

ANNEX IV. Training Aims and Objectives

Training Aims and Objectives IPM Module Training Course for Master Trainers

Rabi (winter) Season Crops

Aim:

To augment the master trainers' knowledge of significant developments in sustainable production technology of HVCs identified by NCDP to raise income levels compared to boro rice, expand the area planted, promote export quality produce, and increase local employment opportunities particularly for women.

Objectives:

On completion of this module the master trainers should be able to:

1. Acquire sufficient knowledge on the improved production practices to promote the ten winter crops recommended by NCDP and
2. Provide opportunity for field observation and discussions on improved sustainable technologies and field practices for the HVCs that can be disseminated to technical field staff cum trainers and then to farmers.

Unit 1 Improved Production in HVC Winter Crops (Tomato, Bottle gourd, Cabbage, Cauliflower, Brinjal)

Aim:

To update the master trainers on the latest tomato, bottle gourd, cabbage, cauliflower, and brinjal varieties and production technologies in sufficient detail and clarity for them to transfer this knowledge to the block supervisors and NGO trainers and in turn to farmers.

Objectives:

On completion of this unit the master trainers should be able to:

1. Acquire sufficient knowledge on the improved production practices to promote tomato, bottle gourd, cabbage, cauliflower, brinjal and
2. Provide opportunity for field observation and discussions on improved sustainable technologies and field practices for the five HVCs that can be disseminated to technical field staff cum trainers and farmers.

Session 1.1 Tomato

Aim:

To update the master trainers on the latest tomato varieties and production technologies in sufficient detail and clarity for them to transfer this knowledge to the block supervisors and NGO trainers and in turn to farmers.

Objectives:

On completion of this unit the master trainers should be able to:

1. Name the pest resistance characteristics of the recommended tomato varieties in relation to fungal, viral, and bacterial diseases or root knot nematode
2. List the attributes of an appropriate site with the least pest incidence for the establishment of seedbeds
3. List which tomato pests that are controlled by planting tomato after wetland rice or previously flooded fields and describe the mechanism involved
4. Name those pests that are suppressed in both seedbed and field by using any of the following soil amendments: mustard oil cake, neem oil cake, poultry waste, and sawdust burning compared to cow dung
5. Name those pests that will be minimized by practicing crop rotation with non-solanaceous crops and describe the principle involved
6. Describe the technique of soil solarization and list its benefits and limitations
7. Which tomato diseases can be transmitted by seed and list four methods to obtain disease-free seed
8. What is the principle behind recommending destruction of the crop residue after harvest and name which tomato pests can be minimized by its use
9. How can nitrogen fertilizer be applied in a way to enhance the tolerance of tomato to nematode damage and describe the principle involved
10. What is the benefit of grafting tomato onto wild brinjal species in terms of pest control and describe the principle involved
11. Name the three main virus diseases of tomato, describe their symptoms, how they are transmitted, and give the control measures for each.
12. Name the three most common fungal diseases of tomato, what are their damage symptoms, how do they cause yield loss, and state what methods can be used for their control
13. What is the strategy for preventing fungicide resistance

14. Describe the damage of the tomato fruitworm and state a biorational method for its control
15. Name the two most common vertebrate pests of tomato and methods of their control

Session 1.2 Bottle gourd

Aim:

To update the master trainers on the latest bottle gourd varieties and production technologies in sufficient detail and clarity for them to transfer this knowledge to block supervisors and NGO trainers and then to farmers.

Objectives:

On completion of this unit the master trainers should be able to:

1. Name the pest resistance characteristics of the recommended bottle gourd varieties in relation to fungal, viral, and bacterial diseases and root knot nematode
2. List which bottle gourd pests that are controlled by planting bottle gourd after wetland rice or previously flooded fields and describe the principle involved
3. Name organic amendments that can be used to suppress bacterial wilt and root knot nematode
4. Name those pests that will be minimized by practicing crop rotation with non-cucurbit crops and describe the principle involved
5. List which bottle gourd diseases can be transmitted by seed and list four methods to obtain disease-free seed
6. What is the principle behind recommending destruction of the crop residue after harvest and name which bottle gourd pests can be minimized by its use
7. How can nitrogen fertilizer be applied in a way to enhance the tolerance of bottle gourd to nematode damage and describe the principle involved
8. Describe how to establish the two types of fruit fly attractant traps and how to enhance their effectiveness
9. Describe how to carry out the sanitation method to suppress fruit fly
10. What are the two most common defoliating insect pests of bottle gourd and what biorational method can be employed for their control
11. What are the two most important foliar fungal diseases, what are their damage symptoms, how do they cause yield loss, and what methods can control them
12. Describe the strategy of preventing fungicide resistance
13. Name the two major virus diseases of bottle gourd and their vectors and state how to control them

14. What is the main vertebrate pest, what damage does it cause, and what are two control measures

Sessions 1.3 and 1.4 Cabbage and Cauliflower

The pests of both cabbage and cauliflower are identical so the sessions are combined.

