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# Facilitator Guide



Sector
**Agriculture**

Sub-Sector
**Agriculture Crop Production**

Occupation
**Precision Farming**

Reference ID: **AGR/Q1003,** Version **3.0**
NSQF **Level: 3**

# Greenhouse Operator

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**Agriculture Skill Council of India**
6th Floor, GNG Building, Plot No.10
Sector - 44, Gurugram - 122004, Haryana, India
Email: info@asci-india.com
website: www.asci-india.com
Phone: 0124-4670029, 4814673, 4814659

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**Shri Narendra Modi**
Prime Minister of India

## Acknowledgements

We are thankful to all organizations and individuals who have helped us in preparation of this Facilitator Guide. We also wish to extend our gratitude to all those who reviewed the content and provided valuable inputs for improving quality, coherence and content presentation of chapters. This Facilitator Guide will lead to successful roll out the skill development initiatives, helping greatly our stakeholders particularly trainees, trainers and assessors etc. We are thankful to our Subject Matter Expert for the content and helping us in preparation of this Facilitator Guide.

It is expected that this publication would meet the complete requirements of QP/NOS based training delivery. We welcome the suggestions from users, industry experts and other stakeholders for any improvement in future.

## About this Guide

This Trainer guide is intended to empower the trainer/facilitator to prepare the participant to become 'Greenhouse Operator' as per the Qualification Pack (QP).

The objective of the guide is to provide an approach map for interacting with the trainees undergoing training on the job role. The aim of the course is to provide both theoretical and practical knowledge to the trainees, and also to guide them.

The guide is neither a substitute nor complete road map, but an aid to help you to pass on the knowledge on all the aspects to the trainees in a systematic manner. It is expected that the trainer is fully conversant with all the contents of the handbook. The guide is just to indicate that how to proceed for covering a topic and includes some additional information that may be necessary for the trainer to develop better comprehension.

Facilitator with the help of this guide will be able to build among participants:

- **Knowledge and Understanding:** Satisfactory operational learning and comprehension to play out the required chore
- **Performance Criteria:** Pick up the required aptitudes through hands on preparing and play out the required operations inside the predetermined measures
- **Professional Skills:** Capacity to settle on operational choices relating to the zone of work

The guide will also help them learn more by field visits and providing hands on training. It is expected that irrespective of the region, knowledge on all aspects of Greenhouse Operator farming will be imparted to trainees.

## Symbols Used

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ask | Activity | Do | Demonstrate | Explain | Elaborate | Example | Exercise |
| Facilitation Notes | Field Visit | Learning Outcomes | Notes | Objectives | Practical | Resources | Role Play |
| Summarize | Say | Team Activity | | | | | |

# Table of Contents

# 1. Introduction to the Role of a Greenhouse Operator

Unit 1.1 - Basic Concept of Protected Cultivation

Unit 1.2 - Different Types of Greenhouse Structures

Bridge Module

## Key Learning Outcomes

**After the completion of this module, the participant will be able to:**

1. Describe the size and scope of the agriculture industry and its subsectors.
2. Discuss the role and responsibilities of a Greenhouse Operator.
3. Identify various employment opportunities for a Greenhouse Operator.

# UNIT 1.1: Basic Concept of Protected Cultivation

## Unit Objectives

**After the completion of this unit, the participant will be able to:**

1. Describe the importance of Greenhouse in India.
2. Explain about the types of crops that can be grown in Greenhouse.

## Resources to be Used

- Available objects such as participant handbook, white board, duster, marker etc.
- Power point slides, pictures and materials like printed materials explaining greenhouse technology and its benefits.

## Do

- Begin the session by introducing the topic and its relevance to the participants.
- Encourage participants to share their existing knowledge and experiences with greenhouse cultivation.
- Use a slideshow presentation or props to demonstrate different types of greenhouses and crops that can be grown under them.

## Explain

- A greenhouse is a structure that is designed to control the environment for the cultivation of plants.
- The greenhouse effect is the process by which greenhouse gases trap heat in the atmosphere and contribute to climate change.
- Greenhouse cultivation allows for year-round production, increased crop yield, and protection from pests and diseases.
- Some of the main challenges to greenhouse production in tropical areas include high humidity, excessive heat, and the high cost of infrastructure.
- Some advantages of greenhouse cultivation include controlled environments, reduced water usage, and the ability to grow crops out of season.
- Different crops that can be grown under greenhouse include fruits, vegetables, flowers, and medicinal plants.

## Say

- Greenhouse cultivation can play a significant role in addressing food security challenges and increasing crop production in areas where traditional farming is not possible.
- The success of greenhouse cultivation depends on selecting appropriate crop varieties, maintaining a controlled environment, and addressing challenges unique to tropical areas.

## Activity

**Purpose:** To understand the concept of protected cultivation and the benefits of using greenhouses for crop production.

**Resources:** Access to internet or printed materials explaining greenhouse technology and its benefits.

Images and videos of greenhouses and greenhouse production

**Expected Time:** 20-45 minutes

**Methodology:** classroom activities and group discussions

**Expected outcome:** By the end of the activity, students should be able to:

- Understand the concept of protected cultivation and its benefits.
- Explain why greenhouse technology is important in tropical areas like India.
- Identify different crops that can be grown under a greenhouse.

**Instructions:**

1. Introduce the topic of protected cultivation and explain that you will be discussing the benefits of using greenhouses for crop production.
2. Present the information outlined in the methodology section, using images and videos to help students visualize the technology and its applications.
3. Encourage students to ask questions and participate in the discussion.
4. Conclude the activity by having students reflect on what they learned and ask any remaining questions.

## Elaborate

- Discuss the different types of greenhouses and their advantages and disadvantages.
- Explain how greenhouse cultivation can help address food security challenges, particularly in areas where traditional farming is not possible due to climate change or other factors.
- Discuss the importance of selecting appropriate crop varieties for greenhouse cultivation, as some crops may not thrive in a controlled environment.

## Notes for Facilitation

- Help the participants to complete all the exercises mentioned in the participant handbook.
- Encourage participants of group discussion to ask questions so that they can clear their doubts (if any).
- Encourage participants to undergo field visits and how they can learn more through these visits.

## Exercise

**Key Solutions to PHB Exercises**

**A. Short Questions**

1. Greenhouse is a structure made of galvanized steel and covered with agricultural plastic film or shading net/thermal net on all the slides, in which plants can be grown in regulated and optimum climatic conditions.
2. Refer to section 1.1.2 of PHB
3. Refer to section 1.1.3 of PHB
4. Crops that can be grown are: Leafy greens, cucumber, Tomatoes, Pepper, Citrus fruits, Grapes, Strawberries, Peaches, Coriander, Chillies, Raspberries etc.

# UNIT 1.2: Different Types of Green House Structures

## Unit Objectives

**After the completion of this unit, the participant will be able to:**

1. Explain about different greenhouse structures.
2. Importance of structural design.

## Resources to be Used

- Available objects such as participant handbook, white board, duster, marker etc.
- Power point slides, pictures/posters e.g., which can illustrate the Different structures of Green House.

## Do

- Begin with revising the topics covered in the previous session. Ask the following questions
  - ✓ What is a greenhouse structure?
  - ✓ What are the advantages of greenhouse cultivation?
- Encourage participants to share their existing knowledge and experiences with greenhouse structures.

## Explain

- A greenhouse is a structure that is designed to control the environment for the cultivation of plants.
- Greenhouse structures can control temperature, humidity, light intensity, and air circulation.
- There are different types of greenhouse structures, including naturally ventilated greenhouses, forced ventilation greenhouses, and closed greenhouses.
- Classification of greenhouse based on their suitability and cost, with high-tech greenhouses being the most expensive and low-tech greenhouses being the most affordable.
- Classification of greenhouse based on their glazing, with glass, plastic, and polycarbonate being the most common.
- A poly house is a type of greenhouse that is covered with polyethylene plastic.
- Factors such as orientation, size, and height should be considered while selecting a greenhouse structure to maximize sunlight exposure and optimize growing conditions.

