



Skill India
कौशल भारत - कुशल भारत



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

Facilitator Guide



Sector
Agriculture

Sub-Sector
Agriculture Crop Production

Occupation
Medicinal and Aromatic Plants Cultivation

Reference ID: **AGR/Q0901**, Version **3.0**
NSQF Level: **4**

Medicinal and Aromatic Plants Grower



Scan this QR to access eBook
<https://eskillindia.org/Home/handbook/141>

Agriculture Skill Council of India

Sector - 44, Gurugram - 122004, Haryana, India

Email: info@asci-india.com

Website: www.asci-india.com

Phone: 0124-4670029, 4814673, 4814659

Second Edition, March 2023

This book is sponsored by Agriculture Skill Council of India (ASCI)

Under Creative Commons Licence: CC BY-NC-SA:

Attribution-ShareAlike: CC BY-NC-SA:



Disclaimer

The information contained herein has been obtained from sources reliable to Agriculture Skill Council of India (ASCI). ASCI disclaims all warranties to the accuracy, completeness or adequacy of such information. Agriculture Skill Council of India shall have no liability for errors, omissions, or inadequacies, in the information contained herein, or for interpretations thereof. No entity in Agriculture Skill Council of India shall be responsible for any loss whatsoever, sustained by any person who relies on this material. The coded boxes in the book called Quick Response Code (QR code) will help to access the e resources linked to the content. These QR codes are generated from links and you tube video resources available on Internet for knowledge enhancement on the topic and are not created by ASCI. Embedding of the link or QR code in the content should not be assumed endorsement of any kind.

Agriculture Skill Council of India is not responsible for the views expressed or content or reliability of linked videos. ASCI cannot guarantee that these links/QR codes will work all time as we have no control over availability of linked pages.





Shri Narendra Modi
Prime Minister of India

“ Skilling is building a better India.
If we have to move India towards
development then Skill Development
should be our mission. ”



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

The objective of the guide is to provide an approach map for interacting with the trainees undergoing training on this job role. The aim of the course is to provide both theoretical and practical knowledge to the trainees, and also to guide them for marketing the product and generating income. The guide is neither a substitute nor complete road map, but an aid to help 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 guide. 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 on following aspects:

- **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 job will also include judging the comprehension and also help them learn more by hands on training. But it has to be ensured that these are in accordance with the knowledge imparted and time spent on each unit. It is expected that irrespective of the region, knowledge on all aspects will be imparted to trainees.

Symbols Used



Exercise



Notes



Objectives



Do



Ask



Explain



Elaborate



Activity



Team Activity



Facilitation Notes



Learning Outcomes



Summarize



Role Play



Example



Field Visit



Demonstrate



Resources



Say



Practical

Table of Contents

S.No. Modules and Units	Page No.
1. Introduction	1
Unit 1.1 - Overview of Medicinal Plants	3
2. Preparation for the Cultivation of MAPs (AGR/N0901)	10
Unit 2.1 - Principles of Nursery Management	12
3. Process of Cultivating MAPs (AGR/N0902)	16
Unit 3.1 - Cultivation Using Good Agricultural Practices (GAP)	18
Unit 3.2 - Nursery Bed Preparation	20
Unit 3.3 - Seed/ Planting Material Selection and Propagation	22
Unit 3.4 – Resource Optimization and Waste Management	26
Unit 3.5 – Gender & PWD at Workplace	28
4. Process of Harvesting, Processing and Marketing of MAPs (AGR/N0903)	32
Unit 4.1 - Harvesting of Medicinal Plants	34
Unit 4.2 - Post-Harvest Management	36
Unit 4.3 - Sorting, Packaging, Storage and Transportation	38
Unit 4.4 - Record Keeping and Traceability	40
Unit 4.5 - Market Demand and Supply Chain Assessment	42
Unit 4.6 - Book Keeping for Marketing Products	44
5. Basic Entrepreneurial Activities for Small Enterprises (AGR/N9908)	48
Unit 5.1 - Agriculture Enterprise planning	50
Unit 5.2 - Agriculture Production Planning Process	53
Unit 5.3 - Post Production and Marketing Management	56
6. Engagement in Collective Farming Activities (AGR/N9922)	61
UNIT 6.1 - Collectivization and Aggregation to form Group Organizations	63
7. Sanitation and Hygiene (AGR/N9903)	68
Unit 7.1 - Personal Hygiene Practices	70
Unit 7.2 - Cleanliness Around the Workplace	72
8. Safety and Emergency Procedures (AGR/N9903)	77
Unit 8.1 – Safety at the Workplace	79
9. Employability Skills 60 Hours (DGT/VSQ/N0102)	83
To access MSDE Upgraded Employability Skills, click here: https://eskillindia.org/NewEmployability	
10. Annexures	85
Annexure I - Training Delivery Plan	86
Annexure II - Assessment Criteria	96
Annexure III - QR Codes – Video Links	97







Skill India
कौशल भारत - कुशल भारत



सत्यमेव जयते
GOVERNMENT OF INDIA
MINISTRY OF SKILL DEVELOPMENT
& ENTREPRENEURSHIP



N.S.D.C.
National
Skill Development
Corporation

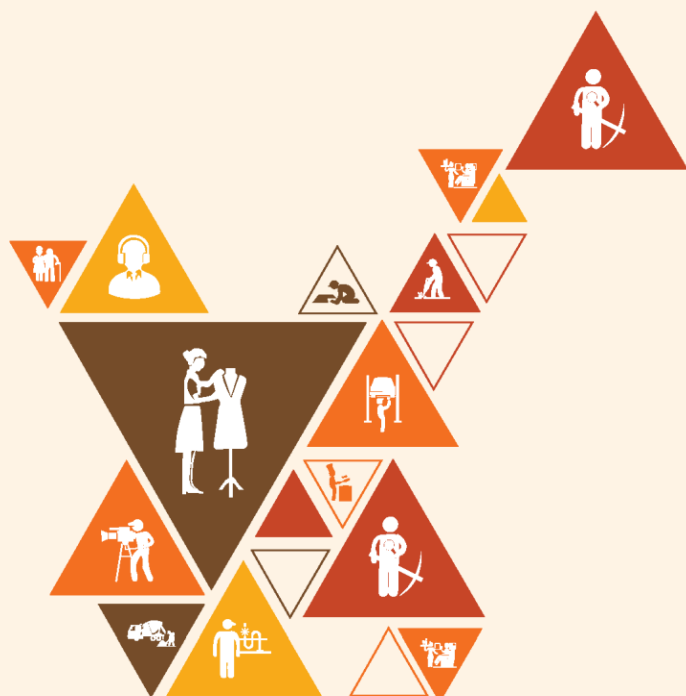
Transforming the skill landscape



ASCI
Agriculture Skill Council of India

1. Introduction

Unit 1.1 - Overview of Medicinal Plants



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 sub-sectors.
2. Discuss the role and responsibilities of an Inland Capture Fisherman cum Primary Processor.
3. Identify various employment opportunities for an Inland Capture Fisherman cum Primary Processor.

UNIT 1.1: Overview of Medicinal Plants

Unit Objectives

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

1. Explain scope and importance of medicinal plants in India.
2. Explain usage and market demand for medicinal plants produce.
3. Identify importance of conserving threatened species.
4. Explain role of a 'Medicinal Plants Grower'.

Resources

Available objects such as a white board, duster, power point slides; pictures/posters that can depict information about various medicinal plants.

Do

- Ask the students to collect some medicinal plants from the surroundings of the farm
- Ask them if they can describe about the plants they collected and their usages.
- Make the students stand in a circle, close enough to the person each side of them that they can pass a plant quickly Take a plant and describe them before the students. Show them various aromatic and medicinal plants.
- Explain various parts of the plants that are used as raw drugs.
- Can play a game on these plants and appreciate the winner.

Ask

- Explore with students about how they understand about medicinal plants; ask them to name some plants in local language.
- Ask 5-6 volunteers to share what will they do after this course on medicinal plants.
- Ask few participants to describe people / occupations who are directly dependent on medicinal plants to earn living.

Say

1. Thanks to everyone for their participation.
2. Discuss some comments of participants regarding medicinal plants.

Explain

- Various definitions and terms as mentioned in participant handbook.
- How we can help farmers to improve their income by medicinal plants cultivation. We also have the duty to ensure that farming as an activity in any area remains remunerative for sustaining the livelihood of farmers.
- Various industry usages of medicinal plants.

Example

Give examples of medicinal plant as raw drug with the help of slide.

Explain

- The importance of medicinal plants; how these are playing role in our daily life.
- Necessity of cultivation of medicinal plants over the wild collection.
- How this activity ensures the sustainability of supply as well as quality assurance.

Team Activity

Divide the class into 4-5 groups and assign each group to collect information on any one of the following topics with respect to any selected village:

Ask the group leader to make presentation on the same:

- Medicinal plants used by the villagers for their various purposes
- Major economic activities within a village on medicinal plants, if any
- Common agricultural / medicinal farming related practices.
- Crop calendar and medicinal plant farming system.

Say

- Appreciate everyone for their participation.
- Describe the objective of all the above activities.
- Review presentation of each group and add your comments with additional information/amendment

Ask

- Various forms of medicinal plants used for primary health care.
- The home remedies being used as first aid/ primary health treatment for common cold, cough, fever etc.
- Herbal product(s) they use in cosmetics.

Team Activity



- Make a group of 5-6 persons.
- Ask each group to write about the products in high demand, uses and from where this raw material is sourced.
- Discuss among the fellow participants.

Explain



- The purpose of this activity.
- Cultivation with good agriculture practices (GAP) will meet the quality industry demand.

Elaborate



- Medicinal plant users in India.
- Demand and supply gap

Ask



- What do you understand by threatened species?
- Do you know about joint forest management committee (JFMC)?
- What should be done to save these important species?
- Do you know about National AYUSH mission?

Activity



- Make a group of 5-6 participants and prepare a list of important medicinal plants used abundance but now rare in their area.

Explain



- The purpose of this activity.
- NMPB scheme and financial assistance for cultivation for threatened and other important medicinal plants.

Do

- Ask the team to recall about threatened species.
- Discuss the important steps to save these plants.
- Discuss the natural habitat of these plants.

Explain

- Importance of In-situ conservation of medicinal plants.
- How one can contribute in Ex-situ conservation.
- Discuss about seed gene bank, medicinal plant nurseries, herbal gardens, promotion of cultivation etc.

Ask

- About scope of medicinal plants.
- Should we save the threatened species?
- Will the quality production of the raw material helpful in setting good quality and effective products?
- If the answer is positive and they are able to understand the scope and requirement, explain about their role as medicinal plant grower.

Explain

- The medicinal plant will be grown as per good agriculture practices (GAP).
- As a medicinal plant grower, emphasis would be on cultivation of most commercial (demand based) as well as threatened species for their conservation.
- Any one irrespective of gender and socio-economic status can take up this job role.
- How it will be economical benefitted venture.

Role Play

- Ask the participants for role play of about 30 minutes.
- Ask one of the participants to be the Medicinal plant grower and other as counterpart.
- Ask the medicinal plant grower what will he do and how will he perform these activities.
- Encourage the participants to ask questions and have active participation.

Elaborate

- About the schemes which will help to identify the crops to be taken with financial assistance.
- The opportunities of associating with market for sale of the produce
- Primary processing is also part of the job role

Notes for 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.
- Motivate participant to visualize how they can make enriched career in medicinal plants cultivation.
- Encourage active participation and engagement from students, such as through group discussions and hands-on exercises.
- 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 Answers

1. Parts of plants that are used as drugs are: Leaves, roots, bark, fruit, seeds, flowers
2. Threatened species are any species (including animals, plants and fungi) which are vulnerable to extinction in the near future. Few examples are: *Amentotaxus assamica*, *Ilex Khasiana*, *Diospyros celebica*
3. Central Sector Scheme for Conservation, Development and Sustainable Management of Medicinal Plants.
4. I am responsible for growing medicinal plants of high commercial importance in ex-situ habitat or in cultivable land. I will also be managing cultivation, harvest and sale & distribution of produce. I will be one of the prime contributor for saving the threatened or endangered medicinal plant species.