Aim:

To update the master trainers on the latest cabbage and cauliflower varieties and production technologies in sufficient detail and clarity for them to transfer this knowledge to block supervisors and NGO trainers and then to farmers.

Objectives:

On completion of this unit the master trainers should be able to:

1. Name the pest resistance characteristics of the recommended cabbage and cauliflower varieties in relation to fungal and bacterial diseases and root knot nematode.
2. List the attributes of an appropriate site with the least pest incidence for the establishment of seedbeds
3. List which pests that are controlled by planting cabbage and cauliflower after wetland rice or previously flooded fields and describe the principle involved
4. Name those pests that suppressed by using the following soil amendments: mustard oil cake, neem oil cake, poultry waste, and sawdust burning compared to cow dung in both the seedbed and field
5. Name those pests that will be minimized by practicing crop rotation with non-cruciferous crops
6. Describe the technique of soil solarization and list its benefits and limitations
7. List which cabbage and cauliflower diseases can be transmitted by seed and how to obtain disease-free seed
8. What is the principle behind recommending destruction of the crop residue after harvest and name which cabbage and cauliflower pests can be minimized by its use
9. How can nitrogen fertilizer be applied in a way to enhance the tolerance of cabbage and cauliflower to nematode damage and describe the principle involved
10. What are the three main leaf feeding worms of cabbage and cauliflower, describe their damage symptoms, and name four biorational control methods that spare their natural enemies
11. How can cabbage and cauliflower aphids be controlled biorationally to spare beneficial insects

12. Describe the damage symptoms of two bacterial diseases of cabbage and cauliflower and describe methods for their control
13. What are the two fungal diseases that damage cabbage and cauliflower foliage, what are their symptoms, what factors favor their development, and what is their control

Session 1.5 Brinjal

Aim:

To update the block level supervisors and NGO level trainers on the latest brinjal varieties and production technologies in sufficient detail and clarity for them to transfer this knowledge to the project farmers.

Objectives:

On completion of this unit the participants should be able to:

1. Name the pest resistance characteristics of the recommended brinjal varieties in relation to brinjal fruit and shoot borer, bacterial wilt, and root knot nematode.
2. List the attributes of an appropriate site with the least pest incidence for the establishment of seedbeds
3. List which brinjal pests that will be controlled by planting brinjal after flooded rice or previously flooded fields and describe the principle involved
4. Name those pests that suppressed by using the following soil amendments: mustard oil cake, neem oil cake, poultry waste, and sawdust burning compared to cow dung in both the seedbed and field
5. Name those pests that will be minimized by practicing crop rotation with non-solanaceous crops and describe the principle involved
6. Describe the technique of soil solarization and list its benefits and limitations
7. Which brinjal diseases can be transmitted by seed and list four methods to obtain disease-free seed
8. What is the principle behind recommending destruction of the crop residue after harvest and name which brinjal pests can be minimized by its use
9. How can nitrogen fertilizer be applied in a way to enhance the tolerance of brinjal to nematode damage and describe the principle involved
10. What are the pest control benefits of grafting brinjal onto wild brinjal species and describe the principle involved
11. What are the three main non-insecticidal methods of controlling brinjal fruit and shoot borer

12. Why should insecticides only be used as a last resort against brinjal fruit and shoot borer
13. What are the three minor insect pests of brinjal, what are their damage symptoms, and how are they controlled biorationally
14. What are the three most common fungal diseases of brinjal, what are their damage symptoms, and how are they controlled

Unit 2 Improved Production in HVC Winter Crops
(okra, potato, onion, maize, banana)

Aim:

To update the master trainers on the latest okra, potato, onion, maize, and banana varieties and production technologies in sufficient detail and clarity for them to transfer this knowledge to the block supervisors and NGO trainers and in turn to farmers.