## Field Visit

- Arrange a field visit to a local greenhouse or greenhouse farm that uses different types of greenhouse structures.
- Encourage participants to observe the different types of greenhouse structures, their features, and the methods used to maintain a controlled environment.

## Team Activity

- Divide participants into groups and ask each group to research a different type of greenhouse structure (e.g. closed, naturally ventilated, or forced ventilation).

## Elaborate

- Discuss the advantages and disadvantages of different types of greenhouse structures.
- Explain the factors that can affect the loads that will be carried by a greenhouse structure, such as snow, wind, and crop weight.
- Discuss the importance of selecting appropriate materials for greenhouse construction to withstand the loads that will be carried.

## Notes for Facilitation

- Facilitate group discussions to encourage participants to think critically about the factors that should be considered when selecting a greenhouse structure.
- Encourage participants to ask questions and seek clarification as needed.

## Exercise

**Key Solutions to PHB Exercises**

**A. Short Questions**

1. Saw tooth model, gothic type, High tunnels, Permanent top ventilated type

# UNIT 1.3: Roles and Responsibilities of a Greenhouse Operator

## Unit Objectives

**After the completion of this unit, the participant will be able to:**

1. Describe the Working of a Greenhouse
2. Explain basic work discipline at Greenhouse

## Resources to be Used

- Available objects such as participant handbook, white board, duster, marker etc.
- Power point slides with relevant images.

## Do

- Begin with revising the topics covered in the previous session. Ask the following questions
  - ✓ What are the different types of a Greenhouse structures?
  - ✓ Advantages and disadvantages of greenhouse structures.
  - ✓ Explain the factors that can affect the loads
- Encourage participants to share their existing knowledge and experiences of a greenhouse operator role.

## Elaborate

- Discuss about greenhouse operator job and their duties.
- On who hires green operators which are as follows
  - ✓ Agriculture companies
  - ✓ Lawn and garden centres
  - ✓ Privately owned greenhouses
  - ✓ Service firms to agriculture
  - ✓ Supermarkets that operates seasonal nurseries
- Skills needed to succeed as a greenhouse operator.
- Career advancements for greenhouse operators.

## Notes for Facilitation

- Help the participants to complete all the tasks involved in the participant hand book.
- Discuss with them regarding the points mentioned in the text box
- Motivate the participants by involving them in sense of participation and the realization of the importance of their work as a Greenhouse Operator.
- Tell them their important role for the farming community of the country and they will be service providers of a sector which is important to a country's economy, social and cultural well-being.
- You can invite representative of any organization who employs Greenhouse Operator so that their expectations can be known to the Greenhouse operators.

## Exercise

**Key Solutions to PHB Exercises**

**A. Short Questions**

1. A greenhouse operator is responsible for managing the day-to-day operations of a greenhouse facility. Their primary role is to ensure that the plants are healthy, and the greenhouse is running efficiently. Here are some of the typical responsibilities of a greenhouse operator:
    - Plant care
    - Environmental control
    - Equipment maintenance
    - Record-keeping

# Notes

# 2. Process to Assist in Setting Up a Greenhouse



AGR/N1014

## Key Learning Outcomes

**After the completion of this module, the participant will be able to:**

1. Explain different types of greenhouse such as the lean-to, even or uneven span, ridge and furrow, sawtooth, etc.
2. Explain the criteria for selecting a particular type of greenhouse to be set up such as the climate, topography, sunlight exposure, market accessibility, etc.
3. List various materials required for setting up a greenhouse according to the type selected.
4. Explain the importance of ensuring good air circulation, adequate sunlight exposure while installing the greenhouse.
5. Explain the importance of arranging for safe drainage of excess water from the greenhouse and its protection from external threats such as stray animals, whiteflies, rodents, etc.
6. Explain the benefits of resource optimisation.

# UNIT 2.1: Greenhouse Components and Its Operations

## Unit Objectives

**After the completion of this unit, the participant will be able to:**

1. Explain about various accessories components of a greenhouse.
2. Purpose and use of various accessories and components of greenhouse.

## Resources to be Used

- Available objects such as a participant handbook, white board, duster, flip chart board/paper, printed materials explaining greenhouse components etc.
- Slides in power point presentation with relevant images showing various components of a greenhouse.

## Do

- Begin with revising the topics covered in the previous session. Ask the following questions.
  - ✓ What are the role and responsibilities of a greenhouse operator?
  - ✓ What motivates you to work as a greenhouse operator
- Encourage participants to share their existing knowledge of greenhouse components and its operations.

## Demonstrate

- Demonstrate the different components of a greenhouse and how they work together.

## Field Visit

- Plan a visit to a local greenhouse to see the different components in action and gain hands-on experience.

## Explain

- How each component works and contributes to the overall effectiveness of a greenhouse structure.
- The benefits of using a fertigation system and the different components involved in such a system.

## Elaborate

- Discuss the different types of ventilation systems that can be used in a greenhouse, and their advantages and disadvantages.
- Explain how to use a relative humidity meter and an EC meter to monitor growing conditions in a greenhouse.
- Discuss the different types of plant support systems that can be used in a greenhouse, and how to select the appropriate one for a particular crop.

## Activity

**Purpose:** To understand the components of a greenhouse and their operations.

**Expected time**: 45-60 minutes.

**Resources:** Access to internet or printed materials explaining greenhouse components and their operations. Images and videos of different types of greenhouse components.

**Methodology:** Presentation and group discussion

**Expected outcomes:**

**By the end of the activity, students should be able to:**

- Understand the importance of different components of a greenhouse and their operations.
- Identify different types of covering materials used in greenhouses.

**Instructions:**

- Introduce the topic of greenhouse components and their operations.
- Present the information outlined in the methodology section, using images and videos to help students visualize the components and their operations.
- Encourage students to ask questions and participate in the discussion.
- Conclude the activity by having students reflect on what they learned and ask any remaining questions.

## Notes for Facilitation

- Encourage participants to share their experiences with greenhouse components and fertigation systems.
- Use case studies and examples to illustrate the importance of proper greenhouse components and fertigation systems.
- Facilitate group discussions to encourage participants to think critically about the different types of greenhouse components and their uses.

## Exercise

**Key Solutions to PHB Exercises**

**A. Short Questions**

1. Refer section 2.1.1
2. Fertigation is by far the most popular method used to supply fertiliser feed to greenhouse plants. It involves applying fertiliser dissolved in the irrigation water directly to the root zone of each plant.

# UNIT 2.2: Maintenance of Greenhouse Components

## Unit Objectives

**After the completion of this unit, the participant will be able to:**

1. Describe various Greenhouse environmental controls.
2. Explain different operations like land preparation, planting, weeding, irrigation, crop nutrition, pest control, protection of greenhouse and crops.

## Resources to be Used

- Available objects such as a white board, duster, flip chart board/paper etc.
- Slides in power point presentation showing relevant images.

## Do

- Begin with revising the topics covered in the previous session. Ask the following questions.
  - ✓ How each component works and contributes to the overall effectiveness of a greenhouse structure.
  - ✓ The benefits of using a fertigation system and the different components involved in such a system.
- Encourage participants to share their existing knowledge of greenhouse maintenance.

## Elaborate

- Structural management and maintenance practices of green house.
- Storm preparation guidelines and its classification like:
  - ✓ Six months pre-storm
  - ✓ Two to Six months pre-storm
  - ✓ One to Two day pre-storm
  - ✓ Within One day pre-storm
- Different types of Greenhouse
- Criteria for choosing greenhouse
- Importance of ventilation in greenhouse
- Necessary materials required to establish a greenhouse.

## Say

- Greenhouse operations are essential for creating a suitable growing environment. Understanding the different operations and how they work together is key to successful greenhouse production.

