trials)**

Farmers Field school	IPM practices
Field preparation, layout, manuring and	IPM Field school (Based on IPM approaches)
fertilization, sowing/transplanting, irrigation and	
drainage, hoeing and weeding, pest	
management, harvesting, post-harvest handling.	
Area: 169.2 m <sup>2</sup>	Area: 169.2 m <sup>2</sup>
Spacing according to farmers	Spacing: 1.5m (RR)*1m (PP)

### **Supporting trials**

Fertilizer Trial	Pesticide Trial	Pollination Trial	
<b>Cowpea</b> : 50cm (RR) *30cm (PP)	Cucumber: 2m (RR)*1m (PP)	Pumpkin: 2m (RR)*1m (PP)	
• control	Control	Control	
Vermicompost	Inorganic Pesticide	Artificial Pollination	
Farm Yard Manure	Biopesticides	Closed	
Recommended dose of	Neem based Pesticide		
inorganic fertilizer			
(4:6:2 kg Urea, DAP,			
MOP)			

## 6 Spatial Design for FFS

### a. AESA (Agroecosystem Analysis)



It is the core activity of the IPM FFS School to monitor field and to facilitate management decisions. It helps to build awareness of relationships that exists between organisms in the environment and improves decision making skills.

#### PROCEDURE

• Farmers carefully observed whole sample plant, observed flowers and fruits, soil dwelling pests, observed insects and pests in the leaves and stem and recorded all the information in the data sheet provided and translated into a big brown paper.



- Comparisons are made between the number and type of pests, the number of natural enemies and the growing stage of the plant. Thus, conclusions are drawn and the field status was built up.
- Then participants presented their findings and made common conclusions based on their observations.

### b. Group dynamics exercise

Group dynamics exercises are to develop group cohesiveness and problem-solving skills, and encourage collaboration, creativity and self-discovery.

### c. Special topics

Special topics based on local agricultural problems and conditions help support the agro-ecosystem analysis by delving more deeply into specific issues relating to agro-ecology, crop development, IPM principles etc.

### d. Evaluation of the day and planning for the following week:

Through group discussion all the participants, analyze the performance and condition of the plants and made a common decision on activities to be performed on the next week.

### e. Farmers Tour

A Farmer's tour to Madi Organic Farm and Research Centre Private Limited was organized and farmers were able to visualize various technology used in farm such as hydroponics, drip irrigation. The farm visit was guided by the Mr. Sanjaya Baral, Manager of the farm and provided much more information regarding it. The farm was owned by Dr. Bhanishwor Pokhrel. They are working under eight different sectors, i.e.

Goat
Cattle
Duck and chickens
Cereals
Vegetable
Fish
Farm stay

They are cultivating cereals only for their consumption and other sectors in a commercial way. They have done trial on development of alternatives to coco-pit and peat moss by using wood dust and were successful and are in the way to produce in the commercial way. They were performing organic production on 1 bigha only as it will take longer time for organic cultivation due to lower soil fertility of farm and were in the way to make organic production in the remaining land sooner in the few years. They have sown coriander seeds and Mustard greens for organic production.

### f. Pre and post –intervention Evaluation and Certification:

Pre and post-training tests were organized for the participants. Farmers with high attendance rates, their participation on the field, presentation and who mastered the field skill tests were awarded graduation certificates.

### g. Farmers day

It is the closing day of FFS where farmer celebrate by organizing the closing program by themselves. Certificates, awards and PPE sets were distributed in this day. The chief guest of closing program was Shyam Kumar Shrestha, ward chairperson of Ratnanagar-11 and chairperson of the program was Kumar Prasad Subedi, chairperson of the Dharma dham IPM FFS. Farmers presented stall by keeping the materials and plant parts used for preparing bio pesticides and AESA prepared by them in each week. Finally 20 week FFS was completed and formally closed by the chairperson of the Dharma dham IPM FFS who was the chairperson of the closing program.

## 7 Special Theoretical Class covered in Dharmadham IPM FFS

## a. General concept of Farmers field school

General background information, history, principles and methods were discussed by Agriculture officer, Srijana Bhattarai and IPM facilitator, Lekhnath Pokharel.



