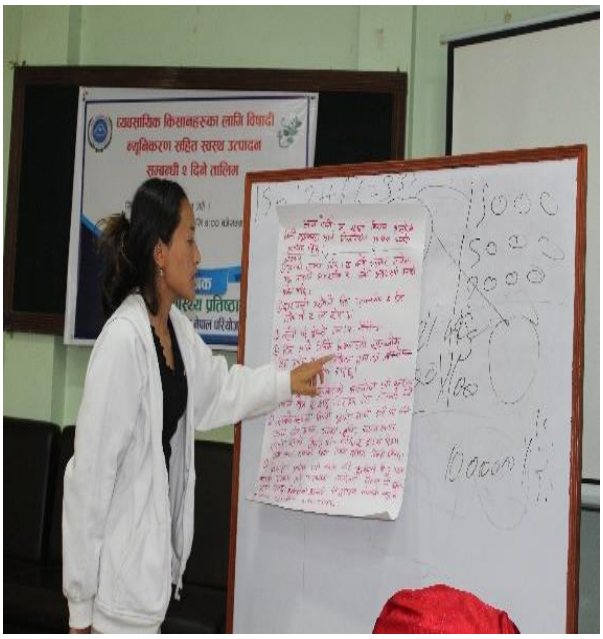

TRAINING TO COMMERCIAL FARMERS

14th and 15th February,2023

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INTRODUCTION

Commercial farmers are those farmers involved in production of agriculture product in a larger scale for commercial purpose i.e. import and export of crops. Nepal is taking steps towards agricultural diversification and commercialization which has shown hopes for improvement of country's economy, decreased unemployment and importation of agricultural products and increased women's participation in contribution to national economy. But the commercialization has brought a serious threat along with it which is of major concern. The use of chemical pesticides in the commercialization pocket areas in overdose, unsafe and uncontrolled manner has not only invited the dangerous pest whose control is getting difficult but also has resulted to the serious health hazards in growers and consumers.

Average use of pesticides in Nepal is 396g a.i / ha. Majority of pesticides is being used on vegetable crops i.e. 1605g a.i. / ha in Nepal which shows increased risk regarding environment, soil fertility and human health. Thus, with the aim of enhancing the understanding of commercial vegetable farmers, two days professional training was organized and successfully accomplished at Bharatpur, Hotel Gangotri selecting five participants from each Municipality of Chitwan District.

OBJECTIVES

Broad Objective

- To increase the Knowledge, skill and practices of Commercial vegetable farmers towards safe use of chemical pesticides, adverse effect of pesticide in human health and reducing the risk of pesticide exposure during pesticide spray.

Specific objective

- To enhance the capacity of commercial farmers for selection of right and safe pesticides and its minimal use.
- To encourage commercial farmers towards IPM practices.
- To enhance their skill and capacity on right way of pesticide selection, better pesticide storage techniques, pesticide formulation, mixing, disposal, pesticide calibration etc.

- To reduce the pesticide exposure and encouraging to use of PPE while pesticide formulation and mixing.

METHODOLOGY USED

- Pre and Post-test Questionnaire
- Flip chart
- Special class
- Video demonstration
- Games

TOPICS COVERED

- Project introduction and Situation assessment by project in pesticide use of Chitwan district.
- Introduction to pesticides, its brief history, features and labels
- Modes of entry of pesticides into human body and environment and its effects
- Safe and responsible handling of pesticides
- Pesticide poisoning and its first aid measured
- Quality seed and its importance
- Soil sampling and its importance
- Integrated Pest Management.
- Insect pest of major vegetable crops and their management.

Proceedings

Day 1

Opening of the program

Opening and chairing session of the program was facilitated by Rijana Maharjan, Project Officer of NPHF/FHEN. The program was inaugurated with the gracious presence of Chief of District Coordination Committee chaired as a Chief Guest.

Sharing of Training Objective

Agriculture Coordinator, Srijana Bhattarai shortly introduced participants about organization and FHEN project, as well as training objectives and encouraged each of the participants for their active participation.

Remarks from Chief Guest

- Every ecosystem component are affected with extreme use of pesticides, thus there is need of concern about its negative impact and walk towards its minimization movement.
- Food production must be safe and sustained for future generation.
- Consumers are also prone to health effect due to pesticide residue in food product available in the market.

- We must use bio-pesticide, share its methods of preparation to other farmers too in our locality.
- *Minimize pesticide: Be healthy and make other healthy*.

Following Opening, chairing and inauguration of training program, participants introduced among themselves where they shared their name and address. After that, Pre testing was done with an aim to analyze the participants existing knowledge of the subject matter.

Technical Sessions

Project introduction

Seema B.K, Project Officer of FHEN was the facilitator of this session. She provided an overview on:

- Phases of NPHF/FHEN.
- Improper method of pesticide use: mixing with bare hands, selling pesticides in grocery shop.