## Notes for Facilitation

- Help the participants to complete all the exercises mentioned in the participant handbook.
- Encourage participants of group discussion to ask questions so that they can clear their doubts (if any).
- Encourage participants to undergo field visits and how they can learn more through these visits.

## Exercise

**Key Solutions to PHB Exercises**

**A. Short Questions**

1. Regular maintenance of greenhouse components is essential to ensure optimal plant growth and to prolong the lifespan of the greenhouse structure. Here are some of the key components that require maintenance:
    - Structural components: The greenhouse frame, glazing, and foundation should be inspected regularly for damage, wear and tear, or corrosion. Any cracks or leaks in the glazing should be repaired immediately to prevent heat loss and damage to the plants.
    - Environmental control systems: Heating, cooling, and ventilation systems should be cleaned and checked for proper functioning at least twice a year. Filters, fans, and ductwork should be cleaned and replaced as needed to prevent the build-up of dust and other debris that can affect the air quality and plant growth.
    - Irrigation systems: Drip lines, emitters, and nozzles should be inspected regularly for clogs or damage. Water filters and pressure regulators should be checked and cleaned to prevent leaks and ensure proper water flow.
    - Pest control: Integrated pest management (IPM) techniques should be employed to prevent and control pest infestations. This may include the use of natural predators, traps, and pesticides.

Notes

# 3. Greenhouse Operation and Maintenance Procedures

Unit 3.1 - Greenhouse Operations

Unit 3.2 - Monitoring and Documentation of Greenhouse Operations

AGR/N1008

## Key Learning Outcomes

**After the completion of this module, the participant will be able to:**

1. State the water requirements of different types of seeds, vegetables, flowers and plants.
2. List signs of pests and disease in the seedlings, vegetables, flowers and plants.
3. Explain the importance of maintaining the recommended temperature, humidity and sunlight exposure in the greenhouse.
4. Explain the importance of storing the harvested flowers and vegetables at the recommended temperature, humidity and hygienic conditions.
5. Explain post-harvest processing and marketing of flowers and vegetables i.e. sorting and grading, cleaning and marketing.
6. Explain the importance of maintaining cleanliness in the greenhouse.
7. Explain the criteria for segregating waste into appropriate categories.
8. Explain the procedure to report inappropriate behaviour e.g., harassment.

# UNIT 3.1: Greenhouse Operations

## Unit Objectives

**After the completion of this unit, the participant will be able to:**

1. Explain various greenhouse environments controls.
2. Important operations like land preparation, planting, weeding, irrigation, crop nutrition, pest control, protection of greenhouse and crops.

## Resources to be Used

- Available objects such as a participant handbook, white board, duster, flip chart board/paper etc.
- Slides in power point presentation showing relevant images of greenhouse operations.

## Do

- Begin with revising the topics covered in the previous session. Ask the following questions.
    - ✓ Different types of Greenhouse
    - ✓ Importance of ventilation in greenhouse
    - ✓ Necessary materials required to establish a greenhouse.
- Encourage participants to share their existing knowledge of greenhouse maintenance.

## Explain

- Factors which is operated by greenhouse operators automate in a greenhouse such as:
    - ✓ Light
    - ✓ Temperature
    - ✓ Water
- Growing media and advantages of using soil less media which are:
    - ✓ Lower incidence of root diseases.
    - ✓ Greater control of the root zone.
    - ✓ Ease of disinfection
    - ✓ Ability to grow on marginal lands
    - ✓ Higher quality produce
- Good practices of plant propagation.
- Methods of Plant Propagation.

## Field Visit

- Plan a visit to a local greenhouse to see the different types of irrigation in action and gain hands-on experience.

## Elaborate

- Discuss on various growing media such as coir, perlite, sand, peat, rockwool, sawdust etc
- Layout and management of bags of growing media.
- How to manage crop nutrition
- Factors that affect nutrient availability.
- On different type of irrigation which are as follows:
  - ✓ Top-down irrigation
  - ✓ Sub irrigation
- General pests, disease and physiological disorders of tropical greenhouse vegetables and their management.
- Types of greenhouse pests

## Activity

**Purpose:** To develop a management plan for controlling pests and diseases in a greenhouse.

**Expected time:** 60-90 minutes.

**Resources:** Printed materials explaining common pests and diseases of greenhouse crops and their management, images and videos of common pests and diseases, Whiteboard or flip chart paper and markers.

**Methodology:** Group discussion and hands on.

**Expected outcomes:**

By the end of the activity, students should be able to:

- Identify the key pests and diseases that affect a specific greenhouse crop.
- Research and identify different management techniques for controlling pests and diseases in a specific greenhouse crop.
- Select the most appropriate management techniques based on factors such as effectiveness, cost, and environmental impact.
- Develop a management plan for controlling pests and diseases in a specific greenhouse crop.

**Instructions:**

- Divide the class into small groups and assign each group a different crop to focus on (e.g. tomatoes, peppers, cucumbers).
- Provide each group with information on the common pests and diseases that affect their assigned crop.
- Have each group develop a management plan for controlling pests and diseases in their assigned crop,
- Have each group present their plan to the class and facilitate a discussion about the different management techniques presented.
- Conclude the activity by having students reflect on what they learned and ask any questions they may have.

## Notes for Facilitation

- Encourage students for field visits and group activities.
- Assist them in completing exercises mentioned in the PHB.

## Exercise

**Key Solutions to PHB Exercises**

**A. Short Questions**

1. Plant propagation in a greenhouse is a popular method for producing new plants, as it provides a controlled environment that allows for optimal growth and development of plant cuttings or seeds. Here are some common methods of plant propagation in a greenhouse:
   - Seed propagation
   - Stem cutting propagation
   - Division propagation
   - Grafting propagation
2. Greenhouse operations are influenced by various factors that affect the growth and development of plants, as well as the efficiency and effectiveness of the greenhouse facility. Here are some of the key factors that can influence greenhouse operations:
   - Environmental conditions
   - Water quality and irrigation
   - Soil fertility and nutrition
   - Pest and disease control

# UNIT 3.2: Monitoring and Documentation of Greenhouse Operations

## Unit Objectives

**After the completion of this unit, the participant will be able to:**

1. Explain the importance of keeping records of operations.
2. Explain various records to maintain and monitor for greenhouse operations.

## Resources to be Used

- Available objects such as a white board, participant handbook, duster, flip chart board/paper etc.
- Slides in power point presentation showing relevant images.

## Do

- Begin with revising the topics covered in the previous session. Ask the following questions
  - ✓ Good practices of plant propagation.
  - ✓ Methods of Plant Propagation.
  - ✓ Growing media and advantages of using soil less media
- Encourage participants to share their existing knowledge of greenhouse maintenance.

## Explain

- Various records and monitoring system a greenhouse operator should adapt such as:
  - ✓ Greenhouse seeding record
  - ✓ Greenhouse transplanting record
  - ✓ Crop planting record
  - ✓ Field harvest record
  - ✓ Daily market sheet
  - ✓ Farm tasks and expenses

## Notes for Facilitation

- Help the participants to complete all the exercises mentioned in the participant handbook.
- Encourage participants of group discussion to ask questions so that they can clear their doubts (if any).
- Encourage participants to undergo field visits and how they can learn more through these visits.