Objectives:

On completion of this unit the master trainers should be able to:

3. Acquire sufficient knowledge on the improved production practices to promote okra, potato, onion, maize, and banana and
4. Provide opportunity for field observation and discussions on improved sustainable technologies and field practices for the five HVCs that can be disseminated to technical field staff cum trainers and farmers.

Session 2.1 Okra

Aim:

To update the block level supervisors and NGO level trainers on the latest brinjal varieties and production technologies in sufficient detail and clarity for them to transfer this knowledge to the project farmers.

Objectives:

On completion of this unit the participants should be able to:

1. Name the resistance characteristics of the recommended okra varieties in relation to fungal and bacterial diseases and root knot nematode
2. List which okra pests that are controlled by planting okra after wetland rice or previously flooded fields and describe the principle involved

3. Name organic amendments that suppress root knot nematode and bacterial wilt okra pests
4. Name those pests that will be minimized by practicing crop rotation with non-malvaceae crops and describe the principle involved
5. List which okra diseases can be transmitted by seed and how to obtain disease-free seed
6. What is the principle behind recommending destruction of the crop residue after harvest and name which okra pests can be minimized by its use
7. How can nitrogen fertilizer be applied in a way to enhance the tolerance of okra to nematode damage and describe the principle involved
8. What insect pest attacks the okra fruit, what damage does it cause, and what biorational method can be employed for its control
9. What are three sucking insect pests of okra, what damage do they cause, and how are they controlled
10. What is the major virus disease of okra, what is its vector, and what is the most vulnerable crop growth stage
11. What are the two most important foliar fungal diseases, what are their symptoms, and what methods can control them

Session 2.2 Potato

Aim:

To update the block level supervisors and NGO level trainers on the latest potato varieties and production technologies in sufficient detail and clarity for them to transfer this knowledge to the project farmers.

Objectives:

On completion of this unit the participants should be able to:

1. Name the pest resistance characteristics of the recommended potato varieties in relation to fungal and bacterial diseases and root knot nematode
2. List which pests that are controlled by planting potato after wetland rice or previously flooded fields and describe the principle involved
3. Name organic amendments that can suppress bacterial wilt and root knot nematode pests of potato
4. Name those pests that will be minimized by practicing crop rotation with non-solanaceous crops and describe the principle involved
5. Describe the technique of soil solarization and list its benefits and limitations
6. List which potato diseases can be transmitted by tuber seed pieces and how to obtain disease-free seed

7. What is the principle behind recommending destruction of the crop residue after harvest and name which potato pests can be minimized by its use
8. How can nitrogen fertilizer be applied in a way to enhance the tolerance of the potato plant to nematode damage and describe the principle involved
9. What soil dwelling insect pests attack potato and describe their damage and control methods
10. What are the three foliar insect pests and methods for their control
11. Name the two most common fungal diseases of potato, what are their symptoms, and what fungicides can be used for their control
12. Describe the strategy of preventing fungicide resistance
13. What bacterial disease affects the tubers and what methods can be used for its control
14. What is the virus disease of potato, how is it transmitted, and how is it controlled
15. What two fungal diseases affect potato tubers in the field and storage and what are methods for their control
16. What insect pest affects potato tubers in the field and storage and what are methods for its control
17. What is the most common vertebrate pest, what damage does it cause, and how can it be controlled

Session 2.3 Onions

Aim:

To update the block level supervisors and NGO level trainers on the latest onion varieties and production technologies in sufficient detail and clarity for them to transfer this knowledge to the project farmers.

Objectives:

On completion of this unit the participants should be able to:

1. Name the pest resistance characteristics of the recommended onion varieties in relation to fungal and bacterial diseases and root knot nematode
2. List which onion pests that are controlled by planting onion after wetland rice or previously flooded fields and describe the principle involved
3. Name those pests that suppressed by using the following soil amendments: mustard oil cake, neem oil cake, poultry waste, and sawdust burning compared to cow dung in the field

4. Name those pests that will be minimized by practicing crop rotation with non-liliaceous crops and describe the principle involved
5. Describe the technique of soil solarization and list its benefits and limitations
6. List which onion diseases can be transmitted with the seed and list four methods to obtain disease-free seed
7. How can nitrogen fertilizer be applied in a way to enhance the tolerance of onion to nematode damage and what is the principle involved
8. Describe two methods to control cutworm larvae
9. What damage do thrips cause and describe two methods for their control
10. Name two foliar fungal disease of onions, describe the damage symptoms and the control methods
11. What are the three common fungal diseases attacking onion bulbs and list their control methods

Session 2.4 Maize

Aim:

To update the block level supervisors and NGO level trainers on the latest brinjal varieties and production technologies in sufficient detail and clarity for them to transfer this knowledge to the project farmers.