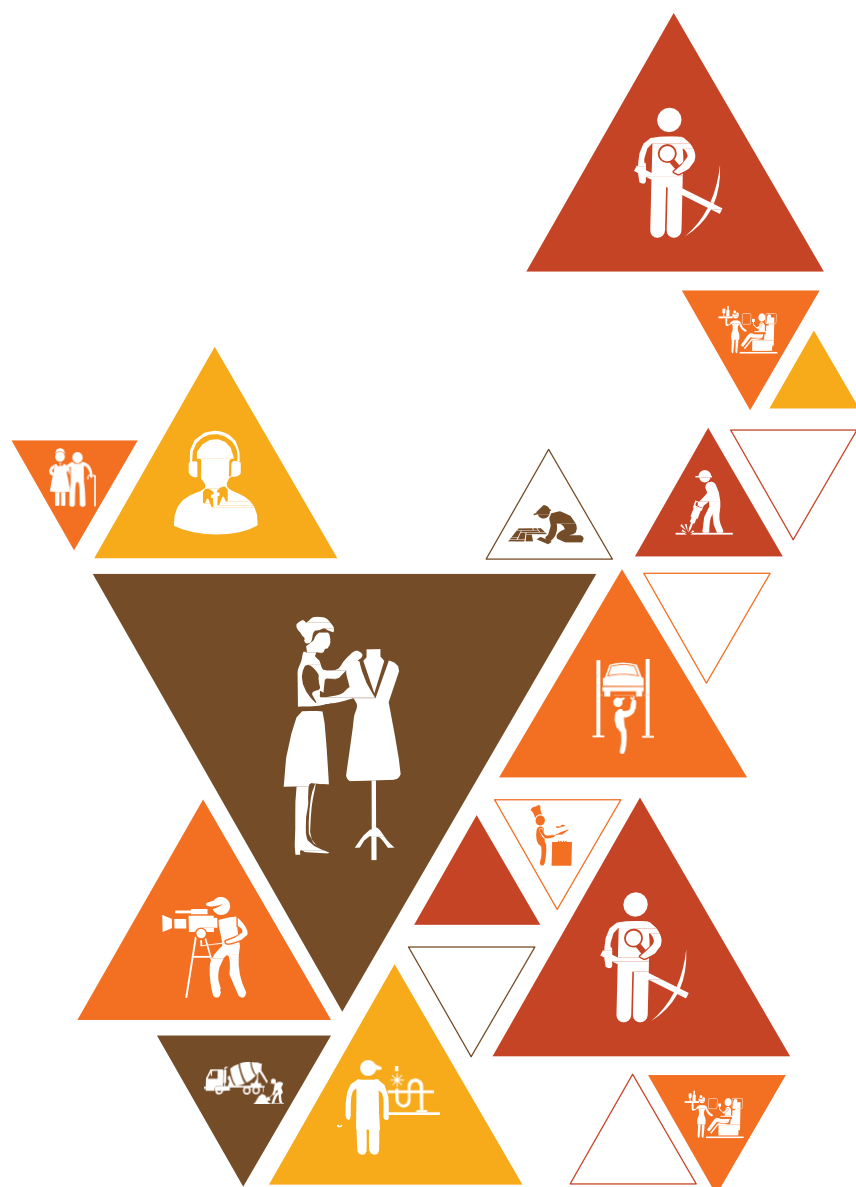
B. True or False

1. False
2. True

Notes



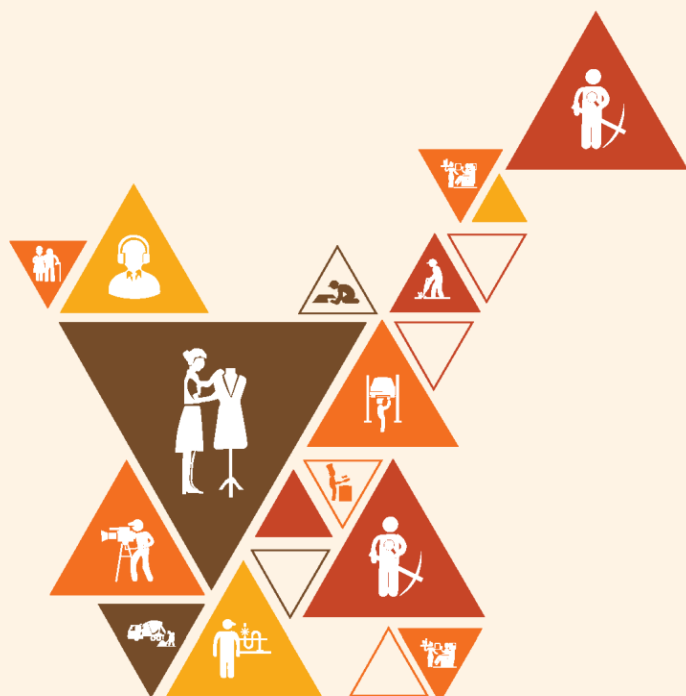
Lined area for taking notes, consisting of 30 horizontal lines.





2. Preparation for the Cultivation of MAPs

Unit 2.1 - Principles of Nursery Management



AGR/N0901

Key Learning Outcomes

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

1. Explain various practices related to conservation and sustainable use of MAPs.
2. Explain the bio-geographical distribution of different types of MAPs.
3. Explain the applicable environmental and human health perspectives.
4. Explain the importance and benefits of cultivating MAPs.
5. State the relevant issues encountered at various stages of production of MAPs.
6. Explain the factors related to the species rarity of medicinal plants.
7. Explain the applicable conservation strategies for varieties of MAPs.
8. Explain the criteria for selecting a site for the cultivation of medicinal and aromatic plants such as recommended sunlight exposure, effective drainage, etc.
9. Explain the importance and process of carrying out soil profiling and soil analysis to determine the physicochemical properties and texture of the soil.
10. Explain how to check the suitability of the soil for a crop and its water holding capacity.
11. State the recommended treatment(s) to be applied to the soil to improve its fertility.
12. Explain the importance of tilling the soil to the recommended tilth to facilitate a favourable environment for growing seeds and seedlings.
13. Explain the safe use of the relevant field preparation tools, implements, and PPE.
14. State the recommended practices to provide better soil structure, texture and rhizospheric environment.
15. Explain the importance of erecting fences to protect the field from external threats.
16. Explain the importance of procuring seeds and propagation material from an authorised seller.
17. Explain the importance of ensuring the ready-to-transplant saplings or root cuttings are uniform in size and maturity.
18. Explain the principles of raising and managing seedlings in a nursery.
19. State the precautions to be taken while collecting the planting material from the wild.
20. Explain the importance of ensuring that seeds and planting material are free from pests, infection, diseases and any foreign or inert matter.
21. Explain how to check the seeds chosen for cultivation meet the botanical and varietal purity, and are mature.
22. Explain the recommended agronomic practices to be followed for seedling production according to the target species.
23. Explain the importance of ensuring seedling production is carried according to the field transplantation schedule.
24. Explain the importance of collecting stem cuttings from authentic sources for root induction and ensuring the stem cuttings have a uniform length and diameter.

UNIT 2.1: Principles of Nursery Management

Unit Objectives

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

1. Identify & select appropriate site for nursery establishment.
2. Compare different types of nursery.
3. Assess soil quality.
4. Construct nursery as per operational requirements.
5. Identify different tools & equipments used in nursery and their usage.

Resources

- Available objects such as a whiteboard, duster, and flip chart board, paper, pen, projector, laptop etc.
- Slides in power point presentation showing specific images e.g. types of nursery, tools and various medicinal plants etc.

Team Activity

- Make students into three groups. Assign them to represent three agro-climatic or ecological zones such as semi-arid, temperate and tropical and sub-tropical.
- Taking clue from the material, groups should discuss amongst themselves about the medicinal plants they can grow in their respective zone.
- Ask to prepare list of medicinal plants cultivated or growing in the surroundings and the write climate of the area.
- The group leaders should then prepare to briefly present key learning using flip chart.

Say

- Appreciate everyone for their participation.
- Describe the objective of all the above activities.

Elaborate

- Describe how site and nursery management influences the quality of medicinal plant produce.
- Various tools and their requirement in nursery preparation and propagation

Field Visit



- Plan nearby visits to nearby nurseries
- Arrange experts for live demonstration on nursery preparation and management practices

Team Activity



- Divide the class into 4-5 groups to prepare nurseries- both raised and sunken
- Ask them to follow instructions and GAP for handling tools and preparing nursery beds
- Supervise and appreciate the team work and guide them in case of any anomalies and demonstrate correct methods.

Notes For Facilitation



- Arrange relevant reference material based on content in participant handbook.
- Assist all participants to understand the concept.
- Encourage hands on experience through practical assignments
- Focus on learning by doing
- Ensure sufficient pictorial presentation for learning, arrange for visual aids, power point presentations, charts, flip charts etc.
- Wherever possible, display specific work of groups within the class room.
- Ensure essential tools in the classroom for identification and explanation.

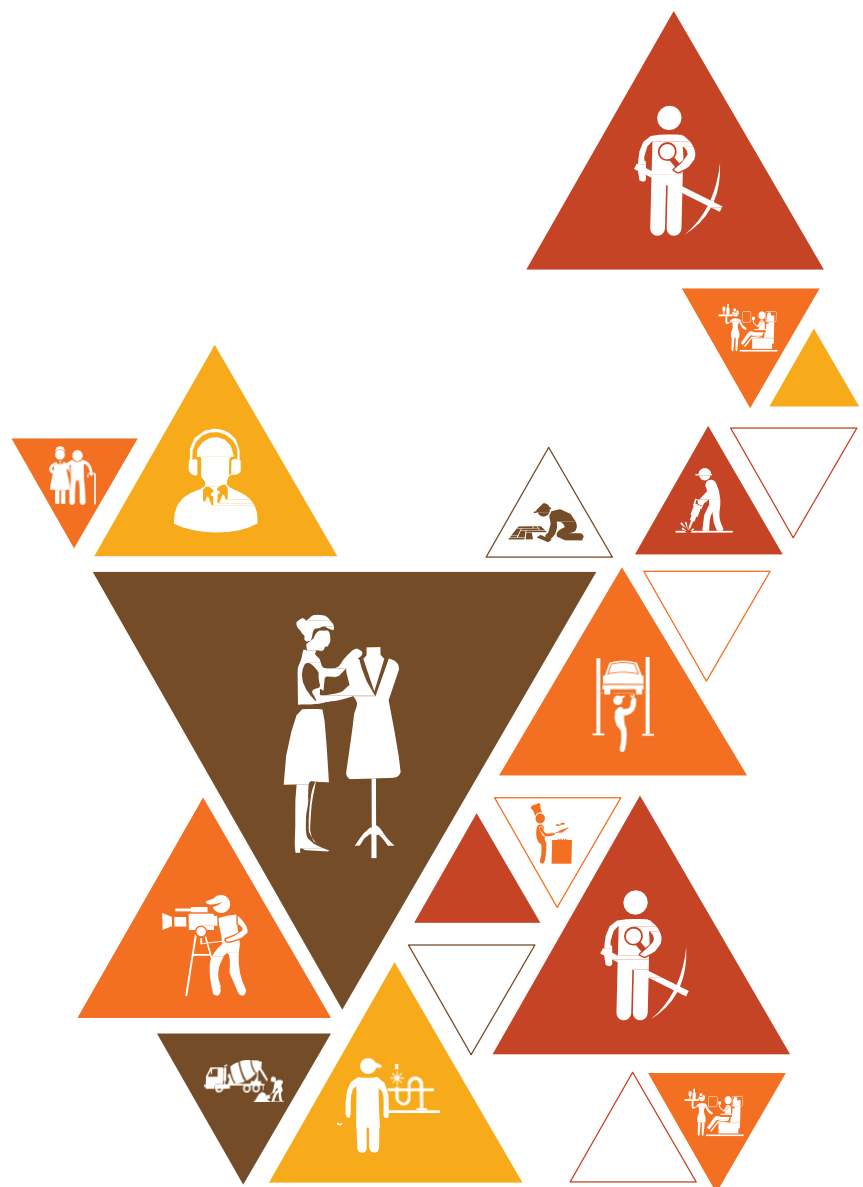
Exercise



Key Solutions to PHB Exercises

A. Short Answers

1. Crop/Plants to be grown, Size of available land, Availability of sufficient water resources and adequate sunlight, Agro-climatic conditions, Soil type and fertility status.
2. Boundary fence, Plantation of trees in the boundary as wind breaks, Tree plantation inside nursery for shading purpose, Pond / water tank, waterline and pump house, Seed and fertilizer store house, Nursery bed, germination and mother beds, Compost /manure area, Mist /propagation chambers.
3. Garden tools, paper bags, fertilizers, planting material stock, rooting medium, plastic mulch, field data book, shade net, nursery media, vermiculite etc.
4. Rectangular or a square shaped beds prepared on the ground with soil, clay, sand and manure for raising the seedlings. The beds are usually 1 m wide and of convenient length.
5. We can get subsidy from National Medicinal Plant Board for the cultivation of medicinal plants.