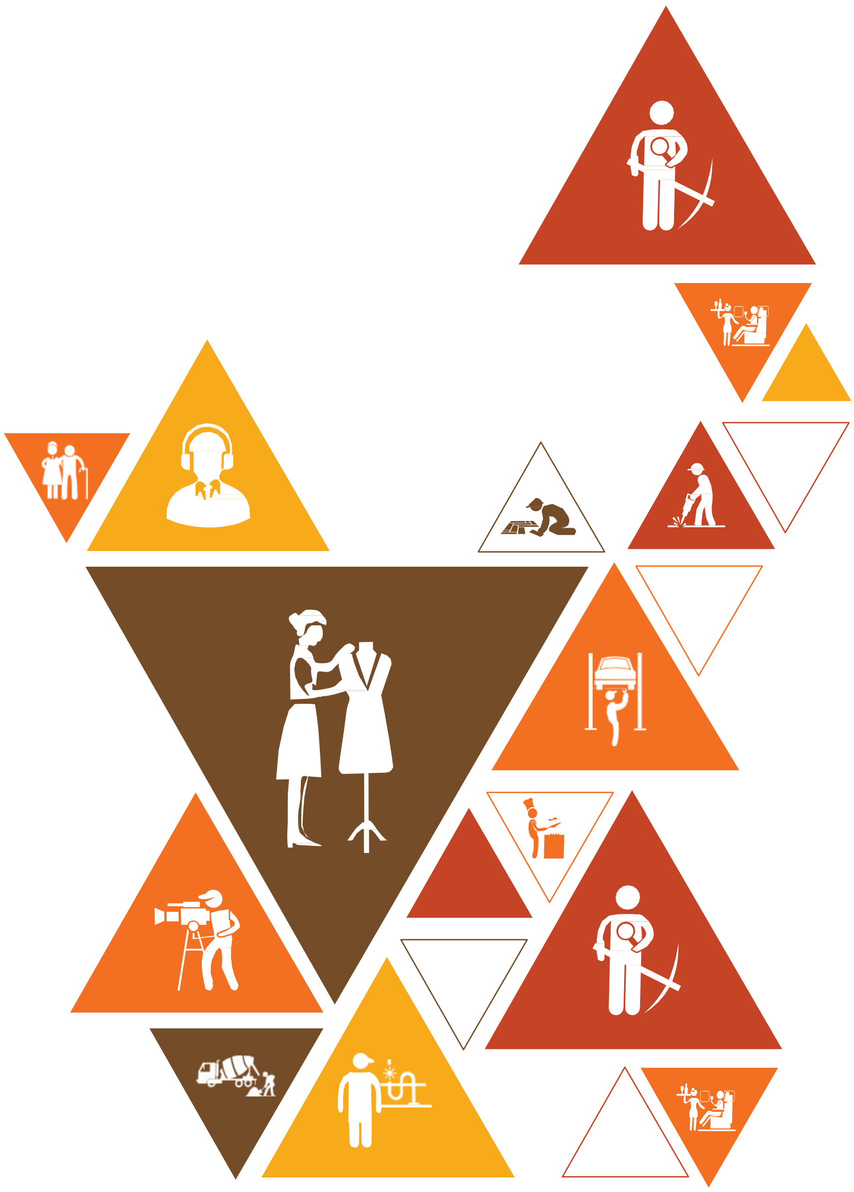
## Exercise

**Key Solutions to PHB Exercises**

**A. Short Questions**

1. Following are the list of various records that can be used in greenhouse operations:
    - Greenhouse seeding record
    - Greenhouse transplanting record
    - Crop planting record
    - Field harvest record
    - Daily market sheet
    - Farm tasks and expenses

## Notes



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# 4. Sanitation and Hygiene



AGR/N9903

## Key Learning Outcomes

**After the completion of this module, the participant will be able to:**

1. Explain the requirements of personal health, hygiene and fitness at work.
2. Describe common health-related guidelines laid down by the organizations/ Government at the workplace.
3. Explain the importance of good housekeeping at the workplace.
4. Explain the importance of informing the designated authority on personal health issues related to injuries and infectious diseases.

# UNIT 4.1: Personal Hygiene Practices

## Unit Objectives

**After the completion of this unit, the participant will be able to:**

1. Describe the process for maintaining good hygienic practices at workplace.
2. Explain the follow the workplace sanitization norms including distancing from sick people.

## Resources to be Used

- Available objects such as a participant handbook, white board, duster, flip chart board/paper etc.
- Slides in power point presentation showing relevant images.

## Say

- Greet the participants and before beginning the session, recapitulate the previous session discussions.

## Ask

- Do you understand by the term "Hygiene".?

## Explain

**Explain with the help of PHB :**

- Workplace Hygiene
- Personal Hygiene
- Washroom Hygiene
- Security measures for the safety of employees and other

## Activity

**Purpose:** To understand the need for personal hygiene
**Methodology:** Discussion for 15 minutes.
**Expected Outcome:** Participants have to list the external parts of the body that need to be kept clean and healthy, while explaining why it is needed.
- Put up the power point slide and start a discussion around the subject – what is personal hygiene and why it is needed.

## Do

- During the activity, encourage the participants to ask questions and have active participation.
- At the end of the activity, clarify the doubts the participants.
- Provide your own expert advice and opinion regarding the topic.

## Notes of Facilitation

- Conclude the unit by calling for volunteers to sum up one by one the learning on importance of sanitizing the workplace, the procedure to sanitize and disinfect work area.
- Encourage active participation and engagement from students, such as through group discussions and hands-on exercises.
- Provide a balance of both theoretical and practical information on the use PPEs, Cleaning disinfectants and other objects needed in this process.
- Get participants to open up their participant handbooks and solve the exercises given at the end of the unit. Discuss the answers.

## Exercise

**Key Solutions to PHB Exercises**

**A. Short Questions**

1. One of the best ways to protect yourself from getting gastro or infectious diseases.
2. Wear face mask, frequently wash your hands, avoid touching your eyes, nose, etc.
3. Barrier face covering, surgical masks, N95 Respirators, etc.

**B. Multiple Choice Questions**

1. Personal Protective Equipment
2. 2019
3. Homemade face mask

**C. Fill in the Blanks**

1. Work environment
2. 2014
3. Before start the work

**D. State True/False.**

1. True
2. True
3. True

# UNIT 4.2: Cleanliness Around the Workplace

## Unit Objectives

**After the completion of this unit, the participant will be able to:**

1. Describe the importance of workplace safety.
2. Explain about PPE equipment/kit.
3. Explain cleaning, disinfection and pest control measures.
4. Describe the importance of drainage and waste disposal around workplace.
5. Describe the importance of labeling and risk assessment practices in workplace.

## Resources to be Used

- Available objects such as participant handbook, white board, duster, flip chart board/paper etc.
- Slides in power point presentation showing relevant images.

## Say

- Greet the participants and before beginning the session, recapitulate the previous session discussions.

## Ask

- Have you ever heard about PPE ?

## Elaborate

- Inspection of Personal Protective Equipment (PPE).
- Cleaning and disinfection
- Pest Control system
- Drainage and Waste disposal

## Activity

**Purpose** : To perceive the topic and time will be 20 minutes.

**Methodology** : Pen and paper

- Divide the participants into groups
- Ask the participants to label the chart paper "TIPS FOR CLEANLINESS".
- Now discuss the points of every group.

## Notes for Facilitation

- Encourage active participation and engagement from students, such as through group discussions and hands-on exercises.
- Provide a balance of both theoretical and practical information on the use PPEs, Cleaning disinfectants and other objects needed in this process.
- Get participants to open up their participant handbooks and solve the exercises given at the end of the unit.

## Exercise

**Key Solutions to PHB Exercises**

**A. Short Questions**

**1. Workplace Safety Inspection Checklists**

- Employer posting of safety guidelines in a public and visible place
- Record-keeping of safety permits, occupational injuries and employee training records
- Safety and health program existence, consistency and participation
- Medical services and first aid availability, proximity and response

2. **Methods of Disinfection** Chemical Disinfectants

  - Chlorine and chlorine compounds
  - Formaldehyde
  - Glutaraldehyde
  - Hydrogen peroxide
  - Lodophors

3. Risk happens across all the organizations whether it is public, private or semi government. The process of assessing, monitoring, and responding to the risks in order to reduce their impact is achieved through the implementation of a risk management framework. Risk management framework is a basic conceptual structure used to address the risks faced by an organization. Refer section 12.2.9 in PHB.