Objectives:

On completion of this unit the participants should be able to:

1. Name the pest resistance characteristics of the recommended maize varieties in relation to fungal and viral diseases as well as stalk borer
2. List which maize pests that are controlled by planting maize after wetland rice or previously flooded fields and describe the principle involved
3. Name those pests that will be minimized by practicing crop rotation with non-grass crops and describe the principle involved
4. List which maize diseases can be transmitted by seed and list four methods to obtain disease-free seed
5. What is the principle behind recommending destruction of the crop residue after harvest and name which maize pests can be minimized by its use
6. What viral disease attacks maize, what damage does it cause, and how is it minimized
7. What are the two main fungal foliar diseases and how are they controlled
8. What conditions favor stalk and cob rot fungal diseases and how can they be suppressed

9. What are the main soil insect pests of maize and what methods can be used for their control
10. What is the main strategy for minimizing the impact of stalk borers
11. What conditions favor build up of maize aphid and how can it be controlled
12. Describe the biological reason that limits the impact of maize cob borer
13. Name the two most common vertebrate pests of maize and describe methods of their control

Session 2.5 Banana

Aim:

To update the block level supervisors and NGO level trainers on the latest banana varieties and production technologies in sufficient detail and clarity for them to transfer this knowledge to the project farmers.

Objectives:

On completion of this unit the participants should be able to:

1. Name the pest resistance characteristics of the recommended banana varieties in relation to fungal and virus diseases
2. List the three banana pests that are minimized by crop rotation after the second harvest and describe the active principle involved
3. Name the organic amendments that build up the crop's tolerance to root boring nematode and banana weevil
4. Delineate the strategy for the non-chemical control of root burrowing nematode aside from organic amendments
5. Describe the method of sampling for banana weevil borer densities and name the three non-chemical methods for its control
6. Which banana pests can be minimized by destruction of the crop residue after each harvest
7. How can nitrogen fertilizer be applied in a way to enhance the tolerance of banana to pest damage
8. Describe the damage and give the control measure for banana fruit beetle
9. Describe how banana bunchy top is transmitted from plant to plant and how the virus disease is controlled
10. What is the causal organism of panama disease and describe the damage symptoms and two control methods
11. What is the damage symptom of yellow sigatoka disease and what two methods are used for its control
12. What is the main vertebrate pest of bananas and how can it be controlled

Training Aims and Objectives
IPM Module
Training Course for Master Trainers

Kharif I (summer) Season Crops

Aim:

To augment the master trainers' knowledge of significant developments in sustainable production technology of HVCs identified by NCDP to raise income levels compared to boro rice, expand the area planted, promote export quality produce, and increase local employment opportunities particularly for women.

Objectives:

On completion of this module the master trainers should be able to:

3. Acquire sufficient knowledge on the improved production practices to promote the eleven kharif I crops recommended by NCDP and
4. Provide opportunity for field observation and discussions on improved sustainable technologies and field practices for the HVCs that can be disseminated to technical field staff cum trainers and then to farmers.

Unit 1 Improved Production in HVC Kharif I Crops
(pointed gourd, sweet gourd, bitter gourd, ginger, chilli)

Aim:

To update the master trainers on the latest pointed gourd, sweet gourd, bitter gourd, ginger, and chilli varieties and production technologies in sufficient detail and clarity for them to transfer this knowledge to the block supervisors and NGO trainers and in turn to farmers.

Objectives:

On completion of this unit the master trainers should be able to:

5. Acquire sufficient knowledge on the improved production practices to promote pointed gourd, sweet gourd, bitter gourd, ginger, and chilli and
6. Provide opportunity for field observation and discussions on improved sustainable technologies and field practices for the five HVCs that can be disseminated to technical field staff cum trainers and farmers.

Sessions 2.1-2.3 Gourds (pointed gourd, bitter gourd, sweet gourd)

Aim:

To update the master trainers on the latest pointed gourd, bitter gourd, and sweet gourd varieties and production technologies in sufficient detail and clarity for them to transfer this knowledge to block supervisors and NGO trainers and then to farmers.