### b. IPM concept and methods



Special class on the topic of Insect pest and diseases of Cucurbitaceous crops including beans and about beneficial insects and harmful insects of crops was given concentrated on various harmful and beneficial insects of crops through presentation and pictorial demonstration.

- Various information to the farmers under following headings was delivered as:
  - Pesticide
  - Types of pesticides
  - Labels of pesticide
  - History of Pesticide Use
  - Alternatives to Pesticide
  - Negative effect of Pesticides in Health
  - Mode of entry of pesticides
  - Safe Handling of pesticides

### d. Biopesticide preparation



Plants having bitter, acidic, pungent, and hot taste such as asuro, neem, dhaturo, titepati, Godavari, sayapatri, simali, bakaino, leaves of papaya, lemon etc. were collected useful for the preparation of botanical pesticide. Other ingredients such as bulb of onion, clove of garlic, rhizome of

ginger, timur, turmeric, and cattle urine were mixed thoroughly. Cattle dung and ash was kept in muslin

## c. Pesticides, history and alternatives



cloth and kept hang inside the drum. And bio pesticide will be ready within 10 days in summer and 20 days in winter. The liquid part is filtered from the mixture. Muslin cloth are used for filtration and the mixture with mixing water is sprayed at the ratio of 1:10 or 1:6 or 1:5 depending on the plant stage and pest population. A special theoretical class regarding Bio pesticides and waste decomposer preparation was delivered by Mr. Mohan Singh Gurung, an organic activist.

#### e. Soil exercise to determine moisture absorbing capacity of soil

A practical demonstration was done to show the moisture absorbing capacity of the soil. Three mineral bottles were cut from middle and cotton plug was inserted tightly in the lid position after removing the lid. Then soil from same field was divided into three parts. Then one part is mixed with FYM, second with urea and DAP and in third only soil was kept. Then the soil mixture was kept with same way in three bottles part with cotton plug and were hanged in same position kept upside down and glass was kept just below cotton plug. Remaining half portion of bottle was kept full with water and used for pouring water in three different types of soil and time was noted to see the flow of water and collection in the glass. Rapid flow and more collection of water was in soil only followed by chemical fertilizer and lastly in FYM mixed soil. Farmers were able to know about the moisture absorbing capacity of organic manure leading to least flow in organic soil and Organic manure keep soil moist for longer period of time and no need of frequent irrigation.

### f. Soil Fertility and pH balance

Special class regarding Soil Fertility and pH balance was given with emphasis on the importance of fertile soil for enhanced production and some measures for enhancing it i.e. green manuring, legume incorporation, FYM, organic fertilizers. Information regarding liming of acidic soil and addition of gypsum in basic soil for soil pH balance was also provided. It is important to maintain soil pH according to crop requirement and neutral soil pH is suitable for most of the crops and microorganisms to grow.

### g. Importance of Pollination and Pollinating agents.

Detailed knowledge regarding Importance of pollination and pollinating agent in crop production was delivered. Different pollinating agents were demonstrated through pictorial demonstration and stressed on the importance of pollination for quality seed production, fruit quality and higher yield. Farmers were able to recognize various pollinating agents and gained understanding regarding harmful impact of pesticides is also on pollinating agents thus need to minimize its use.

### h. Disease cycle and Disease triangle.

Special class about Disease cycle and Disease triangle was given. Different causative agents and favorable environment for the disease to occur and management required for its prevention was presented.

# 8 Field technology and practices disseminated in Dharmadham IPM FFS.

Table 1: Field technology and practices disseminated in Dharmadham IPM FFS.

S.N	Practices		
1	Varieties		
	Bitter Gourd	Genelia F1 Hybrid	
	Cow pea	Pariposa Yardlong Stick out	
	Pumpkin	F1 Hybrid Pumpkin	
	Cucumber	Garima	
2	Land preparation	Disc Ploughing twice and gentle hand hoe twice.	
3	Planting Plot	Flat	
4	Number of plants per pit or in hill	2 seed per pit	
5	Planting spacing		
	Bitter Gourd	1.5*1 m (RR *PP)	
	Cow pea	30*30 cm (RR *PP)	
	Pumpkin	2*2 m (RR *PP)	
	Cucumber	2*1 m (RR *PP)	

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6	Application Of Fertilizers	FYM, Bhumigold, Poshandana, Urea, DAP, MOP, Vermicompost.
7	Refilling/ re-transplanting	Need of Re-transplanting of bitter gourd seedlings.
8	Staking	Bamboo stakes were used for staking bitter gourd plants.
9	Irrigation	Field was irrigated before sowing and according to the requirements and field conditions.
10	Jholmol Botanical bio-pesticides	Botanical bio-pesticide was applied on the field. The bio-pesticide were applied 25DAS/DAT, and it was sprayed on weekly basis.