**B. Multiple Choice Questions**

1. Both of the above
2. All of the above
3. All of the above

**C. Fill in the Blanks**

1. To decrease
2. Soil and organic material

**D. State whether True or False**

1. True
2. True
3. True

## Notes

# 5. Safety and Emergency Procedures

Unit 5.1 - Safety at the Workplace

AGR/N9903

## Key Learning Outcomes

**After the completion of this module, the participant will be able to:**

1. List the (Personal Protective Equipment) PPE required at the workplace.
2. Describe the commonly reported hazards at the workplace.
3. Describe the hazards caused due to chemicals/pesticides/fumigants.
4. Describe the basic safety checks to be done before the operation of any equipment/machinery.
5. Describe the common first aid procedures to be followed in case of emergencies.
6. State measures that can be taken to prevent accidents and damage s at the workplace.
7. Explain the importance of reporting details of first aid administered, to the reporting officer/doctor, in accordance with workplace procedures.
8. State common health and safety guidelines to be followed at the workplace.

# UNIT 5.1: Safety at the Workplace

## Unit Objectives

**After the completion of this unit, the participant will be able to:**

1. Explain basic safety checks before operating all machinery and vehicles
2. Identifying work that requires plant protection equipment
3. Explain the dangers of insecticides/fumigants and their safety measures
4. Discuss the use tools and materials safely and correctly and put them back in designated storage locations when not in use.
5. Explain the dispose of waste safely and correctly in a designated area
6. Identify the risks to those working around you and take action to reduce the risks associated with tasks in the workplace
7. Explain acts in a way that minimizes environmental damage
8. Explain about in case of any kind of accident, immediate consult the concerned person and take appropriate action to reduce the future risk.
9. Explain the use of emergency procedures according to Company standards
10. Informs administration about first aid as per workplace procedure

## Resources to be Used

- Available objects such as a participant handbook, white board, duster, flip chart board/paper etc.
- Slides in power point presentation showing relevant images.

## Say

- Good day and welcome all the participants to the training session. Recall the key points of previous session discussion.

## Elaborate

- Elaborate the following topics with the help of participant handbook, audio visual aids etc.
  - ✓ Safety guidelines
  - ✓ Health hazards
  - ✓ Health risk factors
  - ✓ Steps of operation
  - ✓ Farm equipment inspection
  - ✓ Personal Protective Equipment
  - ✓ Emergency Procedures

## Activity

**Purpose:** To acquaint participants with the emergency situations that occur at the workplace.

**Resources:** Presentation slides.

**Methodology:** Quiz

**Expected Outcome:** Participants will be able to identify the emergency situations that can occur at the workplace.

- Show the presentation slides and ask the participants to identify the emergency situations one by one. Note their response.
- Post the Quiz, show the presentation slide with the correct answers.

## Say

- Sum up key learnings of the above discussion.

## Notes of Facilitation

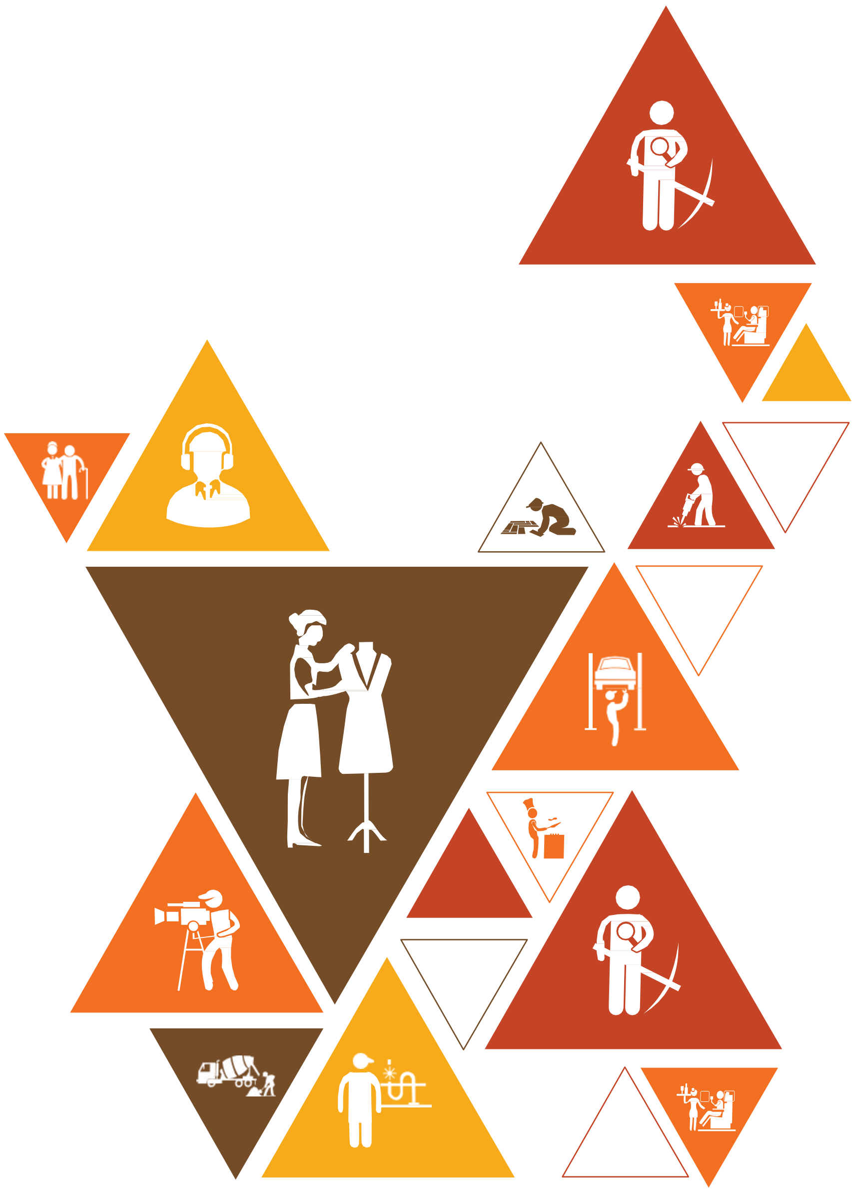
- Assist all groups to understand the topic clearly through visualization.
- Encourage the participants to maintain their own records.
- Keep some exercises handy for the activity.
- Constantly motivate each student to participate.
- Address the queries of the participants and clear all the doubts participants.

## Exercise

**Key Solutions to PHB Exercises**

1. (a) All the equipments and tools used on the day is pre-inspected.
   (b) All workplaces are inspected and any hazards are taken care of.
   (c) If unable to remove or protect against the hazard, a warning sign should be provided in such case.
2. Chemical safety checklist
   (a) Separate storage area for pesticides
   (b) Adequate supply of water
   (c) Warning sign- NO SMOKING
   (d) Availability od suitable PPE
3. Emergency procedures
   (a) Apply first aid upon exposure or injury by equipment or during pesticide overexposure
   (b) Giving proper rest to the person under heat stress
   (c) Call the local doctor or drive in personal to the nearest emergency treatment center.