Objectives:

On completion of this unit the master trainers should be able to:

15. Name the pest resistance characteristics of the recommended pointed gourd, bitter gourd, and sweet gourd varieties for fungal, viral, and bacterial diseases and root knot nematode
16. List which soil borne pests that are controlled by planting pointed gourd, bitter gourd, and sweet gourd after wetland rice or fields that had been previously flooded and describe the principle involved
17. Name organic amendments that can be used to suppress bacterial wilt, damping-off fungi, and root knot nematode
18. Name those pests that will be minimized by practicing crop rotation with non-cucurbit crops and describe the principle involved
19. List which pointed gourd, bitter gourd, and sweet gourd diseases can be transmitted by seed and list four methods to obtain disease-free seed
20. What is the principle behind recommending destruction of the crop residue after harvest and name which pointed gourd, bitter gourd, and sweet gourd pests can be minimized by its use
21. How can nitrogen fertilizer be applied in a way to enhance the tolerance of pointed gourd, bitter gourd, and sweet gourd to nematode damage and describe the principle involved
22. Describe how to establish the two types of fruit fly attractant traps and how to enhance their effectiveness
23. Describe how to carry out the sanitation method to suppress fruit fly
24. What are the two most common defoliating insect pests of pointed gourd, bitter gourd, and sweet gourd and what biorational method can be employed for their control given that the crop is pollinated by insects
25. What are two common stem boring pests and what methods can be used for their control
26. What are the three most important foliar fungal diseases and what methods can control them

27. Describe the strategy of preventing fungicide resistance
28. Name the two major virus diseases of pointed gourd, bitter gourd, and sweet gourd and their vectors and state how to control them
29. What is the main vertebrate pest, what damage does it cause, and what are two control measures

Session 2.4 Ginger

Aim:

To update the master trainers on the latest ginger varieties and production technologies in sufficient detail and clarity for them to transfer this knowledge to the block supervisors and NGO trainers and in turn to farmers.

Objectives:

On completion of this unit the master trainers should be able to:

16. What preventative methods against pests should be used for the seed-rhizomes in setting up a nursery
17. Name those pests that are suppressed in both nursery and field by using any of the following soil amendments: mustard oil cake, neem oil cake, poultry waste, and sawdust burning compared to cow dung
18. Name those pests that will be minimized by practicing crop rotation with non-ginger or turmeric crops and describe the principle involved
19. Which ginger diseases can be transmitted by seed rhizomes and list methods to obtain disease-free rhizomes
20. Soft rot is the most important disease of ginger, what causes it, describe the damage it causes and what are its control measures
21. Name the most common foliar fungal disease of ginger, describe its symptoms and state what methods can be used for its control
22. What insect pest attacks the rhizome, describe its symptoms and damage caused and its control measures
23. What is the most common defoliating insect of ginger, what is the sign of its presence, what damage does it cause, and how can it be controlled
24. Describe two methods for storing ginger seed-material between growing season

Sessions 2.5 Chilli

Aim:

To update the master trainers on the latest chilli varieties and production technologies in sufficient detail and clarity

for them to transfer this knowledge to block supervisors and NGO trainers and then to farmers.

Objectives:

On completion of this unit the master trainers should be able to:

14. Name the pest resistance characteristics of recommended chilli varieties regarding fungal, bacterial, and viral diseases or root knot nematode.
15. List the attributes of an appropriate site with the least pest incidence for the establishment of seedbeds for chilli
16. List which chilli pests that are controlled by planting chilli after wetland rice or previously flooded fields and describe the principle involved
17. Name those pests that suppressed by using the following soil amendments: mustard oil cake, neem oil cake, poultry waste, and sawdust burning compared to cow dung in both the seedbed and field
18. Name those pests that will be minimized by practicing crop rotation with non-solanaceous crops
19. List which chilli diseases can be transmitted by seed and how to obtain disease-free seed
20. What is the principle behind recommending destruction of the crop residue after harvest and name which chilli pests can be minimized by its use
21. How can nitrogen fertilizer be applied in a way to enhance the tolerance of chilli to nematode damage and describe the principle involved
22. What are the three foliar fungal diseases of chilli, what are their damage symptoms, and how are they controlled
23. Describe the damage symptoms of the one bacterial disease of chilli and describe methods for their control
24. What are the main viral diseases of chilli, describe their symptoms, how are they transmitted, and what methods are used in their control
25. What is the main fungal fruit disease of chilli, what are its symptoms, and how can it be controlled
26. What are the three main leaf feeding insect pests of chilli, what are their damage symptoms, and what biorational control methods can be used that spare their natural enemies
27. What are the two main groups of mite pests, describe the type of damage do they cause, and what are biorational control measures