## 9 Total production in Dharmadham IPM FFS

Table 2: Total production from the different crops in Dharmadham IPM FFS

Сгор	Production
Bitter gourd	IPM plot : 35.35kg
	Farmers Plot : 23.106 kg
Cucumber	25 kg (No any occurrence of disease in each plot,
	so actual effect of pesticides trial couldn't be
	accessed and due to heavy rainfall there was
	more loss of yield)
Cowpea	Control plot: 1.92kg
	Vermi compost plot: 2.48 kg
	FYM plot: 2.54 kg
	Chemical fertilizer plot: 1.340 kg
Pumpkin	Pollination trial could not be accessed due to

heavy rainfall during IPM FFS period, and special
classes regarding it was provided.

## 10 Conclusion

As the main crop was Bitter gourd, we were successful in disseminating the importance of IPM FFS as production of Bitter gourd was more in IPM plot as compared to Farmers plot without use of any chemical pesticides. Farmers were able to analyze by themselves about the possibilities of production without the use of chemical pesticides. Chemical Pesticide is not only the ultimate way to get fruitful yield. They were able to prepare bio-pesticides by themselves and some them have already started its preparation and used it in their crops. As cowpea was the one of the trial crop, they were able to visualize the nodules in the root and learn about atmospheric Nitrogen fixation by the leguminous crop so no need of adding Nitrogenous fertilizers while cultivating legumes. They understood importance of adding legumes in crop rotations. They also build their leadership and speaking ability by being leader of sub group and actively participating in presenting agriculture news, report writing, entertainment, evaluating, organizing and managing their FFS by themselves.

Finally farmers were aware of negative impact of chemical pesticides and were motivated towards its minimal use and will play an important roles in motivating others.

## 11 Annexes

Annex 11.1: Pre and post-test Questionnaire



## आई.पि.एम (एकीकृत शत्रुजीव व्यवस्थापन कृषक पाठशाला तालिम पूर्वको परिक्षा फारम



## आयोजना : नेपाल जनस्वास्थ्य प्रतिष्ठान, चितवन

समन्वय : रत्ननगर नगरपालिका वार्ड ११

नोट : आफुलाई ठीक लागेको उत्तरमा ठीक चिन्ह लगाउनुहोस् ।

विषादीको सुरक्षित प्रयोग र स्वास्थ्यमा पार्ने असरबारे कृषकहरुमा ज्ञान

सहभागीको पूरा नाम : .....

## विषादीको लेबलबारे प्रश्नहरु

क.सं	प्रश्नहरु	उत्तरहरु	कोड
٩	विषादीको लेबल कति प्रकारका हुन्छन् ?	9 . एक प्रकार २. दुई प्रकार ३. तीन प्रकार ४. चार प्रकार	ঀ २ ३ ४

2	ावषादाका नाला लबलल	भ. कम खतरनाक (पाहला तह)	٩
	कुन तहका खतरा जनाउंछ	२. खतरनाक (दास्रा तह)	
	;	३. धेरे खतरनाक (तेस्रो तह)	२
		४. अत्यन्तै खतरनाक (चौथो तह)	З
			7
			8
	<u> </u>		
২	नेपालमा हालसम्म कातवटा		
	विषादामा प्रातबन्ध		
	लगाइएका छन् ?		
8	प्रतिबन्ध लगाइएका विषादी		
	कन रङका हन्छन ?		
X	विषादी किन प्रतिबन्धित		
	गरिन्छ ?		
	विषादी खरिद एवं ढुवानी		
	गर्दा		
E.	विषादी खरिद एवं ढुवानी	१ परिवारका वयस्क पुरुष, महिलाले	٩
	गर्दा तालिकामा	मात्र विषादी दवानी गर्ने ।	
	दिइएकोमध्ये कुन उत्तर		२
	गलत हो ?	२ छट्टै कोलामा खाद्यन्नसँगै विषादी	३
		ढवानी गर्ने	
		3 विषादी खरिद गर्दा लेबलबारे हेर्ने	8
		४ विषादीको बहामा सिल खोलिए	
		नखालएका हरर मात्र खारद गरा	
		ढुवानी गर्ने	
	विषादी छर्कदा		