## Notes



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सत्यमेव जयते
GOVERNMENT OF INDIA
MINISTRY OF SKILL DEVELOPMENT & ENTREPRENEURSHIP

N·S·D·C
National Skill Development Corporation
Transforming the skill landscape

ASCI
Agriculture Skill Council of India

# 6. Employability Skills (60 Hours)

To access content on Employability Skills, click here:
https://eskillindia.org/NewEmployability

**Scan the QR code below to access the ebook**

DGT/VSQ/N0102

# 7. Annexures

Annexure I - Training Delivery Plan

Annexure II- Assessment Criteria

Annexure III- QR Codes –Video Links

# Annexure I
# Training Delivery Plan

| Training Delivery Plan | | | |
|---|---|---|---|
| **Program Name:** | Greenhouse Operator | | |
| **Qualification Pack Name & Ref. ID** | AGR/Q1003 | | |
| **Version No.** | **3.0** | **Version Update Date** | 17/11/2022 |
| **Pre-requisites to Training (if any)** | 8th class with 1-year relevant experience OR 8th Class Pass and pursuing continuous regular schooling OR 5th grade pass with 4-year relevant experience OR Ability to read and write with 5-year relevant experience OR Certificate-NSQF Level-3 (Farm Worker) with 6 months of relevant experience | | |
| **Training Outcomes** | **After completing this programme, participants will be able to:**<br>• Demonstrate the process of assisting in setting up the greenhouse.<br>• Demonstrate the process of carrying out greenhouse operations and maintaining the greenhouse.<br>• Explain the basic entrepreneurial activities for small enterprise.<br>• Describe the process of undertaking employability and entrepreneurial practices.<br>• Demonstrate various practices to maintain personal hygiene, cleanliness, and safety at the workplace. | | |

| S.No. | Module Name | Session Name | Session Objectives | NOS Refernce | Methodology | Training Tools / Aids | Duration |
|---|---|---|---|---|---|---|---|
| 1 | Introduction<br>T: 5:00<br>(HH:MM) | 1. Basic Concept of Protected Cultivation | • Importance of greenhouse in India<br>• Types of crops that can be grown in Greenhouse. | Bridge Module | Lecture, group participation, classroom activities and discussion | PHB, Projector, system facilitating power point presentations, microphone, round tables arranged in U shape for healthy discussion | T: 1:00 |
| | | 2. Different types of Greenhouse structures | • Different types of greenhouse structures<br>• Importance of structural design. | | Lecture, group presentations and discussion | Participant handbook (PHB) Projector, system facilitating power point presentations | T: 2:00 |
| | | 3. Roles and responsibilities of a greenhouse operator | •Describe the Working of a Greenhouse<br>•Explain basic work discipline at Greenhouse | | Lecture, group presentations and discussion | Participant handbook (PHB) Projector, system facilitating power point presentations | T: 2:00 |

| S.No. | Module Name | Session Name | Session Objectives | NOS Refernce | Methodology | Training Tools / Aids | Duration |
|---|---|---|---|---|---|---|---|
| 2 | Process to assist In setting up a greenhouse<br>T: 35.00<br>P: 50:00<br>(HH:MM) | 1. Types of greenhouse | • Explain different types of green house such as the lean to, even or uneven span, ridge and furrow, sawtooth etc. | AGR/N1014<br>PC1, PC5, PC8, PC10, PC11, KU1-KU1, KU2, KU4-KU6, KU8, KU9, KU10, KU11, GS1-GS4, GS6, GS8 | Lecture, stage presentation, role plays, group presentations and discussion | PHB, Training Kit - Trainer Guide, Presentations, Whiteboard, Marker, Projector, Laptop, Video Film, Benches, Tables and Plant Carts used in the production area; Containers (including Flats and Pots) for Plants; Greenhouse Equipment | T: 4:00<br>P: 4:00 |
| | | 2. Irrigation and Fertigation system | • Demonstrate the process of installing the irrigation or fertigation system. | | Lecture, role plays, group presentations and discussion | PHB, White board, duster, flip chart board/paper etc. PPT with relevant images of irrigation and fertigation systems. | T: 3:30<br>P: 4:30 |
| | | 3. Greenhouse installation | • Explain the importance of ensuring good air circulation, adequate sunlight exposure while installing the greenhouse. | | Lecture, role plays, group presentations and discussion | PHB, available objects such as a white board, duster, flip chart, paper, pen, marker etc. PPT showing relevant images, Greenhouse Equipment | T: 3:00<br>P: 5:00 |
| | | 4. Greenhouse structure | • Demonstrate the process of preparing the greenhouse structure and erecting it as per the prepared layout through co-ordination with the greenhouse installer | | Lecture ,group presentations and discussion | PHB, Chart papers, pencil, eraser, sharpener, scale, Projector, system facilitating power point presentations, microphone, camera, round tables arranged in U shape for discussion, | T: 2:30<br>P: 5:30 |
| | | 5. Greenhouse selection | • Explain the criteria for selecting a particular type of greenhouse to be set up such as the climate, topography, sunlight exposure, market accessibility, etc | | Lecture, group presentations and discussion, field visits | PHB, White board, duster, flip chart board/paper etc., PPT showing relevant images, Pen/Pencil, Notebook, Checklist for field visit | T: 4:00<br>P: 4:00 |

| S.No. | Module Name | Session Name | Session Objectives | NOS Refernce | Methodology | Training Tools / Aids | Duration |
|---|---|---|---|---|---|---|---|
| | | 6. Resource optimization | • Explain the benefits of resource optimisation. | AGR/N1014 PC1, PC5, PC8, PC10, PC11, KU1-KU1, KU2, KU4-KU6, KU8, KU9, KU10, KU11, GS1-GS4, GS6, GS8 | Lecture, role plays, group presentations and discussion, field visits | PHB, Projector, display screen, round table sitting arrangement, white board, duster, flip chart board/paper etc., PPT and relevant audio visual aids | T: 3:00<br>P: 4:00 |
| | | 7. Resource optimization-Activity | • Demonstrate various practices to optimise the usage of various resources such as water and electricity. | | Lecture, role plays, group presentations and discussion, field visits | PHB, Projector, display screen, round table sitting arrangement, white board, duster, flip chart board/paper | T: 2:00<br>P: 6:00 |
| | | 8. Green house operations | • Learn important operations like land preparation, planting, weeding, irrigation, crop nutrition, pest control, protection of greenhouse and crops. | | Lecture, role plays, group presentations and discussion, field visits | PHB, Projector, display screen, round table sitting arrangement, white board, duster, flip chart board/paper etc., PPT and relevant audio visual aids | T: 3:30<br>P: 4:30 |
| | | 9. Environment control | • Explain about various greenhouse environmental controls. | | Lecture, role plays, group presentations and discussion, field visits | PHB, Projector, display screen, round table sitting arrangement, white board, duster, flip chart board/paper etc., PPT and relevant audio visual aids | T: 2:30<br>P: 4:30 |
| | | 10. Components of greenhouse | • Purpose and uses of various accessories and components of greenhouse. | | Lecture, role plays, group presentations and discussion, field visits | PHB, Projector, display screen, round table sitting arrangement, white board, duster, flip chart board/paper etc., PPT and relevant audio visual aids | T: 3:00<br>P: 5:00 |
| | | 11. Recap | • Recapitulate complete module learning | | Lecture, activities, role plays, group presentations and discussion, field visits, demonstrations etc. | PHB, Projector, display screen, white board, marker, duster, paper, pen PPT and relevant audio-visual aids | T: 5:00<br>P: 3:00 |