- Notes

This image shows a full page of blank white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page, providing a template for writing or drawing. There are no margins, text, or other markings on the paper.



NSDC
National
Skill Development
Corporation
Transforming the skill landscape

Key Learning Outcomes

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

1. Explain the use of the relevant weather forecasting mobile application or website.
2. State the appropriate stage of growth of seedlings to be transplanted in the field from the nursery bed.
3. Explain the importance of transplanting seedlings within the recommended time duration.
4. State the appropriate depth, spacing and moisture to be maintained while planting seedlings.
5. Explain how to determine the water requirement of a variety of medicinal and aromatic plants.
6. Describe the process of planning and implementing an irrigation cycle to ensure the optimal growth of plants.
7. Explain various water harvesting and conservation practices.
8. State the applicable Good Agricultural Practices (GAPs) for MAPs.
9. Explain the importance of ensuring the quality of water used for irrigating medicinal and aromatic plants.
10. Explain how to determine the micro and macronutrient needs of medicinal and aromatic plants.
11. Explain the use of mineral supplements specialised nutritional care for distinct purposes such as root production or enhancement of leafy biomass in the target species.
12. Explain various weed management practices and inter-cultural practices such as topping, nipping of buds, pruning, shading, earthing up, etc.
13. Explain the safe use of herbicides, weedicides, insecticides and pesticides.
14. State the recommended Integrated Pest Management (IPM) practices to be followed to control pests and disease in medicinal and aromatic plants.
15. Explain the signs of pest and disease infestation in medicinal and aromatic plants.
16. Explain the use of the appropriate Personal Protection Equipment (PPE) for applying using herbicides, weedicides, insecticides and pesticides.
17. State the recommended practices to be followed to prevent transmission of pests and disease from diseased to healthy plants.
18. Explain the benefits of resource optimisation.
19. Explain the importance of recycling and disposing different types of waste as per the applicable regulations.

UNIT 3.1: Cultivation Using Good Agricultural Practices (GAP)

Unit Objectives

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

1. Good Agricultural Practices and its necessity.
2. Identify the contaminants.

Resources

- Available objects such as a whiteboard, duster, and flip chart board/paper, etc.
- Slides in power point presentation showing specific images e.g. various contamination sources of medicinal plant, hygiene practices, species known in the market with the same name.

Activity

Purpose: The purpose of this activity is to enable the participants to understand and develop a Good Agricultural Practices (GAP) plan for the cultivation of medicinal plants, ensuring the safety and quality of the produce.

Methodology: Group activity and discussion

Resources needed: List of medicinal plants and their cultivation requirements, Presentation material (paper or electronic), Writing material (pen/pencil and paper)

Expected outcome:

- Understanding of the main principles of GAP
- Ability to design a GAP plan for medicinal plant cultivation
- Identification of key areas that require improvement in current farming practices

Instructions:

- Divide the participants into groups of 3-4 members.
- Provide them with a list of medicinal plants, soil and weather conditions required for their cultivation.
- Assign each group with a specific medicinal plant and ask them to develop a GAP plan for its cultivation, keeping in mind the main principles of GAP.
- Each group will be given 30-40 minutes to prepare their GAP plan and present it to the other groups.
- After the presentation, allow 10-15 minutes for discussion and feedback.

Do

- Remind them to keep in mind the main principles of GAP while designing their plan.
- Allow the groups to present their plans and provide feedback.
- Summarize the activity by highlighting the key points covered during the session.

Explain



- What are the good agricultural practices(GAP) and why is it needed
- Main principles of GAP. Which include the following
 1. Prevention of Contamination
 2. Best Active Ingredients
 3. Best yield and income
 4. Documentation and Traceability
- How to properly identify GAP

Notes For Facilitation



- Indicate potential sources of information to each of the group.
- Arrange for some visit at nearby recognized herbarium or arrange for the collection of some medicinal plants and those similar to them for proper identification.
- Encourage active participation and engagement from students, such as through group discussions and hands-on exercises.
- Get participants to open up their participant handbooks and solve the exercises given at the end of the unit. Discuss the answers.

UNIT 3.2: Nursery Bed Preparation

Unit Objectives

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

1. Select appropriate tools and materials required to prepare nursery beds.
2. Identify and prepare different types of nursery beds.

Resources

- Available objects such as a whiteboard, duster, and flip chart board/paper, etc.
- Power point presentations/charts, videos etc. on necessary tools, types of nursery beds and their preparation method.

Say

- Recall section 2.1.5 of module 2 and discuss the tools required for nursery bed and field operations.

Team Activity

- Make 2-3 group of participants. Display the tools and equipment and ask each group to identify and list the names of tools with their uses.
- Check if they have done right identification and understand their use.

Explain

- The importance of selecting right tool for specific work.
- Cleanliness of tools before use is very important in medicinal plants to prevent any contamination.

Ask

- If the participants know about various type of nursery beds.
- If they have ever have prepared or visited nursery beds.
- What is the normal height of any nursery bed they have observed?

Explain

- The term nursery bed and its types.
- The suitability of raised nursery bed in rainy season.
- Sunken/flatbed may be prepared in summer and winter season

Field Visit

- Take the participants to nearby farm/nursery
- A visit to nearby KVK could also be planned to demonstrate the nursery type and their preparation method

Elaborate

- Recommended height and width for raised nursery bed.
- Requirement of good quality compost or organic material for nursery bed.
- Direction of nursery seed bed.
- Method of seed placement in the bed.

Notes For Facilitation

- Summarize the key points covered in the session, also include Dos and DON'Ts of making raised beds nurseries.
- Encourage participants to ask questions and clarify any doubts they may have.
- Get participants to open up their participant handbooks and solve the exercises given at the end of the unit. Discuss the answers.

UNIT 3.3: Seed / Planting Material Selection and Propagation

Unit Objectives

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

1. Procure quality seeds/ planting materials from authentic sources.
2. Identify the approved propagation method of the target species.
3. Carry out plant propagation as per the type of species selected using approved techniques.
4. Raise and manage seedlings in nursery.

Resources

- Available objects such as a whiteboard, duster, and flip chart, paper, pen projector, computer/laptop etc.
- Slides in power point presentation representing relevant information for planting material, reliable procurement sources, propagation methods, organic nutrient sources, bio fertilizers, pest management, weeding etc.
- Live samples of seed /planting material of some medicinal plants, bio fertilizers, mulching material etc.
- Charts or visuals on medicinal plants species with low water requirement.

Demonstrate

- Sexual and asexual modes of propagation for different medicinal plants.
- Display seed, sampling, stem cuttings, root cuttings, as propagation material.

Field Visit

- Take the participants to nearby field and arrange for live demonstration on propagation of medicinal plants both through seeds and/or sucker/ cuttings.
- This will help to witness how the line spacing is maintained and what should be depth of seed sowing, what should be the covering/ material, mulching and irrigation requirement.

Explain

- Importance of correct time and spacing of planting material, treatment by organic means.
- Weeding and watering schedule as per selected crop.
- Time and stage of transplantation of seedling after uprooting.

Ask

- Types of organic manure participants are aware of.
- Which manure they are using in their field.
- Method of application in their field.
- If they have any clue on how to calculate nutrient doses.
- What are bio fertilizers?

Demonstrate

- Various organic manures and through visual aids and their nutrient status along with their method of application.
- Method of calculating nutrient doses.

Explain

- About mulching
- Benefits of mulching.
- Time and method of mulching.

Activity

Purpose: To educate participants about the locally available mulching material and their benefits.

Methodology: Field visit and discussion

Duration: 30-60 minutes

Resources Needed: List of common mulching materials, Pen and paper for each group, Timer

Expected Outcome:

- Participants will be able to identify the locally available mulching materials and understand the benefits of using each type for their agricultural practices.

Instructions:

- Divide the participants into groups of 3-5 individuals.
- Provide a list of commonly available mulching materials in the local area such as dry leaves, hay, straw, grass clippings, sawdust, wood chips, etc.
- Instruct the participants to go on a scavenger hunt and find as many of the listed mulching materials as possible within the specified time frame.
- Once the time is up, gather the participants back together and have them share the different types of mulching material they found.
- Lead a discussion on the benefits of each type of mulching material, including how it helps with soil conservation, weed suppression, moisture retention, and erosion control.

Explain



- Importance of critical stages of irrigation and best suited irrigation method.
- Soil quality and climatic condition and input use on the crucial indicators to determine crops to be grown with different irrigation requirements.
- How to control or manage without or minimal use of pesticide.
- Importance of sowing time, seed treatment and selection of varieties for pest management.

Role Play



- Ask 2 participants to play role of medicinal plant grower out of which 1 is pesticide user and other is organic pesticide and nature pest control user.
- Depending on the explanation by trainer and content in participant handbook, ask them to communicate each other, what, when, and how to use pest control measures and it's natural benefits over chemical pesticides.
- Facilitate them in between to use suitable examples.

Elaborate



- Irrigation methods with suitable videos, power point presentations, visual etc.
- Different medicinal crops suitable for different soils.
- How to deal with heavy rains.
- Common weeds with the help of images, charts etc. in medicinal plants.
- Weeds could be extra source of income

Notes For Facilitation



- Pre arrange slides/charts or visuals on natural pest management.
- Progressive farmer/expert to share his/her experiences in organic pest management in medicinal plants could be invited.
- Arrange propagation material of some important medicinal plants.

Exercise

Key Solutions to PHB Exercises

A. Short Answers

1. Good Agricultural Practices (GAP) for Medicinal Plants are a set of guidelines for farmers first developed by World Health Organization (WHO) in 2003 on how to produce high quality raw material (raw drug) for the herbal medicine industry. The NMPB further developed guidelines for cultivation of Indian medicinal plants in (2009).
2. Major sources of contaminations are mainly from air (environment), water and soil used in cultivation; post-harvest processing; Transportation and storage.
3. Heavy metals, Pesticide residue, Aflatoxins
4. With the help of botanical names we can identify medicinal plants as local names/common names varies with place.
5. Mulching in nursery with any material such as straw, leaves, perforated polythene, etc, is very useful to suppress weeds, conserve moisture and uniform germination. Organic mulches also enrich soil with nutrients and also prevent soil borne diseases. Some of the materials used are: Straw, Plastic, leaf etc
6. To avoid contamination of pesticides from neighbouring fields, we can use buffer zones, cover crops, and plant hedgerows as barriers.
7. Organic practices for pest management include crop rotation, intercropping, using beneficial insects, and creating a healthy soil ecosystem through practices such as composting and using natural fertilizers.
8. Some medicinal plants found in my area include neem, turmeric, ashwagandha, tulsi, amla, and guggul.

B. True/False

1. True
2. False
3. True
4. True
5. False
6. True
7. True
8. True
9. True
10. False
11. True
12. False
13. False
14. False
15. True
16. True
17. True
18. True
19. True

UNIT 3.4: Resource Optimization and Waste Management

Unit Objectives

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

1. Explaining the process for optimizing usage of water, electricity and other resources in relevant tasks and processes and its management.
2. Describe the process of segregating waste into appropriate categories.
3. Explain the recyclable waste appropriately and dispose the non-recyclable waste in an environment-friendly manner, in compliance with the applicable regulations.