Unit 2 Improved Production in HVC Kharif I Crops
(turmeric, french bean, country bean, garden pea, garlic, and carrots)

Aim:

To update the master trainers on the latest turmeric, french bean, country bean, garden pea, garlic, and carrot varieties and production technologies in sufficient detail and clarity for them to transfer this knowledge to the block supervisors and NGO trainers and in turn to farmers.

Objectives:

On completion of this unit the master trainers should be able to:

1. Acquire sufficient knowledge on the improved production practices to promote turmeric, french bean, country bean, garden pea, garlic, and carrots and
2. Provide opportunity for field observation and discussions on improved sustainable technologies and field practices for the five HVCs that can be disseminated to technical field staff cum trainers and farmers.

Session 2.6 Turmeric

Aim:

To update the block level supervisors and NGO level trainers on the latest turmeric varieties and production technologies in sufficient detail and clarity for them to transfer this knowledge to the project farmers.

Objectives:

On completion of this unit the participants should be able to:

1. Name turmeric pests that are suppressed in field by using any of the following soil amendments: mustard oil cake, neem oil cake, poultry waste, and sawdust burning compared to cow dung
2. Name those pests that will be minimized by practicing crop rotation with non-ginger or turmeric crops and describe the principle involved
3. Which turmeric diseases can be transmitted by seed rhizomes and list methods to obtain disease-free rhizomes
4. A fungus is the most important disease of turmeric rhizomes, what is the disease caused by, describe the damage and what are its control measures
5. Name the two most common foliar fungal diseases of turmeric, describe their symptoms and state what methods can be used for their control
6. What are the most common defoliating insects of turmeric, what is the sign of their presence, what damage do they cause, and how can they be rationally controlled

7. Describe the stored product pest of turmeric, what damage does it cause, and how can it be controlled

Sessions-2.7- 2.8 French bean and Country bean

Aim:

To update the block level supervisors and NGO level trainers on the latest french and country bean varieties and production technologies in sufficient detail and clarity for them to transfer this knowledge to the project farmers.

Objectives:

On completion of this unit the participants should be able to:

18. Name the pest resistance characteristics of recommended french bean and country bean varieties in relation to soil borne fungal diseases and root knot nematode, foliar fungal and virus diseases
19. List which legume pests that are controlled by planting french bean and country bean after wetland rice or previously flooded fields and describe the principle involved
20. Name organic amendments that can suppress damping-off and root knot nematode pests of french bean and country bean
21. Name those pests that will be minimized by practicing crop rotation with non-leguminous crops and describe the principle involved
22. List which french bean and country bean diseases can be transmitted by the seed and how to obtain disease-free seed
23. What is the principle behind recommending destruction of the crop residue after harvest and name which french bean and country bean pests can be minimized by its use
24. How can nitrogen fertilizer be applied in a way to enhance the tolerance of the french bean and country bean plant to nematode damage and describe the principle involved
25. Name four common fungal diseases of french bean and country bean, describe their symptoms, what damage do they do and what are their control methods
26. Describe the strategy of preventing fungicide resistance
27. What are the three virus diseases of french bean and country bean, describe their symptoms, how are they transmitted, what damage do they do, and how can they be controlled
28. What is the main seedling insect pest affecting french bean and country bean in the field, describe the

- damage symptoms, what is the basis for yield loss, and what are methods for its control
29. What are the four sucking foliar insect pests attacking french bean and country bean, describe their symptoms, how do they cause yield loss, and what are their biorational control methods
 30. What are the four defoliating insect pests of french bean and country bean, describe their damage symptoms, how do they cause yield loss, and what are methods for their control
 31. What mite pest can affect french bean and country bean in the field, under what circumstances does it normally become abundant, what damage does it cause and what are methods for its control
 32. What are the three pod boring insect pests of french bean and country bean, describe their damage symptoms, how do they cause yield loss, and what are methods for their control
 33. What is the most common stored product pest, what damage does it cause, and how can it be controlled

Session 2.9 Garden pea

Aim:

To update the block level supervisors and NGO level trainers on the latest garden pea varieties and production technologies in sufficient detail and clarity for them to transfer this knowledge to the project farmers.