| S.No. | Module Name | Session Name | Session Objectives | NOS Refernce | Methodology | Training Tools / Aids | Duration |
|---|---|---|---|---|---|---|---|
| 3 | Greenhouse operation and maintenance procedures<br>T: 30:00<br>P: 60:00<br>(HH:MM) | 1. Greenhouse operations | • Describe important operations like land preparation, planting, weeding, irrigation, crop nutrition, pest control, protection of greenhouse and crops. | AGR/N1008 PC3, PC5, PC9, PC12, PC15, PC18, PC19, PC26, PC29, KU1-KU8, KU10-KU12, KU15, KU17, KU18, KU19, GS1-GS5, GS7 | Lecture, role plays, group presentations and discussion | PHB, Training Kit - Trainer Guide, Presentations, Whiteboard, Marker, Plant Markers; Spraying Equipment for the application of Insecticides, Herbicides, Fungicides and Fertilisers | T: 4:00<br>P: 4:00 |
| | | 2. Maintaining greenhouse environment | • Explain the importance of maintaining the recommended temperature, humidity and sunlight exposure in the greenhouse. | | Lecture, role plays, group presentations and discussion | PHB, White board, duster, flip chart board/paper etc. PPT with relevant images | T: 2:30<br>P: 4:30 |
| | | 3. Recommended temperature and humidity for storage | • Explain the importance of storing the harvested flowers and vegetables at the recommended temperature, humidity and hygienic conditions. | | Lecture, role plays, group presentations and discussion | PHB, available objects such as a white board, duster, flip chart, paper, pen, marker etc. PPT showing relevant images, | T: 3:00<br>P: 5:00 |
| | | 4. Post harvest processing and marketing | • Explain post-harvest processing and marketing of flowers and vegetables i.e. sorting and grading, cleaning and marketing. | | Lecture ,group presentations and discussion | PHB, Chart papers, pencil, eraser, sharpener, scale, Projector, system facilitating power point presentations, microphone, camera, round tables arranged in U shape for discussion, | T: 2:30<br>P: 5:00 |
| | | 5. Seeds plantation and irrigation | • Demonstrate the process of planting seeds, vegetables and different types of plants in the greenhouse.<br>• Show how to water the planted seeds, vegetables, flowers and plants with the recommended quantity. | | Lecture, group presentations and discussion, field visits | PHB, White board, duster, flip chart board/paper etc., PPT showing relevant images, Water Equipment including Sprinkler System, Pumps, Distribution Lines, Hoses, Nozzles | T: 1:00<br>P: 6:00 |

| S.No. | Module Name | Session Name | Session Objectives | NOS Refernce | Methodology | Training Tools / Aids | Duration |
|---|---|---|---|---|---|---|---|
| | | 6. Fertilizer application | • Demonstrate the process of applying fertilizers in the recommended quantity to promote the healthy growth of seedlings, vegetables and plants. | AGR/N1008 PC3, PC5, PC9, PC12, PC15, PC18, PC19, PC26, PC29, KU1-KU8, KU10-KU12, KU15, KU17, KU18, KU19, GS1-GS5, GS7 | Lecture, role plays, group presentations and discussion, field visits | PHB, Projector, display screen, round table sitting arrangement, white board, duster, flip chart board/paper etc., PPT and relevant audio visual aids | T: 1:00 P: 7:00 |
| | | 7. Greenhouse environmental conditions | • Describe various Greenhouse environmental conditions. | | Lecture ,group presentations and discussion | PHB, Projector, display screen, round table sitting arrangement, white board, duster, flip chart board/paper | T: 3:00 P: 5:00 |
| | | 8. Pests and diseases of greenhouse | • General pests, diseases and physiological disorders of tropical greenhouse vegetables and their management. | | Lecture, role plays, group presentations and discussion, field visits | PHB, Projector, display screen, round table sitting arrangement, white board, duster, flip chart board/paper etc., PPT and relevant audio visual aids | T: 2:30 P: 5:00 |
| | | 9. Control of pests | • Biological, chemical and genetic control of different pests. | | Lecture ,group presentations and discussion | PHB, Projector, display screen, round table sitting arrangement, white board, duster, flip chart board/paper etc., PPT and relevant audio visual aids | T: 2:30 P: 4:30 |
| | | 10. Monitoring and Documentation of Greenhouse operations | • Importance of record keeping and operations<br>• Various records to maintain and monitor for greenhouse operations. | | Lecture, role plays, group presentations and discussion, field visits | PHB, Projector, display screen, round table sitting arrangement, white board, duster, flip chart board/paper etc., PPT and relevant audio visual aids | T: 3:00 P: 4:00 |
| | | 11. Monitoring and Documentation of Greenhouse operations-Practical | • Prepare a sample record of sales and payments using the physical registers and/ or the relevant computer application. | | Demonstration, field visit, practical | Flip chart board/paper, round table sitting arrangement, white board | T: 1:00 P: 6:00 |

| S.No. | Module Name | Session Name | Session Objectives | NOS Refernce | Methodology | Training Tools / Aids | Duration |
|---|---|---|---|---|---|---|---|
| | | 12. Recap | • Recapitulate complete module learning | | Lecture, stage presentation, role plays, group presentations and discussion, field visits | PHB, projector, display screen, white board, duster, flip chart board/paper etc., Slides in power point presentation showing relevant images | T: 4:00<br>P: 4:00 |
| 4 | Sanitation and Hygiene<br>T: 04:00<br>P: 02:00<br>(HH:MM) | 1. Personal hygiene practices | • Describe the process for maintaining good hygienic practices at workplace.<br>• Explain the follow the workplace sanitization norms including distancing from sick people | AGR/N9903<br>PC1,PC4, PC6, PC7, KU2, KU8, GS1-GS9 | Classroom lecture, discussion, demonstration activity | Whiteboard, marker, pen, note pad, participant handbook, related power point presentation, etc. | T: 2:00<br>P: 1:00 |
| | | 2. Cleanliness Around the Workplace | • Importance of workplace safety.<br>• Explain the know abouts of PPE kit.<br>• Explain cleaning, disinfection and pest control measures | | Classroom lecture, discussion, demonstration, activity | Whiteboard, marker, pen, note pad, participant handbook, related power point presentation, etc. | T: 1:00<br>P: 2:00 |
| 5 | Maintaining Safe Work Environment<br>T: 16:00<br>P: 08:00<br>(HH:MM) | 1. Maintain standard safety procedures at the workplace | • Explain general safety procedures of the greenhouse.<br>• Describe various safety procedures while handling material equipment, hazardous material or tool | PC5, PC6, PC8, PC9, PC10, PC15, PC16-PC18, KU1-KU3, KU9-KU12, KU13, KU15, KU16, GS1-GS9. | Lecture, stage presentation, role plays, group presentations and discussion | PHB, audio visual aids on worker's safety, White board, duster, flip chart board/paper | T: 5:00 |
| | | 2. Participation in safety awareness campaigns | • Explain safety related protocols and first aid, evacuation and emergency procedures<br>• Describe the protection measures from hazardous chemicals, machines, sharp tools and other equipment | | Classroom lecture, discussion, demonstration activity | PHB, audio visual aids on worker's safety, White board, duster, flip chart board/paper | T: 3:00<br>P: 3:00 |
| | | 3. Reporting of hazards | • Explain the nature of work environment and receiving proper instructions<br>• Describe effective communication on potential hazards, other issues and problems and reporting it to supervisor | | Lecture, Discussion, demonstration | Whiteboard, marker, pen, note pad, participant handbook, related power point presentation, etc. | T: 4:00<br>P: 3:00 |
| | | 5. Recap | Recapitulate complete module learning | | Lecture, activities, role plays, group presentations and discussion, field visits, demonstrations etc. | PHB, Projector, display screen, white board, marker, duster, paper, pen PPT and relevant audio-visual aids | T: 4:00<br>P: 2:00 |

| S.No. | Module Name | Session Name | Session Objectives | NOS Reference | Methodology | Training Tools / Aids | Duration |
|---|---|---|---|---|---|---|---|
| 6. | Employability Skills (60hrs) | Introduction to Employability Skills | • Describe importance of Employability Skills<br>• Prepare a note on different industries, trends, required skills | DGT/VSQ /N0102 | Classroom lecture, Team Activity | White-Boardand, Markers, Chart Paper and Sketch pens, LCD Projector | 1:30 |
| | | Constitutional Values: Citizenship | • Detail the principles of constitution of India<br>• Identify thevariousenvironmentallysustainable practices | | Classroom lecture, Team Activity | Laptop, PPT, White board Markers, note pad, pen etc. | 1:30 |
| | | Becominga Professional inthe21st Century | • Discuss relevant 21stcentury skillsrequired foremployment<br>• Practice criticalthinking anddecision makingskills | | Classroom lecture, Team Activity | Laptop, PPT, White board Marers, note pad, pen etc. | 2:30 |
| | | BasicSkills-I | • Read English textwith appropriatearticulation<br>• Practice basic English words, sentences, punctuation<br>• Demonstrate active listening and reading skills | | Classroom lecture, Team Activity, Role play, video session | Laptop, PPT, White board Markers, note pad, pen etc. | 5:00 |
| | | BasicSkills-II | | | Practical, demonstration, role play | | 5:00 |
| | | Career Development and Goal Setting | • Identify well-defined short- and long-term goals<br>• Explain how to build a career pathway<br>Conduct job market research<br>• Discuss how to set career goals. | DGT/VSQ /N0102 | Class room lecture, discussion, demonstration, practical | Laptop, PPT, White board Markers, note pad, pen etc. | 2:00 |