Resources

- Available objects such as a whiteboard, duster, and flip chart, paper, pen projector, computer/laptop etc.
- Slides in power point presentation representing relevant images

Ask

- What do you understand by waste management
- What is resource optimization, and why is it important in the context of agriculture?
- What are some of the waste management challenges that you have encountered in your farming operations?

Explain

- Explain the process of Resource Optimization.
- Describe the process of segregating waste into appropriate categories
- Explain the important considerations to enable supply chain linked waste to wealth operations.

Do

- Provide examples of resource optimization and waste management in the agricultural industry, such as using renewable energy sources or creating value-added products from waste materials.
- Discuss how technology can be used to improve resource optimization and waste management in the supply chain.
- Provide case studies of successful waste-to-wealth operations in the agricultural industry.

Demonstrate



- Demonstrate how to calculate the cost savings that can be achieved through resource optimization and waste management in the supply chain.
- Show how waste materials can be turned into value-added products, such as compost or animal feed.

Elaborate



- Elaborate on the benefits of resource optimization and waste management for the environment, such as reducing greenhouse gas emissions and improving soil health.
- Elaborate on the role of different stakeholders in enabling waste-to-wealth operations in the agricultural industry, such as government agencies, private companies, and NGOs.

Notes For Facilitation



- Encourage participants to share their own experiences with resource optimization and waste management in their farming operations.
- Use case studies and examples to illustrate the concepts of resource optimization and waste management.
- Be prepared to answer questions about the technical aspects of waste-to-wealth operations

Exercise



Key Solutions to PHB Exercises

A. Short Answers

1. Human, machinery, financial resources are the most important resources and it needs to be optimized to achieve sustainability.
2. Organize a group discussion for this question.
3. Organize a group discussion for this question.

B. Fill in the blanks

1. Waste
2. Wealth operation
3. Urban

C. Multiple Choice

1. D
2. D
3. D

True/False

1. F
2. F
3. F

UNIT 3.5: Gender & PwD at Workplace

Unit Objectives

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

1. Explain gender-neutral behaviour at work.
2. Describe the process of empathising with the persons with disabilities (PwD) at work.

Resources

- Available objects such as a whiteboard, duster, and flip chart, paper, pen projector, computer/laptop etc.
- Slides in power point presentation representing relevant images

Ask

- Have you ever worked with someone who had a disability?
- Have you ever noticed any gender bias or inequality at your workplace?

Team Activity

- Divide the participants into small groups and ask them to share experiences of working with people who have disabilities.
- Then ask them to discuss any instances of gender bias they have observed or experienced at their workplaces.
- Instruct each group to come up with one practical solution to address gender bias or promote disability inclusion at the workplace.

Do

- Provide examples of gender-neutral behaviour that should be exhibited in the workplace.
- Discuss the steps that can be taken to ensure gender-neutral behaviour at work.

Demonstrate



- Demonstrate the use of inclusive language and behaviours that support diversity in the workplace.

Elaborate



- Elaborate on the steps that can be taken to ensure that employees with disabilities are provided with the support they need to be successful in their roles.
- Elaborate on the business case for diversity and inclusion, and how it can lead to better decision-making, increased innovation, and improved performance.

Notes For Facilitation



- Encourage participants to listen and learn from each other's experiences and perspectives.
- Summarize the key points covered in the session
- Encourage participants to ask questions and clarify any doubts they may have.
- 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 Answers

1. "Person with disability" means a person with long term physical, mental, intellectual or sensory impairment which, in interaction with barriers, hinders his full and effective participation in society equally with others.
2. Discuss with students.

B. Fill in the blanks

1. Sympathy
2.
3. Mentorship

C. Multiple Choice

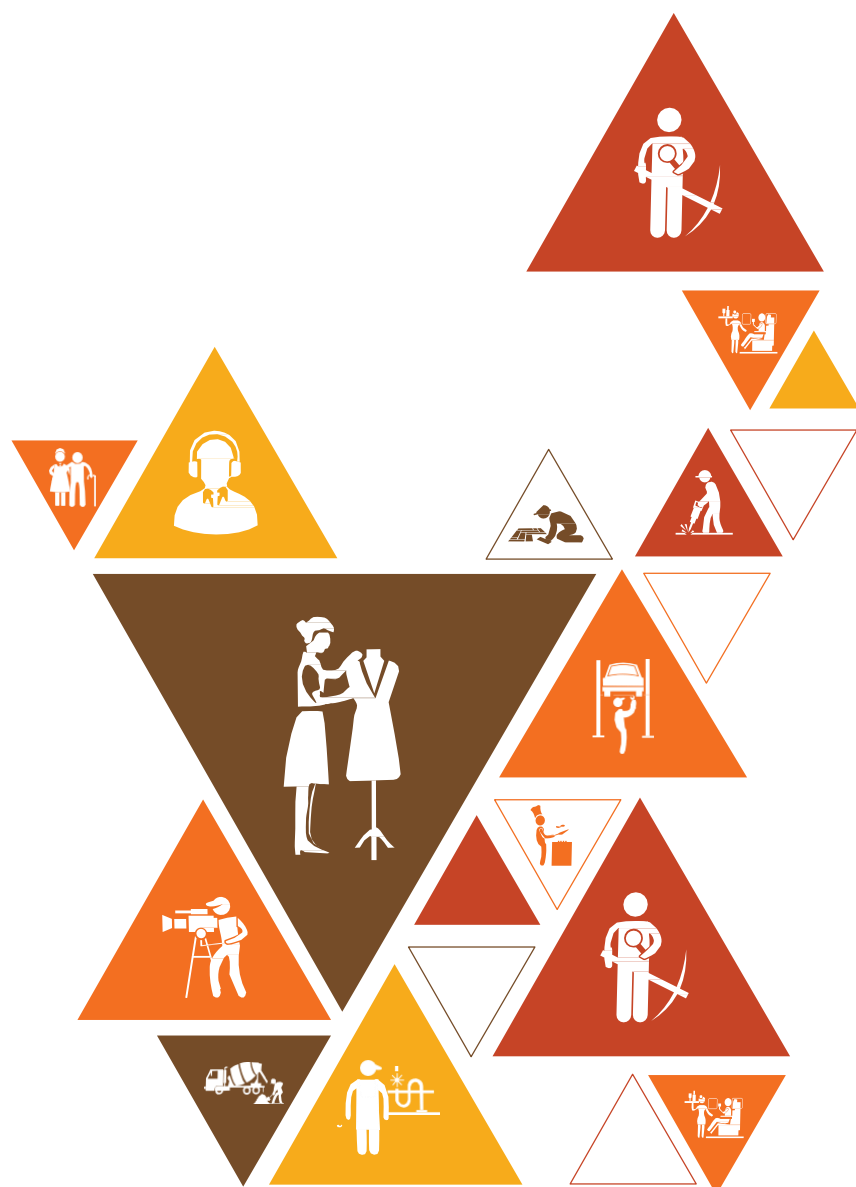
1. D
2. D

True/False

1. F
2. F
3. F

Notes

[illegible]



Key Learning Outcomes

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

1. Explain the practice of determining an appropriate time of harvesting based on the required quality parameters set for the end product.
2. Describe the process of checking medicinal and aromatic plants to ensure they have the appropriate quality characteristics required for harvesting.
3. Explain the use of the appropriate harvesting tools and equipment.
4. Explain how to harvest plants protecting them from soil contamination, avoiding incidental and concurrent harvesting of weeds.
5. List the infrastructure required for post-harvest management of MAPs.
6. Explain the importance and relevant practices to avoid cross contamination by other species and other extraneous matters during the harvesting.
7. State the relevant practices to be followed to isolate and dispose toxic weeds.
8. Describe different methods of cleaning the harvested medicinal and aromatic plants such as dry cleaning, wet cleaning or a combination of both.
9. Describe the process of drying medicinal and aromatic plants using appropriate accessories such as trays to prevent contamination during the process.
10. Explain the importance of storing the dry plants under the recommended temperature, humidity and hygienic conditions.
11. Explain the importance of ensuring clean and well-ventilated processing and storage areas and protecting them from direct sunlight, dust, rain, rodents, insects and livestock.
12. State the relevant parameters for sorting and grading medicinal and aromatic plants.
13. List the appropriate packaging material to be used for processed medicinal and aromatic plants.
14. State the recommended practices to be followed to protect the packing material from damage and keep it clean and dry.
15. Explain the necessary precautions to be taken to prevent undue compacting of dried plants during packing.
16. State the necessary treatment to be applied in the storage area to protect the packed plants from pests, insects and rodents.
17. Explain the importance of maintaining the recommended temperature, humidity and hygiene in the storage area.
18. Explain the importance of storing the organic herbs, non-organic products and produce with strong aromatic compounds separately in batches.
19. State the applicable GAPs and sustainable practices to be followed during post-harvest processing of MAPs.
20. Describe the process of identifying market demand and appropriate buyers for MAPs.
21. Explain how to negotiate with buyers.
22. State the appropriate mode of transport of delivering MAPs.

UNIT 4.1: Harvesting of Medicinal Plants

Unit Objectives

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

1. Identify and harvest correct plant parts based on the type of the medicinal plants such as leaves, stems, roots, whole plant.
2. Apply good harvesting practices.

Resources

- Available objects such as white board, duster, and flip chart, paper etc.
- Slides in power point presentation showing specific images in charts, harvesting tools for demonstration.

Demonstrate

- The instructions for harvesting mentioned in participant handbook.
- Demonstrate existing website of NMPB, and their GAP document where participants can search for information on GAP in medicinal plants farming and good harvesting practices for particular crop.

Elaborate

With the help of PHB and audio visual aids, elaborate:

- How to clean tools before harvesting.
- To select the appropriate weather.
- Use of clean sacks and recycled sacks.
- All GAP to be followed during and after harvesting.
- The appropriate time of harvest for different plant parts.

Team Activity

- Make group of 2-3 participants and ask them to discuss with each other time and method of collection of different plant parts in time frame of 10-15 minutes, ask one of them from each group to share learning in the class.

Notes For Facilitation



- Assist all groups to understand the topic clearly through visualization.
- Constantly motivate each student to participate to improve their presentation skill, use of tools etc.
- Focus on ensuring pictorial presentation of learning.
- Wherever possible, involve the participants for peer learning.

UNIT 4.2: Post-Harvest Management

Unit Objectives

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

1. Describe approved cleaning methods to separate soil particles based on the type of species.
2. Explain how to dehydrate water content from plant matter using approved procedures.
3. Demonstrate sorting of and grade the harvests as per required quality specifications for color, purity, maturity, size or weight.
4. Explain storage of dried plant materials as per the recommended practices in clean storage area.
5. Demonstrate selection of appropriate packaging material and labelling of the packed items correctly.
6. Explain record maintenance of the harvested produce.
7. Explain how to handle & transport the produce safely.

Resources

- Available objects such as white board, duster, and flip chart, paper, projector, laptop etc.
- Visuals through images, power point presentations, charts, relevant digital content etc.

Ask

- The first and foremost thought in their mind after harvesting.
- Where would they like to keep their harvested produce?
- What precautions or necessary steps would they like to take after harvesting?

Explain

- Selection of appropriate location for processing sites with ventilation and protection from natural vagaries.
- Potential sources of contamination.

Demonstrate

- With the help of images or illustrations how a clean and hygienic primary processing site should look like.
- If possible give live demo on washing and cleaning of harvested plants.

Say

- Washing of seeds, delicate flowers should be avoided.
- Place the washed produce on clean surface.

Do

- Prepare the charts or PowerPoint presentation to show different methods of drying medicine plants.
- Discuss the checklist for the steps to prepare and drying the crop.
- Explain the standard drying guidelines for different plant parts.

Elaborate

- Drying guidelines for leaves, stem, flower, fruits, root and bark with the help of live examples/demonstration.
- Ideal drying temperatures for herbs mentioned in participant handbook.