Objectives:

On completion of this unit the participants should be able to:

12. Name the pest resistance characteristics of recommended garden pea varieties in relation to fungal and bacterial diseases and root knot nematode
13. List which pests that are controlled by planting garden pea after wetland rice or previously inundated fields and describe the principle involved
14. Name those pests that suppressed by using the following soil amendments: mustard oil cake, neem oil cake, poultry waste, and sawdust burning compared to cow dung in the field
15. Name those pests that will be minimized by practicing crop rotation with non-leguminous crops and describe the principle involved
16. List which garden pea diseases can be transmitted with the seed and list four methods to obtain disease-free seed

17. How can nitrogen fertilizer be applied in a way to enhance the tolerance of garden pea to nematode damage and what is the principle involved
18. Name two foliar fungal diseases of garden pea, describe the damage symptoms, how do they cause yield loss, and what are the control methods
19. What is the seedling insect pest that attacks garden pea, what is the damage symptom, how does it cause yield loss and what are biorational control methods
20. What are three foliar insect pests of garden pea, what are the symptoms of damage, how do they cause yield loss and what are the control methods
21. What are the four defoliator insect pests of garden pea, what are the symptoms of their damage, how do they cause yield loss and what are the biorational methods for their control
22. What are the three species of pod borers, what are their damage symptoms, how do they cause yield loss, and what biorational methods can be used for their control
23. What is the major insect seed pest both in the field and storage, what are the symptoms of its damage, how does it cause yield loss, and what are biorational methods for its control

Session 2.10 Garlic

Aim:

To update the block level supervisors and NGO level trainers on the latest garlic varieties and production technologies in sufficient detail and clarity for them to transfer this knowledge to the project farmers.

Objectives:

On completion of this unit the participants should be able to:

1. Name the pest resistance characteristics of the recommended garlic varieties in relation to fungal and bacterial diseases and root knot nematode
2. List which pests that are controlled by planting garlic after wetland rice or previously inundated fields and describe the principle involved
3. Name those garlic pests that are suppressed by using the following soil amendments: mustard oil cake, neem oil cake, poultry waste, and sawdust burning compared to cow dung in the field
4. Name those pests that will be minimized by practicing crop rotation with non-Amaryllidaceous crops and describe the principle involved

5. List which garlic diseases can be transmitted with the seed and list four methods to obtain disease-free seed
6. How can nitrogen fertilizer be applied in a way to enhance the tolerance of garlic to nematode damage and what is the principle involved
7. Describe two methods to control cutworm larvae
8. What damage do thrips cause and describe two methods for their control
9. Name two foliar fungal diseases of garlic, describe the damage symptoms, how do they cause yield loss, and what are their control methods
10. What are the three common fungal diseases attacking garlic bulbs, what are their symptoms, and list their control methods

Session 2.11 Carrots

Aim:

To update the block level supervisors and NGO level trainers on the latest carrot varieties and production technologies in sufficient detail and clarity for them to transfer this knowledge to the project farmers.

Objectives:

On completion of this unit the participants should be able to:

1. What is the cause of the common physiological disorder that causes carrots to split, a symptom that may be mistaken as caused by a pest
2. Name the pest resistance characteristics of the recommended carrot varieties in relation to soil borne fungal diseases and root knot nematode, foliar fungal diseases
3. List which pests that are controlled by planting after wetland rice or fields that have been inundated and describe the principle involved
4. Name organic amendments that can suppress damping-off and root knot nematode pests of carrots
5. Name those pests that will be minimized by practicing crop rotation with non-umbiliferous crops and describe the principle involved
6. List which carrot diseases can be transmitted by seed and how to obtain disease-free seed
7. What is the principle behind recommending destruction of the crop residue after harvest and name which carrot pests can be minimized by its use
8. How can nitrogen fertilizer be applied in a way to enhance the tolerance of the carrot plant to nematode damage and describe the principle involved

9. Name four common fungal and bacterial soil borne diseases of carrot, describe their symptoms, what damage do they do, and what control methods can be used
10. Describe the strategy of preventing fungicide resistance
11. What is the main insect pest affecting carrots in the field, describe the damage symptoms, what is the basis for yield loss, and what are methods for its control