			·
٩	विषादी कुन समयमा छकँदा उपयुक्त हुन्छ ?	<ol> <li>दिउँसो</li> <li>२. विहान शित ओभाएपछि र साँभग घाम ढलेपछि</li> <li>३. राति</li> </ol>	१ २
			३
5	विषादी छकँदा नोजल र आफ्नो शरीर बिचको दुरी	<ol> <li>कम्तिमा १ मिटर</li> <li>आधा मिटर</li> </ol>	٩
	कति हुनुपर्दछ ?	३. २ मिटर	२
			३
९	विषादी छर्कंदा कुन दिशातिर फर्केर छर्कनपर्दछ	<ol> <li>हावा बेगेको दिशातिर</li> <li>हावा बेगेकोभन्दा उल्टो दिशातिर</li> </ol>	٩
	?	३. हावाको बहावले फरक पार्देन	२
			<b>ર</b>
१०	विषादी छर्कदा तालिकामा दिइएकोमध्ये कुन उत्तर	<ol> <li>विषादी छर्कदा बेलावेलामा पानी</li> <li>खाइरहने</li> </ol>	٩
	गलत हो ?	२. सबै शरीर ढाक्ने लुगा, जुत्ता	२
		लगाएर विषादा छकन ३. साँभापख विषादी छर्कने	३
		४. प्राविधिकको सल्लाहअनुसार मात्र विषादी छर्कने	8
	विषादीको ट्याङ्की सफा गर्दा		
99	ट्रीपल रिन्जिङ्ग तरिका भनेको के हो ? लेख्नुहोस् ।		

	विषादी भण्डारण सम्बन्धी		
१२	विषादी भण्डारण गर्दा	<ol> <li>बालबालिका र जनावर नपुग्ने गरी</li> </ol>	٩
	तालिकामा दिइएकोमध्ये	अग्लो ठाउँमा भण्डारण गर्नपर्दछ	
	कन उत्तर गलत हो ?	२ विषादी ताल्चा लाउन मिल्ने	ર
		बाकस भित्र भण्डारण गर्नपर्दछ	X
		३ नचहिने गरी सोही विषादीको	nr A
		सक्कल बद्रामा भण्डारण गर्नपर्दछ	8
		४ व्यक्तिगत सरक्षित पहिरनका	
		सामगीसँग भान्ह्यकोठामा जतनसाथ	
		भण्डारण गर्नपर्दछ	
	तिषातीको प्रयोगपति		
	ावपादाका प्रयागपाछ बटाको व्यवस्थागन		
0.7	षष्टाका व्यवस्थापन		<u>^</u>
५२	ावषादाका बट्टा व्यवस्थापन <del>सर्च सर्वत्त्वास</del>	प. विषादाका बट्टा खानपानाका धारामा	٩
	गदा तालिकामा	राम्रासग पंखालन	
	ादइएकामध्य कुन उत्तर	२. विषादाका बट्टा सफा गरर	२
	गलत हा ?	खानकुरा नहालन	R.
		३. विषादीका बट्टालाइ प्रयोग पछि	,
		कुच्याउने	ጸ
		४. विषादीको बट्टालाई एकठाउँमा	
		जम्मा गर्ने	
	विषादीको पर्खिनुपर्ने		
	समयको बारेमा ज्ञान		
१४	विषादीको पर्खिनुपर्ने समय		
	भनेको के हो ?		
<b>१३</b> <b>१</b> ४	बट्टाको व्यवस्थापन विषादीको बट्टा व्यवस्थापन गर्दा तालिकामा दिइएकोमध्ये कुन उत्तर गलत हो ? विषादीको पर्खिनुपर्ने समयको बारेमा ज्ञान विषादीको पर्खिनुपर्ने समय भनेको के हो ?	<ul> <li>9. विषादीको बट्टा खानेपानीको धारामा राम्रोसँग पखाल्ने</li> <li>२. विषादीको बट्टा सफा गरेर खानेकुरा नहाल्ने</li> <li>३. विषादीको बट्टालाई प्रयोग पछि कुच्याउने</li> <li>४. विषादीको बट्टालाई एकैठाउँमा जम्मा गर्ने</li> </ul>	৭ २ ३ ४