Introduction on pesticides, its features, types and label

Ms. Srijana Bhattarai, Agriculture coordinator facilitated this session. Mini lecture, presentations, participatory discussion, video demonstration were used as methods of this session. She addressed the session sharing general information on pesticides, its origin in the world and Nepal, features and label of pesticides.

Major points discussed in the session were

- Classification of pesticides; on the basis of environmental degradation and on the basis of the targeted pest.
- Average use of pesticide in Nepal is 396g a.i/ha.
- 24 pesticides were banned till now in Nepal belonging to organo-chlorine group.
- There are four labels of pesticides i.e. red, yellow, blue, green of which green is the safest one.
- Safety measures to protect ourselves from pesticides harm.
    - **Primary Principles**

        - Reduce unnecessary use of pesticides.
        - Be aware of possible dangers.
        - Always study label and other pamphlets.
        - Keep pesticide away from children.
    - **Before using Pesticides**
        - Always keep pesticide in locked box.
        - All of the pesticide sprayers should be checked whether they are in condition before and after use.
        - Sprayer/ Duster must be in good condition.
        - Safe pesticides with LD 50>550mg/body weight must be used.
    - **During pesticide mixing**
        - Always use PPE set.
        - Don't drink or smoke during spraying.
        - Wind direction must be considered while spraying.
        - Don't blow nozzle with mouth.
    - **After using pesticides.**
        - Store pesticide in safe place locked.
        - Wash sprayer three times and store in safe place.
        - Wash of the PPE sets properly and must be sun dried.
- WHO classification of pesticides: LD 50 is the amount of pesticide to kill the 50 % of targeted organisms. Lower the LD50 value higher the risk of pesticides.
- Non-biodegradable types of pesticide remains accumulated in the fat of the human and bio-accumulate leading to long term health effects.

Waiting period of pesticides

- Pesticide residue
- Waiting period of different pesticides.

7 days waiting period

- Cypermethrin
- Deltamethrin
- Alfamethrin

- Diflubenzuron
- Fenvolerate
- Chlorantranilipore

14 days waiting period

- Malathion
- Abomectin
- Lufenuron
- Alfacypermethrin

Emamectin benzoate – 10 days

Imidacloprid – 40 days

Nuvaluron and fenthioate- 5 days

Chloropyrifus -28-35 days

Fungicides:

Zineb: 10 days

Captan: 30 days

Thiram: 14-30 days

Mancozeb: 14-28 days

Carbendazim: 14 days

Sulfur: 14 days

Metalaxyl: 40 days

Modes of entry of pesticides and its effects on human health and environment

Ms. Seema B.K, the Project Officer facilitated this session. The major objective of the session was to familiarize participants about different modes of entry of pesticides into the human body and environment. Also, health and environment effects were also discussed. She sensitized them about modes of entry of pesticides through exercise.

Key contents of this session were:

- Pesticide can enter into our body through various medium like skin, eye, inhalation, ingestion and to baby from exposed mother.
- Fastest route of entry is through inhalation and the most common route of entry is skin.
- Short term effect of pesticides are nausea, vomiting, irritation of skin, loss of appetite, numbness of body whereas long term effects are cancer, infertility, paralysis, high blood pressure, defected child birth etc.
- Decreases soil fertility and environmental pollution with haphazard use of pesticides.

Pesticide poisoning and its first aid measures.

This session was also facilitated by Ms. Seema B.K., Project officer. The major objective of this session was to familiarize the participants with the pesticide poisoning and first aid measures to prevent poisoning.

Poisoning related to different pesticides were presented.

- Organochlorine
- Organophosphate

Some of the First Aid measures are:

- Patient should be kept with his/her half body and head bent down.
- If possible induce vomiting.
- Provide proper air circulation.
- Visit hospital as soon as possible
- Inject Atropine sulphate 2mg intravenous.

Day 2

The second day of training was based on special class and whole day session was facilitated by Mr. Ghanashyam Bhandari, Agriculture Scientist of National Maize Research Program, Rampur,

Chitwan. Session was divided under the following headings.

Quality seed and its Importance

Key points discussed were

- Quality seeds are the basis for quality crop production
- They have high genetic potential.
- They are resistant to pest and diseases.
- Quality seed cuts off the seed requirement.
- Nutrient use efficiency is enhanced by use of quality seeds.

Soil sampling and its importance

Key points discussed were

- How to collect soil sample in Farmers field?
- Need of liming of acidic soil.
- Need of soil sampling
- Importance of Soil

IPM and IPM tools

Key points discussed were:

- Need of IPM
- IPM was introduced in Nepal to control Brown plant hopper in rice from Chitwan district.
- IPM practices includes: Mechanical control, Physical control, Biological control, cultural method, use of bio pesticides and hormonal control.
- Use of IPM tools.
- Bio pesticides preparation.