Notes For 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.
- Get participants to open up their participant handbooks and solve the exercises given at the end of the unit. Discuss the answers.

UNIT 4.3: Sorting, Packaging, Storage and Transportation

Unit Objectives

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

1. Sort and grade the harvests as per required quality specifications for color, purity, maturity, size or weight.
2. Store dried plant materials as per the recommended practices in clean storage area.
3. Select appropriate packaging material and label the packed items correctly.

Resources

- Available objects such as a whiteboard, duster, and flip chart, paper, projector, laptop etc.
- Audio visual aids on post-harvest operations.
- Harvested produce of any medicinal plant if possible.

Ask

- The opinion of participants about storage space or area for medicinal plant produce.
- Should we keep various types of harvested produce together? If no, then what id the harm in storing together different commodities.
- The common available and suitable transport for the produce for marketing.

Demonstrate

- Demonstrate sorting procedure.
- Steps in labelling of the products as:
 1. Name of product.
 2. Plant part.
 3. Month and year of harvest.
 4. Farmer/ farming agency numbering approval inscription.
- The correct way of transportation of harvested medicinal plant produce.

Activity

- Arrange some adulterated / harvested dried produce.
- Ask 4-5 participants to perform sorting activity.
- Check if they are performing in demonstrated way.

Explain

- The packaging requirements with the reference to participant handbook.
- Select packaging material criteria.

Elaborate

- The precautions with the help of suitable examples.
- Do's and Don'ts for transportation of valuable medicinal plant produce.

Team Activity

- Divide the participants into 2-3 groups, give them a sample plant product and ask to do labelling of the clean sack.
- Check the labelled sacks and suggest corrections if any.

Notes For Facilitation

- Pre arrange a visit to nearby place where sorting, grading, packaging of the produce is carried out.
- Focus on ensuring pictorial as well as live presentation for learning.
- Involve the participants through group activities, discussions and learning by doing.

UNIT 4.4: Record Keeping and Traceability

Unit Objectives

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

1. Identify the purpose of record keeping.

Resources

- Available objects such as a whiteboard, duster, and flip chart, paper, projector, laptop etc.
- Audio visual aids on record keeping
- Sample worksheets for record keeping of all farm operations from cultivation to transportation.

Ask

- If any of the participants have maintained records of farming practices.
- How they calculate economics of the plantation.

Demonstrate

- Various data that should be recorded specially in medicinal plant cultivation, ask them to refer participant to handbook.

Some of them are:

- Weather data.
- Soil and water testing report.
- Time of procurement of seeds.
- Source of procurement.
- Land preparation to harvesting records.
- Photographic records.

Elaborate

- The purpose of the record keeping which will help in tracing the origin of the crop.
- Record keeping will act as document proof for quality of the produce.

Notes For 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.
- 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. True/False

1. True
2. False
3. False
4. True
5. True
6. True
7. True
8. False
9. True
10. True
11. True
12. False
13. False
14. False
15. True

UNIT 4.5: Market Demand and Supply Chain Assessment

Unit Objectives

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

1. Assess demand & supply of medicinal plants products in the market.
2. Seek information regarding subsidies/loan available through govt. institutions.
3. Avail loan from the financial institutions.
4. Identify & develop appropriate marketing channels.
5. Track prices prevailing in the market and formulate competitive pricing mechanism.

Resources

- Available objects such as whiteboard, duster, flip chart board/ paper etc.
- Slides showing various markets at local, state and national level.
- Illustrations on market chain, charts or visuals on subsidy available.
- Relevant case study, if any.

Demonstrate

- Existing market chain in India.
- Process for identifying market channels and buyback systems.
- The process to identify the crop and available subsidy from NMPB with example.

Activity

- Ask 1-2 participants role play of financial assistance for crop to be grown.
- Another participant will act as expert for process sharing.
- Facilitate the act, this will help enhanced learning.

Notes of Facilitation

- Constantly motivate each student to participate.
- Focus on ensuring pictorial presentation of learning.
- Whenever possible, display specific work of groups within the classroom.
- Invite or arrange a session from expert from horticulture department to explain the complete procedure of subsidy and loan facility.

Exercise

Key Solutions to PHB Exercises

A. Short Answers

1. Amritsar, Bilaspur, Raigarh, Thrisur, Khari Baoli, Sojat, Unjha
2. 4
3. All assets are recorded in the book of accounts at their purchase price, which includes cost of acquisition, transportation, installation and making the asset ready to use
4. There are three slabs, 30%, 50% and 75% subsidy of cost of cultivation available at present.

UNIT 4.6: Book Keeping for Marketing Products

Unit Objectives

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

1. Maintain book of accounts
2. Calculation of B:C ratio

Resources

- Available objects such as whiteboard, duster, flip chart board/ paper etc.

Ask

- If they ever calculated expenditure incurred for any purpose? If yes, what does this help?

Explain

- Maintaining records in form of book of accounts is mandatory while selling the produce.

Demonstrate

- The process of maintaining book of accounts with the help of power point presentation, visuals and examples.
- You may refer to example of B: C ratio mentioned in participant handbook.

Activity

- Arrange the participants in 4-5 groups.
- Give separate exercise to calculate B: C ratio as well as writing book of accounts.
- At the end of exercise as one member from each group to share with others.
- This will encourage participatory learning

Notes of Facilitation

- Keep some exercises handy for the activity.
- Check some valid references on economics of medicine plant cultivation.

Exercise

Key Solutions to PHB Exercises

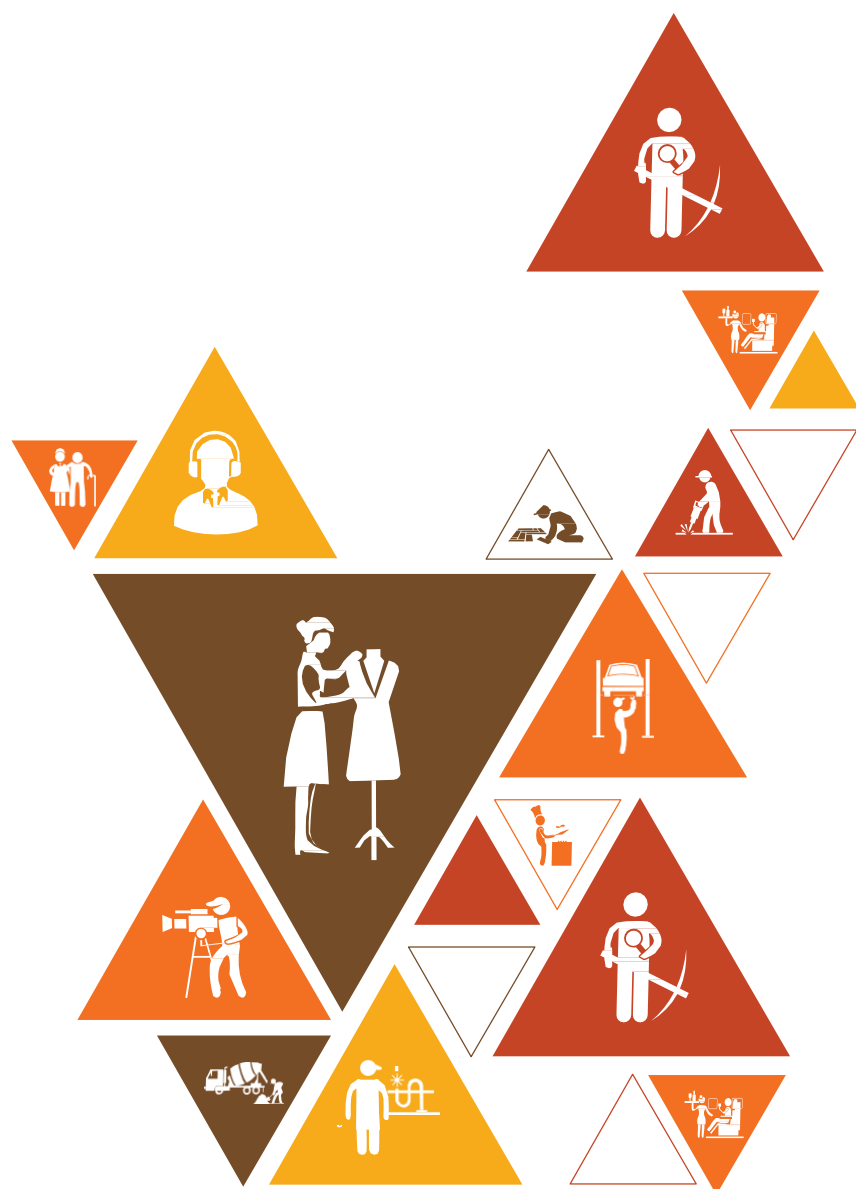
A. Short Answers

1. National Medicinal Plants Board (NMPB)
2. The benefit cost ratio (B:C ratio) of an investment is ratio of the discounted values of all cash inflows to the discounted value of all cash outflows during the life of the project.

Notes



Lined area for taking notes, consisting of 30 horizontal lines.



Key Learning Outcomes

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

1. Explain how to analyse the demand and supply of the relevant agricultural produce in the market
2. Describe the process of identifying the target customers and assess their needs and expectations with respect to the quality and price of the produce.
3. Explain how to identify various types of agricultural entrepreneurship/ business opportunities.
4. Explain how to prepare a basic business plan for agricultural entrepreneurship/business activities.
5. State the appropriate sources of funding for the agricultural entrepreneurship/ businesses
6. State the relevant government schemes and programs
7. Explain the importance of ensuring compliance with the government structural reforms and
8. framework, along with the applicable rules and regulations.
9. List various resources required for agricultural production
10. Describe the process of planning agricultural production and the use of relevant technologies to enhance production
11. Explain the importance of ensuring no cause adverse impact on the environment and produce during production
12. State the recommended practices to be followed for efficient input resource management.
13. Describe the process of optimising the production processes and output through the amalgamation of existing practices with smart technologies.
14. Explain the recommended sustainability practices to be followed during agricultural production to prevent and deal with deforestation, loss of biodiversity, soil degradation, etc.
15. Explain how to collect information related to the wholesale and retail price of agricultural produce.
16. Explain how to calculate the economics of the produce viz. production cost, price of the produce, B:C Ratio etc.
17. Explain the relevant government schemes with the provision of subsidies/funds for the promotion of agricultural produce.
18. Describe the process of selecting appropriate marketing channels for marketing agricultural produce, and the applicable requirements and constraints.
19. List the relevant buyers of different types of agricultural produce.
20. Explain how to identify and manage various risks to production and postproduction processes.
21. Explain how to undertake outreach programs to promote agricultural products and services, and expand agri-business.
22. Explain the 4Ps i.e., product, price, promotion, and place and 4As i.e., acceptability, affordability, accessibility, and awareness considered while preparing and executing a marketing plan.
23. Explain the use of the relevant digital services such as e-commerce, e payments, electronic recordkeeping, etc.
24. Explain the importance of using efficient post-production logistics.
25. Explain the importance of maintaining various records accurately.

UNIT 5.1: Agriculture Enterprise Planning

Unit Objectives

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

1. Analyse the demand and supply of the relevant agricultural produce in the market.
2. Examine the identification of the target customers.
3. Explain the planning process of various business opportunities.
4. Describe the government ecosystem for various business opportunities.
5. Explain the relevant government schemes with the provision of subsidies/funds for the
6. promotion of agricultural produce.
7. Explain the basics of a business plan.
8. Describe the stakeholder coordination and procedural compliance in the business.

Resources to be Used

- Available objects such as a whiteboard, duster, marker, flip chart, pen, paper, Charts, PPT

Ask

- Have you ever started or managed an Agri enterprise? If yes, what challenges did you face while planning for it? If not, what are the reasons for not starting one?

Explain

- Explain the importance of understanding demand vs supply in Agri enterprise planning and how it can impact the success of the enterprise.
- Explain the significance of analysing the nature of consumer behaviour and how it can help in identifying the target clients and their expectations.
- Explain the basic components of a business plan and how it can help in effective planning and management of an Agri enterprise.
- Explain the various sources of funds and their availability for Agri enterprises.
- Explain the government schemes and supporting ecosystem available for Agri enterprise planning.