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	विषादीले स्वास्थ्यमा पाने		
	नकारात्मक असरका बारेमा		
	ज्ञान		
१४	विषादी सबैभन्दा बढी ⁄ धेरै	१. छालाबाट	٩
	कुन अङ्गबाट मानव	२. आँखाबाट	
	शरीरमा प्रवेश गर्दछ ?	३. मुखबाट	२
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१६	विषादी सबैभन्दा छिटो कुन	१. छालाबाट	٩
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	प्रवेश गर्दछ ?	३. मुखबाट	२
		४. सास र्फेदा	٦
			۲
			8
१७	विषादीको असरले शरिरमा		
	के कस्ता लक्षणहरु		
	देखिन्छन् ?		
٩٢	विषादीको असरका		
	आकस्मिक उपचारहरु के के		
	हुन सक्दछन् ?		
	आई.पि.एम का		
	विषयवस्तुसँग सम्बन्धित		
१९	माटो परिक्षण मुख्यतः के	9. माटोको आकार प्रकार थाहा पाउन	٩
	का लागि गरिन्छ ?	२. माटोमा चिस्यानको मात्रा थाहा	
L			

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		पाउन ३ मारोको अम्लियपन तथा श्वारियपन	۲
		थाहा पाउन	2
		४. माटोको रङ्ग थाहा पाउन	8
२०	माटो परिक्षण गर्नु किन जरुरी ल १		
ર૧	गुणस्तरिय बिउको प्रयोग		
	किन आबस्यक छ ?		
२२	कृषि चुनको प्रयोगबाट के	<ol> <li>माटोको अम्लियपना घटछ</li> </ol>	٩
	फाइदा हुन्छ ?	२. माटोको अम्लियपना बढ्छ	
		३. माटोको क्षारियपना बढाउँछ	२
		४. माटोको क्षारियपना घटाउँछ	३
			8
२३	तपाईको खेतबारीमा	<ol> <li>सबै हानिकारक</li> </ol>	٩
	देखिएका कीराहरु के हुन् ?	२. बढि हानिकारक केहि फाइदाजनक	
		३. काह हानिकारक बाढ फाइदाजनक	२
			३
२४	तपाईको खेतबारीमा	9. 2 %	٩
	दाखएका काराहरु मध्य कृति प्रतिसत फार्वताजनक	7. 50% 3. 94%	2
	किराहरु हन्छन ?	x. x.0 X. X%	7
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રપ્ર	एकीकृत शत्रुजीव व्यवस्थापनका सिद्धान्तहरु के हुन् ?	<ol> <li>२. स्वस्थ बाली उत्पादन</li> <li>२. खेतवारीको नियमित अवलोकन</li> <li>३. मीत्रजीवको संरक्षण</li> </ol>	१ २
		४. माथिका सबै	३ ४
२६	बिरुवालाई कति प्रकारका खाद्य तत्व चाहिन्छ ?	9. ३	٩
		२. ४	२
		३. १२	३
			8
		४. ५६	
२७	तलिकामा दिइएको मध्ये कुन मित्र जिव हो ?	१.धमिरा २. माकुरा	٩
		३. लाहि ४ प्र <del>चे</del> गे	२
		०. पतरा	३
			8
२८	बिरुवामा रोग ल्याउन कुन कन कराहरु मिल्न पर्दछ ?	<ol> <li>रोगको जिवाणु</li> <li>वातावरण</li> </ol>	٩
		३. आश्रय स्थल	२
		४. मााथका सब	३
			8
२९	क्यु ल्युरको पासो कुन कीरा नियन्त्रणको लागि प्रयोग	<ol> <li>गोलभेडामा लाग्ने गवारो कीरा</li> <li>भेण्टामा लाग्ने गवारो कीरा</li> </ol>	٩
	गरिन्छ ?	३. आलुमा लाग्ने पुतली	२