Insect pest of major vegetable crops and their management.

Major highlight of this session were:

- Diseases
- Major elements to cause diseases.

- Conditions to cause disease.
- Types of diseases
- Different diseases of vegetable crops and their management i.e. Late blight of tomato and potato, Bacterial wilt, leaf curl virus, powdery mildew, downey mildew etc.

Group work done by Commercial Farmers

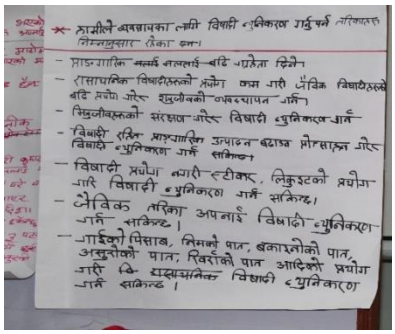
Participants were divided into two groups and asked to write how they will be involved in pesticide minimization movement and team leader presented their group work.

Major highlight of their group work were

Post-test examination and analysis

Post testing was done to evaluate the knowledge change in commercial farmers through two days training. Comparative evaluation of pre and post test results demonstrated that knowledge, attitude and practices were significantly changed at the end of the training.

Certificate distribution and Closing



Certificates along with flipcharts were distributed to each participant. Best performers in the pre and post-test were appreciated with small gifts. It has been realized that such kind of training should be regularly organized to sensitize commercial farmers regarding information's related to safe use, selection, handling, management of pesticides, identification of major diseases of vegetable crops and their management. Participants shared their comments as they are really motivated and got benefitted from the training.

APPENDICES

Appendix 1 Pre-test and post-test result of Pesticide retailers with total marks 21.

S.N	Names	Pre-test	Post-test
1	Bir Bahadur Shrestha	11	20
2	Bhim Kumari Thapa Magar	15	19
3	Sharmila Chaudhary	17	15
4	Raju Prasad Pathak	13	18
5	Uma Paudel	11	15
6	Om Prasad Gautam	12	11
7	Pooja Pun	18	21
8	Aashmita Rai	17	21
9	Bamdev Chapagain	7	7
10	Bir Bahadur Bhujel	15	18
11	Bhumika Chepang	14	17
12	Chameli Chepang	13	17
13	Saroj Mahato	12	18
14	Banui Mahato	12	14
15	Sajana Chepang	18	20
16	Prem Prasad Adhikari	16	19
17	Sumitra Chepang	19	20
18	Hari Prasad Chpagain	9	7
19	Sharmila Wagle	12	14
20	Shrijana Mahato	17	19
21	Meena Chaudhary	8	11
22	Imala Chaudhary	13	17
23	Damayanti Poudel	15	16

Appendix 2 Program Schedule

नेपाल जनस्वास्थ्य प्रतिष्ठान

Nepal Public Health Foundation

Ensuring Health as Right and Responsibility of Nepali People

व्यवसायिक किसानहरुका लागि बिषादि न्यूनिकरण सहित स्वस्थ उत्पादन सम्बन्धी तालिम कार्यक्रम

Time	Activity	Responsible person
10:00 – 10:30	Registration	MC : Rijana Maharjan
10:30 – 10:45	Opening Sharing of training objective	Srijana Bhattarai (Agriculture Coordinator)
10:45 – 11:00	Remarks by chief guest	
11:00 – 11:30	Pre test	
11:30 – 11:45	Tea break	
11:45 – 12:15	Introduction of NPHF, FHEN	Seema B.K.
12:15 – 12:45	Introduction to pesticides, its brief history, features, types, labels and alternatives to chemical pesticides	Srijana Bhattarai (Agriculture officer)
12:45 – 01:15	Mode of entry of pesticides into human	Seema B.K. (Project

	body and environment and its effects.	officer)
01:15 – 02:15	lunch break	
02:15 -3:00	Pesticide poisoning and first aid	Seema B.K. (Project officer)
03:00 – 04:00	Pre- test results, closing	

Day 2

Time	Activity	Responsible person
10:00 – 10:15	Registration	
10:15 – 10: 45	Soil sampling and its importance	Ghanashyam Bhandari
10:45 – 11: 15	Quality seed and its importance	Ghanashyam Bhandari
11:15 – 11:30	Tea break	
11:30 – 12:00	Introduction to IPM and IPM tools	Ghanashyam Bhandari
12:00- 12: 15	Energizer	Seema B.K.
12:15 – 01:00	Identification of major insect pests and disease of vegetable crops and their management.	Ghanashyam Bhandari
01:00 – 02:00	Lunch	
02:00 – 02:45	Action plan: how they will be involved in pesticide minimization movement altogether with sustained and commercial production.	Participants
03:00 – 04:00	Post-test results, certificate distribution, closing	