| S.No. | Module Name | Session Name | Session Objectives | NOS Reference | Methodology | Training Tools / Aids | Duration |
|---|---|---|---|---|---|---|---|
| | | Communication Skills | • Explain the importance of communication at workplace<br>• Demonstrate effective communication strategies<br>• Demonstrate how to communicate effectively using verbal and nonverbal communication | DGT/VSQ /N0102 | Class room lecture, discussion, demonstration, practical | Laptop, PPT, White board Markers, note pad, pen, audio visual aids etc. | 5:00 |
| | | Diversity and Inclusion | • Explain the need of diversity at workplace<br>• Identify the various PwD policies applicable at workplace<br>• Discuss the significance of the POSH Act | DGT/VSQ /N0102 | Class room lecture, Inter-active discussion | Laptop, PPT, White board Markers, note pad, pen, audio visual aids etc. | 2:30 |
| | | Financial and Legal Literacy | • Discuss various financial institutions, products, and services<br>• Explain the common components of salary such as Basic, PF, Allowances (HRA, TA, DA, etc.), tax deductions | DGT/VSQ /N0102 | Class room lecture, demonstrations, group discussion, practical | Laptop, PPT, White board Markers, note pad, pen, audio visual aids etc. | 5:00 |
| | | Essential Digital Skills-I | • Detail the use and features of various MS Office tools, like MS Word, MS Excel, MS PowerPoint, etc.<br>• Demonstrate how to operate digital devices<br>• Create an e-mail id and follow e- mail etiquette to exchange e -mails<br>• Describe the role of digital technology in day-to-day life and the workplace | DGT/VSQ /N0102 | Class room lecture, discussion, Demonstration, practical, learning by doing | Laptop, PPT, White board Markers, note pad, pen, audio visual aids etc. | 6:00 |
| | | Essential Digital Skills-II | • Practice Digital skills | | Demonstration, practical, learning by doing | | 4:00 |

| S.No. | Module Name | Session Name | Session Objectives | NOS Reference | Methodology | Training Tools / Aids | Duration |
|---|---|---|---|---|---|---|---|
| | | Entrepreneurship | • Describe the types of entrepreneurship and enterprises<br>• Describe the4Ps Of Marketing-Product,Price, Place and Promotion and Apply the mas Per requirement<br>• Create a sample Business plan, For the selected business | DGT/VSQ /N0102 | Class room lecture, discussion, Demonstration, practical | Laptop, PPT, White board Markers, note pad, pen, audio visual aids etc. | 7:00 |
| | | Customer Service | • Identify types of customers and how to deal with them<br>• Identify methods to get customer feedback and how to implement them<br>• Explain various tools used to collect customer feedback<br>• Discuss the significance of maintaining hygiene and dressing appropriately | DGT/VSQ /N0102 | Class room lecture, activity, role play, video session | Laptop, PPT, White board Markers, note pad, pen, audio visual aids etc. | 5:00 |
| | | Apprenticeships and Jobs | • Practice personal grooming strategies<br>• Illustrate the use of online platforms for job hunting<br>• Detail the concept of Apprenticeship<br>• Demonstrate how to enroll for Apprenticeship programs.<br>• Draft a professional Curriculum Vitae (CV)<br>• Role play a mock interview | DGT/VSQ /N0102 | | | 8:00 |

# Annexure II

## Assessment Criteria

**CRITERIA FOR ASSESSMENT OF TRAINEES**

(For Updated 'Assessment Criteria', please refer to Qualification Pack of this Job role available at https://www.nqr.gov.in/)

| Assessment Criteria for ASCI- Greenhouse Operator | |
|---|---|
| **Job Role** | **Greenhouse Operator** |
| **Qualification Pack** | **AGR/Q1003** |
| **Sector Skill Council** | **Agriculture** |

| S.No. | Guidelines for Assessment |
|---|---|
| 1. | Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each PC. |
| 2. | The assessment for the theory part will be based on knowledge bank of questions created by the SSC. |
| 3. | Assessment will be conducted for all compulsory NOS, as well as the selected elective NOS/set of NOS. |
| 4. | Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training center (as per assessment criteria below). |
| 5. | Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training center based on this criteria. |
| 6. | To pass the Qualification Pack , every trainee should score a minimum of 50% of aggregate marks to successfully clear the assessment. |
| 7. | In case of *unsuccessful completion*, the trainee may seek reassessment on the Qualification Pack. |

| National Occupational Standards | Theory Marks | Practical Marks | Project Marks | Viva Marks | Total Marks | Weightage |
|---|---|---|---|---|---|---|
| AGR/N1014.Assist in setting up the greenhouse | 30 | 40 | - | 30 | 100 | 40 |
| AGR/N1008.Carry out greenhouse operations and maintain the greenhouse | 30 | 40 | - | 30 | 100 | 50 |
| AGR/N9903.Maintain health and safety at the workplace | 40 | 25 | - | 35 | 100 | 5 |
| DGT/VSQ/N0102.Employability Skills (60 Hours) | 20 | 30 | - | - | 50 | 5 |
| **Total** | **120** | **135** | - | **95** | **350** | **100** |

## Annexure-III

### Greenhouse Operator QR Codes –Video Links

| Chapter No. | Unit No. | Topic | QR Code Links | QR code (s) |
|---|---|---|---|---|
| **Chapter -1** Introduction to the Role of a Greenhouse Operator | Unit 1.1 - Basic Concept of Protected Cultivation | What is Greenhouse or Polyhouse ? | https://youtu.be/GCknNjJxN3M | Greenhouse or Polyhouse? |
| | | What is green house? | https://youtu.be/3Of5Fq5-mVg | What is green house? |
| | | Greenhouse effect is the process | https://youtu.be/fVy2B65pFJE | Greenhouse effect is the process |
| | | Poly House: Profitable vegetable Farming | https://youtu.be/ypYVmQmEtfQ | Poly House: Profitable vegetable farming |
| | | Types of Greenhouse | https://youtu.be/Rlax7sz5TM4 | Types of Greenhouse |
| **Chapter -2** Process to Assist in Setting Up a Greenhouse | Unit 2.1 - Green House Components and Its Operations | Greenhouse / Polyhouse Instruments and Equipments | https://youtu.be/t_xox2kbtdw | Polyhouse instruments and equipments |
| | | Irrigation system used in greenhouse | https://youtu.be/nt9aJM1cT8U | Irrigation system used in greenhouse |
| | | Construction of Greenhouse /Polyhouse | https://youtu.be/1eROh_1JtMg | Construction of Greenhouse /Polyhouse |
| | Unit 2.2 - Maintenance of Greenhouse Components | Design & planning of green house | https://www.youtube.com/watch?v=THw_fPC1Clk | Design & planning of green house |
| **Chapter -4** Sanitation and Hygiene | Unit 4.2 - Cleanliness Around the Workplace | Methods of waste disposal | https://youtu.be/dN8pdiWCKdo | Methods of waste disposal |

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Address: 6th Floor ,GNG Buildin ,Plot No.10
Sector -44, Gurugram - 122004,Haryana, India
Email: info@asci-india.com
Web: www.asci-india.com
Phone: 0124-4288322, 4047488, 4046678
CIN No.: U93000HR2013NPL048073