		४. काँका फर्सीमा लाग्ने फल	ર
		कुहाउने औंसा कीरा	8
३०	कीराको कुन अवस्था सबै	<u> </u>	٩
	भन्दा हानिकारक अवस्था	२. प्युपा अवस्था	
	हो ?	३. बयस्क अवस्था	२
		४. लाभो अवस्था	3
		४. माथिका सब	
			8
			y
			<b>`</b>
ર૧	बजारमा पाइने	<ol> <li>नाइट्रोजन</li> </ol>	٩
	डि.ए.पी.गोडे मल) मा कुन	२. नाइट्रोजन र फस्फोरस	
	कुन खाद्य तत्व पाईन्छ ?	३. फस्फोरस	२
		४. पोटास	ર
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			0
३२	तपाईको बिचारमा	<ol> <li>खेती गर्न छोडेकाले</li> </ol>	٩
	चितवनमा तोरीको उत्पादन		
	घटनुको मुख्य कारण के	२.मौरीपालक कृषक घटेकाले	२
	हाला ?	३ बिषादीको बढदो पर्योगका कारण	३
		मौरी मरेकाले	8
		४. तोरीमा कीराको नियन्त्रण गर्न	
		रासायनिक बिषादी प्रयोग गर्ने चलन	
		घटेकाले	
३३	सिकाईको तरिकाहरु मध्ये	<ol> <li>सुनेर सिक्ने</li> </ol>	٩
	सबैभन्दा उत्तम तरिका कुन	२. देखेर सिक्ने	
	हो ?	३. सुनेर र देखेर सिक्ने	२

		४. सुनेर, देखेर र गरेर सिक्ने	3
			8
३४	जैविक विधिमा कुन विधि	<ol> <li>सुनेर, देखेर र गरेर सिक्ने</li> </ol>	٩
	अपनाइदैन ?	२.सिकारी कीराको प्रयोग	
		३. रासायनिक बिषादीको प्रयोग	२
		४. ब्याक्टेरिया, ढुसीको प्रयोग	٦
			۲
			8
३४	आई.पी.एम. विधिमा	<ol> <li>गर्दै गरिदैन</li> </ol>	٩
	रासायनिक विषादीको	२. सबैभन्दा धेरै गरिन्छ	
	प्रयोग कस्तो हुन्छ ?	३. समुचित मात्रामा गरिन्छ	२
			R

तपाईले यस कृषक पाठशालाबाट कस्तो अपेक्षा राख्नुभएको छ ? के कस्ता विषयवस्तु सिक्ने चाहना गर्नुहुन्छ ?

S.N	Name	Pretest	Post Test
1.	Syam sundar Bastola	28	25
2.	Amar Basnet	25	28
3.	Hari Prasad sanjel	22	23
4.	Sushila Sedai	20	27
5.	Deepa Bastola	20	28
6.	Saru parajuli	19	21
7.	Binu Gajurel	19	
8.	Santosi B.K	18	17
9.	Sumitra B.K	18	
10.	Gyan Pradan	17	19
11.	Mathura Gajurel	16	25
12.	Sabita B.k	15	17
13.	Mina B.k	15	16
14.	Bhabani Gajurel	15	19
15.	Laxmi Khatiwada	14	22
16.	Sarswoti Pokhrel	14	
17.	Karuna Poudel	14	26
18.	Krishna Prasad Khanal	13	22

## 11.2 Annex 2: Result of pre-test and post-test questionnaire

19.	Maiya Devi Gajurel	12	22
20.	Saraswoti Tiwari	11	
21.	Krishna Kala B.k	11	10
22.	Duti Maya Lochan	10	19
23.	Gita Bastola	9	18
24.	Kumar Prasad Subedi	9	22
25.	Sila Devi B.k	8	20
26.	Bimala Aryal	7	16
27.	Nanu Gajurel	6	19
28.	Indira Ojha	5	18
29.	Ambika Bajgain	4	19