Do

- Provide examples of successful Agri enterprises that were started with a basic business plan and grew over time with the help of government schemes and supporting ecosystem.
- Share case studies of entrepreneurs who started their Agri enterprises with limited resources and overcame challenges with effective planning and management.

Elaborate

- Elaborate on the steps involved in developing a basic business plan, including identifying the target clients, analysing the nature of consumer behaviour, and identifying sources of funds.
- Elaborate on the various sources of funds available for Agri enterprises, including bank loans, venture capital, and crowdfunding.
- Elaborate on the government schemes and supporting ecosystem available for Agri enterprise planning, including subsidies, tax incentives, and technical assistance.

Notes for Facilitation

- Emphasize the importance of effective planning and management in Agri enterprise planning.
- Encourage the participants to think creatively and come up with unique ideas for their Agri enterprises.
- Provide ample examples and case studies to help the participants understand the concepts better.

Exercise**Key Solutions To PHB Exercise****A. Short Questions**

1. There are variety of reasons. Some of the most common reasons include

- Different background and experiences
- Varying levels of familiarity
- Miscommunication
- Unreasonable or unrealistic expectations

To work out differences in target client expectations, it is important to:

- Communicate early
- Manage expectations
- Gather feedback
- Be flexible

2. Components of business plan
 - Executive Summary
 - Business description
 - Market analysis and strategy
 - Operating & financial plan
 - Marketing and sales plan
 - Competitive analysis
 - Products and services description
3. Various schemes of government are
 - Start up India
 - Atal Innovation Mission
 - New Gen Innovation and Entrepreneurship development centre
 - Dairy Entrepreneurship development scheme promoted by NABARD
 - Venture capital finance assistance by SFAC
 - Aspire (MSME)

2. Multiple Choice Questions

- a) 3
- b) 4
- c) 4

3. Fill in the Blanks

1. Roadmap
2. Product to product
3. Demand

4. State Whether True/False (T/F)

1. F
2. T

UNIT 5.2: Agriculture Production Planning Process

Unit Objectives

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

1. Describe resource and natural resource management.
2. Explain the concept of sustainability for agricultural production.
3. Explain the importance of smart farming in modern day agriculture.
4. Explain how to calculate the economics of the produce viz. production cost, price of the produce, B:C Ratio etc.
6. Explain the recommended sustainability practices to be followed during agricultural production.

Resources to be Used

- Available objects such as a whiteboard, duster, marker, flip chart, pen, paper, Charts, PPT

Ask

- What are the challenges that farmers face in managing their resources?
- What sustainable agricultural practices do you know?
- How can farmers benefit from technology in farming?

Demonstrate

- With the help of available resources Demonstrate the different techniques for natural resource management such as conservation tillage, intercropping
- Also Show examples of sustainable agriculture practices such as Permaculture, Aquaponics and hydroponics, renewable energy resources, crop rotation and polyculture.

Field Visit

- Organize a field visit to a farm that has successfully implemented sustainable agricultural practices or effectively used technology in their farming operations.

Explain



- Explain the importance of resource planning in successful agricultural production and how it can lead to higher yields and profits.
- Explain how farmers can use the economies of produce to increase their returns and reduce their risks.
- Discuss the benefits of technology in agriculture, such as reducing labor costs, increasing yields, and improving farm management.

Say



- Effective resource management is essential for successful agriculture production and sustainable practices.
- Technology can play a significant role in improving farm management practices and increasing yields.
- Sustainability is crucial for long-term success in agriculture, and we should strive to adopt sustainable practices in our farming operations.

Notes for Facilitation



- Encourage participants to share their experiences and knowledge of resource management, sustainable agriculture practices, and technology in farming.
- Use visual aids such as pictures, videos, and infographics to help participants understand the concepts presented.
- Encourage participants to think creatively about how they can incorporate sustainable practices and technology into their farming operations.
- Emphasize the importance of planning and management in successful agriculture production.

Exercise



A. Short Answer Type Questions

1. Resource management is the practice of planning, scheduling, and allocating people, money, and technology to a project or program. In essence, it is the process of allocating resources to achieve the greatest organizational value. Good resource management results in the right resources being available at the right time for the right work. This is important in agriculture considering the limited resources and also the push in agricultural supply chain through the catastrophic challenges of climate, population rise and hunger.
2. There are various technological advancements in farming including the use of sensors which can enable the irrigation whenever required as per the plant need. Similarly, use of Soil Health Card is also one of the important components which helps farmers to assess the presence of existing nutrients and accordingly the use of NPK can be customized. It is helping for reduction in soil deterioration and on the other side being economical to farmers. Other way around, use of drones in farming. It is believed that use of Kisan drones will be promoted for crop assessment, digitalisation of land records, spraying of insecticides and nutrients.
3. Natural resource management refers to the process of managing natural resources, such as water, air, land, minerals, forests, and wildlife, in a sustainable and responsible way. It involves the development and implementation of policies, plans, and practices that aim to balance the use and conservation of natural resources to meet the needs of present and future generations.

B. Multiple Choice Questions

- 1) D
- 2) C

C. State Whether True/False (T/F)

1. T
2. T

D. Fill in the Blanks

1. Good resource management
2. Subsidies
3. Climate Smart Agriculture

UNIT 5.3: Post-Production and Marketing Management

Unit Objectives

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

1. Explain about adequate storage facilities.
2. Describe the marketing price and related aspects.
3. Explain how to collect information related to the wholesale and retail price of agricultural produce.
4. Explain various marketing channels of distribution for agricultural produce.
5. Describe the marketing plan in association with 4Ps and 4As.
6. Explain the digital marketing process and related details.
7. Describe the stakeholder coordination and relationship management.
8. List the relevant buyers of different types of agricultural produce.
9. Explain how to identify and manage various risks to production and post-production processes.

Resources to be Used

- Available objects such as a whiteboard, duster, marker, flip chart, pen, paper, etc.

Ask

- What are the different types of storage structures?
- How can pricing impact the marketing of agricultural products?

Activity

- Divide participants into small groups and ask them to choose an agricultural product and come up with a marketing plan for that product.
- Each group should identify the product's target market, select appropriate marketing channels, and determine pricing and promotional strategies.
- The groups should then present their marketing plan to the rest of the participants.

Field Visit

- Organize a field visit to a farm or an agricultural enterprise where participants can see different types of storage structures

Explain

- Explain the advantages and disadvantages of different types of storage structures.
- Explain the impact of pricing on marketing agricultural products.
- Explain the different types of marketing channels and their effectiveness.
- Explain how digital services can be used in marketing agricultural products.
- Explain the importance of stakeholder coordination and relationship management in agriculture.

Say

- Choosing the appropriate storage structure, pricing strategy, and marketing channel can impact the success of your agricultural enterprise.
- Using digital services can help you reach a wider audience and improve your marketing efforts.
- Effective stakeholder coordination and relationship management is essential for the success of your agricultural enterprise.

Elaborate

- Elaborate on the importance of selecting the appropriate storage structure for different agricultural products.
- Elaborate on how to determine appropriate pricing strategies for different agricultural products.
- Elaborate on the importance of selecting the appropriate marketing channel for different agricultural products.
- Elaborate on how digital services can be used to reach a wider audience for marketing agricultural products.
- Elaborate on the importance of stakeholder coordination and relationship management in agriculture and how it can impact the success of the agricultural enterprise.

Notes for Facilitation

- Encourage participants to ask questions and share their experiences.
- Be mindful of cultural and regional differences in pricing, marketing channels, and stakeholder coordination

Exercise



A. Short Answer Type Questions

1. Understanding various dimensions associated with the price is important because it helps businesses make informed decisions about their pricing strategies, which can impact their profitability and market competitiveness.
2. Marketing channels can contribute to a marketer's efficiency by helping them reach their target audience more effectively and efficiently, reducing the costs of distribution, and enhancing customer satisfaction and loyalty.
3. The various types of channels include direct, indirect, and hybrid channels. Direct channels involve selling products or services directly to customers, while indirect channels involve using intermediaries such as wholesalers, retailers, and agents to reach customers. Hybrid channels combine both direct and indirect channels.
4. The 4 As of marketing refer to product, price, promotion, and place, while the 4 Ps of marketing refer to product, price, promotion, and place as well. These are the key components of a marketing strategy and help businesses develop and implement effective marketing plans to meet their objectives. The 4 As focus on the customer perspective, while the 4 Ps focus on the marketer's perspective.

B. Multiple Choice Questions

- A. 3
- B. 4
- C. 2

C. Fill in the Blanks

1. Direct and Indirect
2. Pricing

D. State Whether True/False (T/F)

1. F
2. T

- Notes

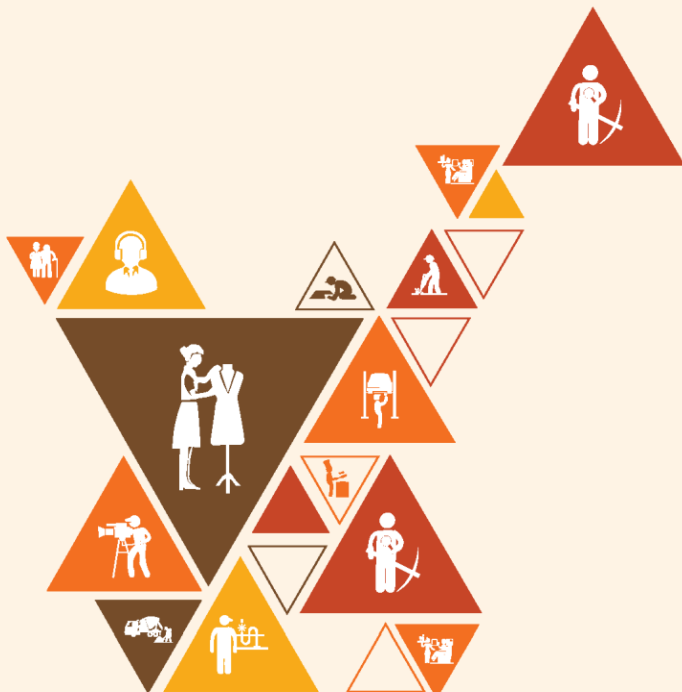
[illegible]





6. Engagement in Collective Farming Activities

Unit 6.1- Collectivization and Aggregation to form
Group Organizations



AGR/N9922

Key Learning Outcomes

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

1. Describe the process of preparing for the Producer Groups (PGs)/Farmers Interest Groups (FIGs)/ Self-Help Groups (SHGs) operations such as fundraising, induction of Subject Matter Experts (SMEs), investing in Information and Communication Technology (ICT) products, etc.
2. Explain how to obtain access to the relevant government development programmes and funds.
3. Describe the process of commodity convergence with the relevant developmental programmes.
4. Explain the importance of planning optimal production to meet the market and household food security needs.
5. Explain the importance of setting the group objectives and deciding the group income-generating enterprises/ activities, methods of operation, benefits, etc.
6. Explain the importance of organising the PG/FIG/ SHG meetings and training sessions to resolve common concerns and get information about the latest developments in the field of work.
7. Explain the benefits of various capacity building exercises such as skill development and training programmes.
8. Explain the importance and process of conducting field trials to identify and resolve problems encountered by farmers in the field operations.
9. Explain the concept of the group owned bank to provide quality seeds, fertilisers, pesticides, tools and equipment to the member farmers.
10. Describe the process of using the group's credit facility.
11. Explain various core collective farming activities such as procuring inputs in bulk, large-scale farming, etc.
12. Explain the concept and benefits of forming forward and backward linkages.
13. State the relevant value addition practices such as processing, packing, upgrading the quality, etc.
14. Explain the benefits of connecting with similar groups to address common problems on a large scale.

UNIT 6.1.: Collectivization and Aggregation to form Group Organizations

Unit Objectives

1. Explain the concept of holding meetings and group organisation.
2. To Explain the benefits of various capacity building exercises like skill development and training programmes.
3. To determine the objectives of the group and the activities, operations of the group income generating enterprises.
4. Describe the procedure for availing the credit facility of the group.

Resources to be Used

- Participant handbook, power point slide, writing board with pen/ chalk, pictures, posters, newspaper clippings related to the subject under study, Projectors, Laptop, Internet connections (if available).

Ask

Before starting the session ask the participants following questions-

- About their current understanding of collectivization and aggregation and its importance in forming group organizations.
- Ask the participants about their experience with group organization such as producer groups (PGs), farmer interest groups (FIGs), and self-help groups (SHGs).

Write down the participants answer on the whiteboard. Discuss the answers and start the session.

Do

- Encourage the participants to actively participate in the discussion and share their own experiences with group organizations.
- Have the participants develop a plan for setting up a group organization in their own community.

Explain

- The concept of collectivization and how it brings farmers together to form group organizations.
- Importance of planning optimal production to meet market and household food security needs.
- The process of preparing for Producer Groups(PGs)/ Farmers Interest groups(FIGs)/ Self-help groups(SHG) etc.
- Process of using group's credit facility.
- Concept and benefits of forming forward and backward linkages.
- The benefits of connecting with similar groups to address common problems on a large scale.

Field Visit



- Organize a field visit to a local group organization for the participants to observe their operations, methods of operation and benefits.

Example



- Provide examples of successful group organizations and their impact on the community.

Elaborate



- On the benefits of capacity building exercises such as skill development and training programs for farmers.
- On the importance of setting group objectives and deciding group income generating enterprises/activities, methods of operation and benefits.
- On the concept of group-owned bank and how it provides quality seeds, fertilizers, pesticides, tools and equipment to member farmers.
- On various core collective farming activities such as procuring inputs in bulk, large-scale farming and others.
- On value addition practices such as processing, packing, and upgrading the quality of agriculture produce.
- On the measures taken by the government to promote the formation of SHGs and FPOs.

Facilitation Notes



- Encourage active participation from all participants.
- Encourage the participants to ask questions and share their experiences throughout the training.
- End by urging participants to open up their participant handbooks and solve the exercises given at the end of the unit. Discuss the answers to the exercise in the class.

Exercise



Key Solutions to PHB Exercise

1. SHG stands for Self Help Group and FPO stands for Farmer Producer Organization.
2. (a) Supply of seed
(b) Fertilizer and machinery
(c) Market linkage
3. FPOs are generally mobilized by promoting institutions/resource agencies. Small farmers' Agribusiness Consortium is providing support for the promotion of FPOs.
4. NABARD, SFAC, Govt. departments provide financial or technical support to the Producer Organisation Promoting Institution for promotion and hand holding .
5. A good business plan is the engine that drives the FPO to the destination it has envisioned.

B. Fill in the blanks-

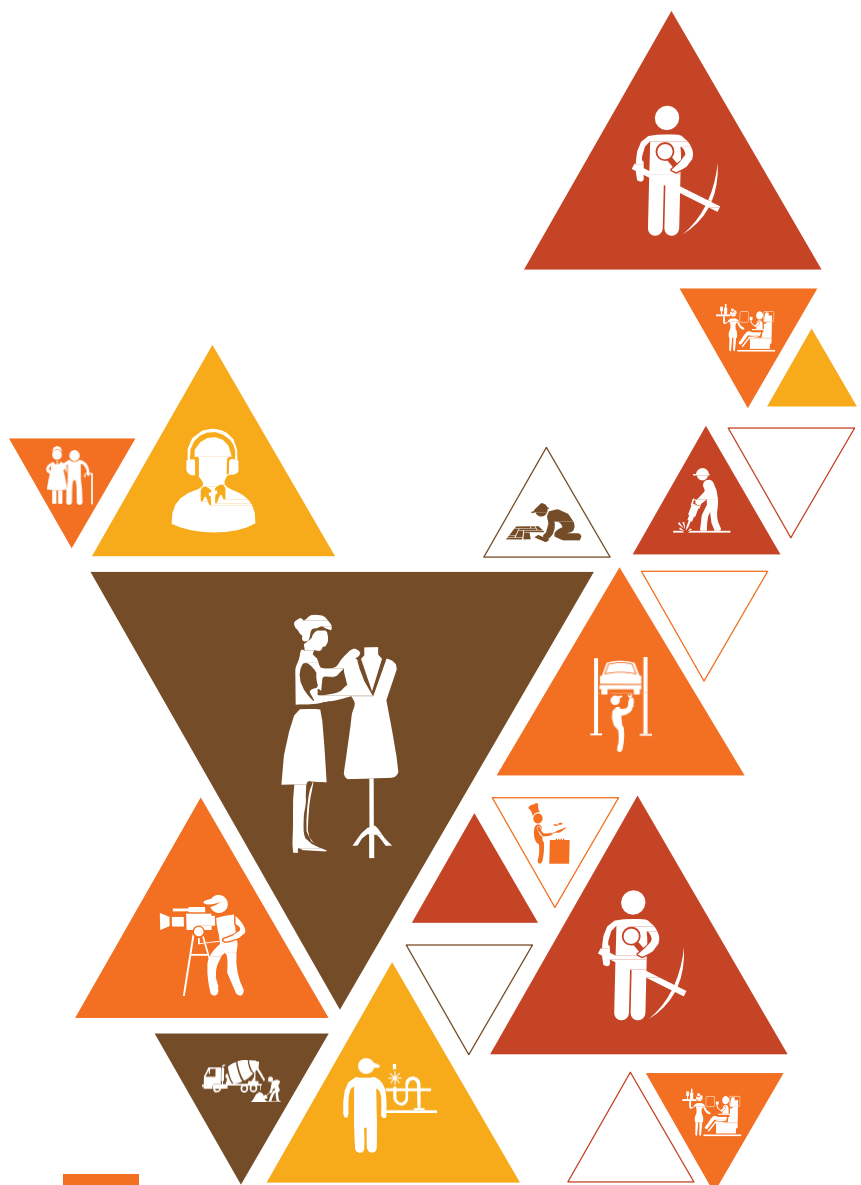
1. Adding value to the raw product and high engagement levels of participating members
2. Pradhan Mantri Kisan SAMPADA Yojana
3. ----
4. Concentrate
5. Aspirant

C. State whether True/False.

1. True
2. False
3. True
4. True
5. True

Notes

[illegible]



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 7.1: 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 and visuals :

- 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.

Share the power point slide/ visuals 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 7.2: 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

- Personal Protective Equipment (PPE) and how to check it for its appropriateness for use.
- 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

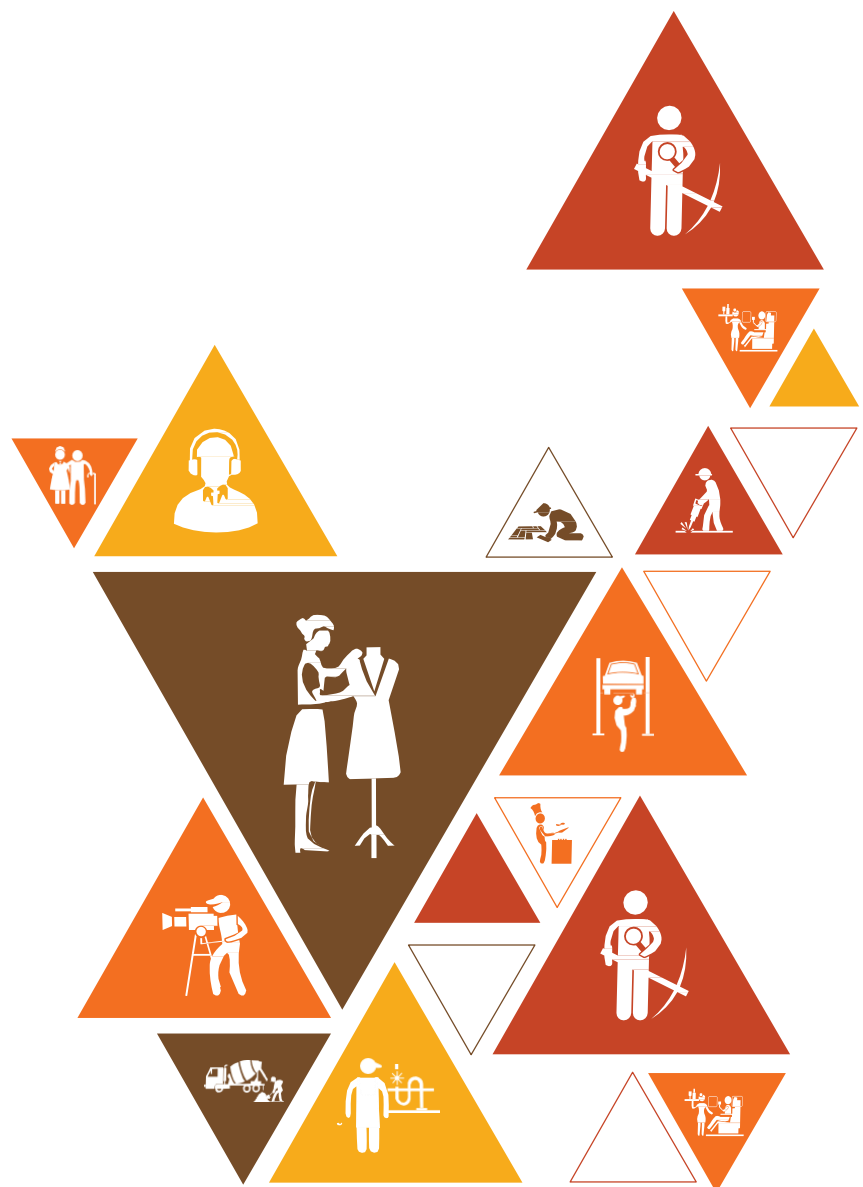
1. To decrease
2. Soil and organic material

D. State whether True or False

1. True
2. True
3. True

- Notes

[illegible]



Key Learning Outcomes

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

1. List the 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 8.1: 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 of 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 person to the nearest emergency treatment center.

- Notes

[illegible]





Skill India
कौशल भारत - कुशल भारत



सत्यमेव जयते
GOVERNMENT OF INDIA
MINISTRY OF SKILL DEVELOPMENT
& ENTREPRENEURSHIP



N.S.D.C.
National
Skill Development
Corporation

Transforming the skill landscape

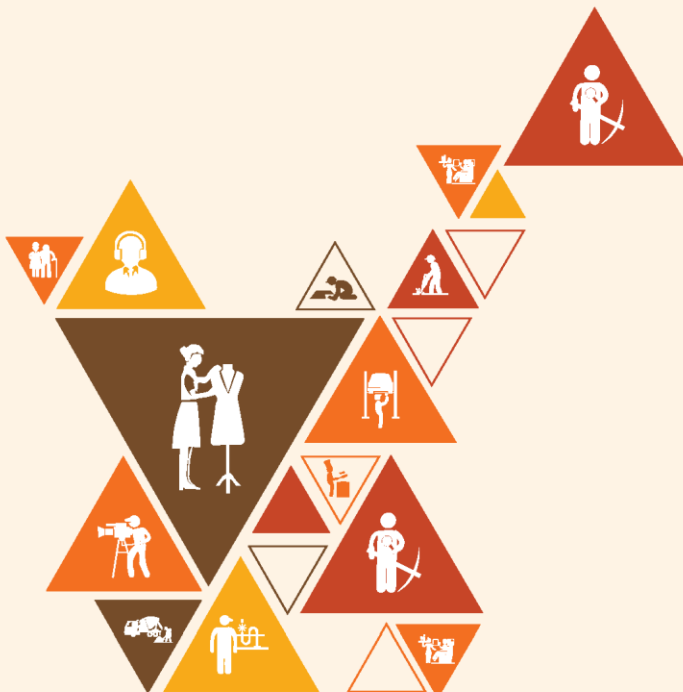


8. Employability Skills (60 Hours)

To access content on Employability Skills, click here:

<https://eskillindia.org/NewEmployability>

Scan the QR code below to access the ebook



DGT/VSQ/N0102





Skill India
कौशल भारत - कुशल भारत



सत्यमेव जयते
GOVERNMENT OF INDIA
MINISTRY OF SKILL DEVELOPMENT
& ENTREPRENEURSHIP



N.S.D.C.
National
Skill Development
Corporation

Transforming the skill landscape

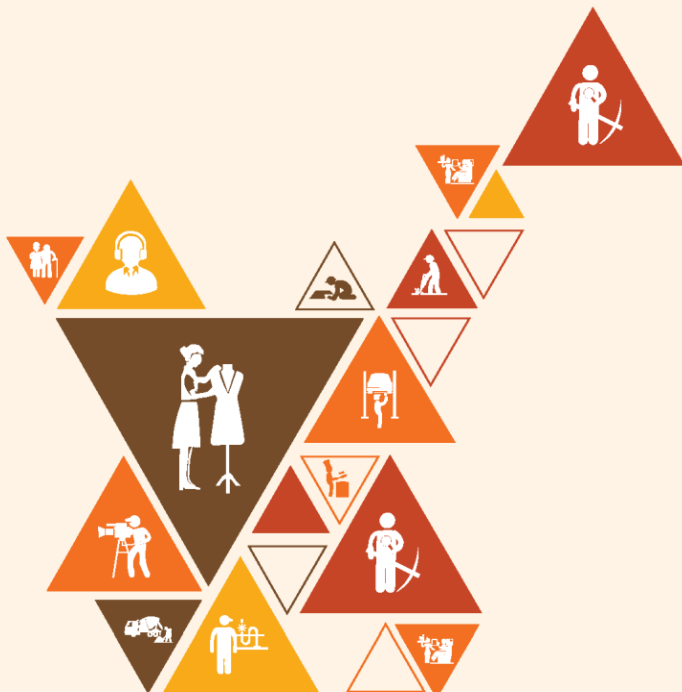


9. Annexures

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:	Medicinal and Aromatic Plants Grower		
Qualification Pack Name & Ref. ID	AGR/Q0901		
Version No.	3.0	Version Update Date	17/11/2022
Pre-requisites to Training (if any)	10th Class with 2 years of relevant experience OR 10th Class Pass and pursuing continuous regular schooling OR 8th Class pass with 4 years of relevant experience OR Previous relevant qualification of NSQF Level 3 with minimum education as 5th grade pass with 2 years of relevant experience. Minimum Age: 18 Years		
Training Outcomes	<p>After completing this programme, participants will be able to:</p> <ul style="list-style-type: none"> Describe the process of preparation for the cultivation of Medicinal and Aromatic Plants Grower (MAPs). Demonstrate the process of carrying out cultivation of MAPs. Explain the basic entrepreneurial activities for small enterprise. Describe the process of undertaking employability and entrepreneurial practices. Describe the process of engaging in collective farming/activity. Demonstrate various practices to maintain personal hygiene, cleanliness, and safety at the workplace. 		

S.No.	Module Name	Session Name	Session Objectives	NOS Reference	Methodology	Training Tools/Aids	Duration HH: MM
1.	Introduction T: 5:00 (HH: MM)	1. Scope and importance	<ul style="list-style-type: none"> Discuss scope & importance of medicinal plants in India 	N/A	Lecture, games, term, activity	White board, duster, power point slides; pictures/posters that can depict information about various medicinal plants	HH:MM 2:00
		2. Usage and market demand, Conservation & utilization	<ul style="list-style-type: none"> Recognize market demand Identify threatened species Explain conservation methods 		Lecture, group activity/ discussion, exercise	Chart, paper, pen, PPT, website links, Live species if any in local area	HH:MM 1:30
		3. Role and responsibility of medicinal plant grower	<ul style="list-style-type: none"> Explain job role Discuss responsibilities 		Lecture, team activity.	Board / paper, pen etc., PPT	HH:MM 1:30

S.No.	Module Name	Session Name	Session Objective	NOS Reference	Methodology	Training Tools/Aids	Duration HH: MM
2.	Preparation for the cultivation of MAPs T: 2 0:00 P: 35:00 (HH:MM)	1. Site Selection for MAP Cultivation	<ul style="list-style-type: none"> Identify the criteria for selecting a suitable site for MAP cultivation. Evaluate the factors that determine the suitability of a site for MAP cultivation. 	AGR/N0901 PC3, PC5, PC6, PC8, PC11, PC14, PC17, PC21, KU4, KU8, KU10-KU14, KU18, KU21-KU23, GS3-GSGS6, GS8	Lecture, demonstration, exercise, team activity, field visit	PPT, projector, laptop,	T: 2:00 P: 5:00
		2. Field Preparation for MAP Cultivation	<ul style="list-style-type: none"> Describe the steps involved in field preparation for MAP cultivation. Demonstrate the use of different field preparation tools and their appropriate application. 		Lecture, demonstration, exercise	PPT, projector, laptop, diagrams, charts	T: 3:00 P: 4:00
		3. Nursery Propagation for MAPs	<ul style="list-style-type: none"> Discuss the importance of nursery propagation in MAP cultivation. 		Lecture, demonstration, hands on training	PPT, projector, laptop, chart, paper pen, appropriate tools,	T: 2:00 P: 5:00
		4. Plant Propagation Material for MAPs	<ul style="list-style-type: none"> Explain the different types of plant propagation material used in MAP cultivation. 		Lecture, demonstration, Activity, hands on training	PPT, projector, chart, videos, paper pen, appropriate tools	T: 3:00 P: 4:00
		5. Seed Propagation for MAPs	<ul style="list-style-type: none"> Describe the process of seed propagation for MAPs. Demonstrate the steps involved in seed sowing and seedling management in a MAP nursery. 		Lecture, demonstration, activity	Appropriate tools, PPT, chart, paper pen	T: 3:00 P: 4:00
		6. Cutting Propagation for MAPs	<ul style="list-style-type: none"> Discuss the process of cutting propagation for MAPs. Demonstrate the steps involved in collecting, preparing, and rooting stem cuttings for MAP cultivation. 		Class room lecture, facilitator led discussion, demonstration, Field /market visit	PPT, projector, laptop, diagrams, charts	T: 2:00 P: 5:00
		7. Agronomic Practices for MAPs	<ul style="list-style-type: none"> Explain the importance of appropriate agronomic practices in MAP cultivation. 		Group discussion, lecture, activity	PPT, projector, laptop	T: 3:00 P: 4:00
		8. Recap	<ul style="list-style-type: none"> Recapitulate complete module learning 		Lecture, activities, role plays, group presentations and discussion, field visits, demonstrations	PHB, projector, display screen, white board, marker, duster, paper, pen PPT and relevant audio-visual aids	T: 2:00 P: 4:00

S.No.	Module Name	Session Name	Session Objective	NOS Reference	Methodology	Training Tools/Aids	Duration HH: MM
3.	Process of cultivating MAPs T: 2 0:00 P: 40:00 (HH:MM)	1. Cultivation using good agricultural practices	<ul style="list-style-type: none"> Explain gap and its requirement Identify contaminants 	AGR/N090 2 PC5-PC8, PC12, PC13, PC16, PC17, PC21, PC24, PC25, PC26, KU2-KU6, KU9-KU12, KU14, KU16, KU20-KU22, GS1-GS8	Class room lecture, facilitator led discussion, demonstration, field visit	PPT, pen, paper, chart, audio visual aids, tools	T: 3:00 P: 3:30
		2. Nursery bed Preparation	<ul style="list-style-type: none"> Select appropriate tools and materials required to prepare nursery beds. Identify and prepare different types of nursery beds. 		Class room lecture, facilitator led discussion, demonstration, field /market visit	PPT, pen, paper, chart, audio visual aids, containers, nursery media (e.g. Soil, sand, peat soil, sphagnum mass, rooting medium)	T: 3:00 P: 4:00
		3. Seed/ planting material selection for propagation	<ul style="list-style-type: none"> Procure quality seeds/ planting materials from authentic sources Identify the approved propagation method of the target species 		Class room lecture, facilitator led discussion, demonstration, Field /market visit	PPT, pen, paper, chart, audio visual aids, sample of quality seed/planting material	T: 2:30 P: 4:00
		4. Plant propagation	<ul style="list-style-type: none"> Carry out plant propagation as per the species selected using approved techniques 		Hands on training	Propagation material, tools, nursery	P: 7:00
		5. Seedling management & transplantation	<ul style="list-style-type: none"> Raise and manage seedlings in nursery Transplant seedlings 		Group discussion, lecture, activity	Tools, nursery instruments,	T: 3:00 P: 4:00
		6. Nutrient management in nursery	<ul style="list-style-type: none"> Apply correct doses of manure & fertilizer 		Lecture, demonstration, activity	Paper, pen, slides, videos, fertilizers, organic manure	T: 2:00 P: 5:00
		7. Moisture conservation & water management	<ul style="list-style-type: none"> Identify and use mulching material Identify irrigation requirement & select crops as per soil and climate 		Trainer led discussion, demonstration, activity	Sample mulching material like pine mulch, straw mulch, plastic mulch; Irrigation, slides, charts on suitable crops	T: 3:30 P: 4:00
		8. Weeding & intercultural operations	<ul style="list-style-type: none"> Identify appropriate time and method of weeding 		Trainer led discussion, demonstration, activity	Slides, charts, diagrams, weed samples	T: 1:00 P: 5:30
		9. Pest management	<ul style="list-style-type: none"> Select pesticide free approaches for pest management 		Trainer led discussion, demonstration, activity	Slides/charts or any visuals on natural pest management; predators, crop rotation etc	T: 3:00 P: 3:00

S.No.	Module Name	Session Name	Session Objective	NOS Reference	Methodology	Training Tools/Aids	Duration HH: MM
4.	Process of Harvesting, Processing and Marketing of MAPs T: 30:00 P: 60:00 (HH:MM)	1. Tools and materials for harvesting, packaging, storage and transport	<ul style="list-style-type: none"> Identify appropriate tools and materials used in harvesting, packaging, storage and transport 	AGR/N0903 PC3, PC6, PC11, PC12, PC14-PC19, PC20, KU3-KUKU7, KU12-KU16, KU20, GS1-GS7	Lecture, demonstration, activity	PPT, charts, polypropylene bag, non-waxed paper bag, labels, weighing machine, sealing machine	T: 2:00 P: 3:00
		2. Harvesting procedure	<ul style="list-style-type: none"> Identify and harvest correct plant parts based on the type of the medicinal plants such as leaves, stems, roots, whole plant. Apply good harvesting practices Use approved cutting techniques for harvesting 		Lecture, demonstration, activity	PPT, charts, audio-visual aids, harvesting tools for demonstration	T: 4:00 P: 2:00
		3. Harvesting procedure practice	<ul style="list-style-type: none"> Apply good harvesting practices as per selected 		Hands on training	Sample plant material, list of good harvesting practices	P: 6:00
		4. Sorting and grading	<ul style="list-style-type: none"> Use approved cleaning methods to remove soil particles, and other foreign materials as per species. Dehydrate water content from plant matter using approved procedures Sort and grade the dried harvest as per required quality specifications for color, purity, maturity, size or weight. 		Lecture, demonstration, field visit, learning by doing	PPT, charts, images, videos on sorting grading and drying practices etc. sample material for practical.	T: 3:00 P: 4:00
		5. Storage of produce	<ul style="list-style-type: none"> Store dried produce as per recommended practices Select packaging material with respect to the plant parts, type of market where it is to be sold, and investment Check the selected storage area for hygiene Protect the storage area from direct sunlight, and contamination 		Lecture, demonstration, hands on training	PPT, charts, audio-visual aids on storage practices and recommended storage area non contaminated sacks, weighing machine etc.	T: 3:00 P: 3:00
		6. Sorting, grading and storage	<ul style="list-style-type: none"> recall the concept 		Hands on training, team activity	Space for practical, sample material	T: 2:00 P: 4:00
		7. Packing of produce	<ul style="list-style-type: none"> Select strong, easily available packaging materials Pack produce in bags of different capacities and recommended standards for sale 		Lecture, demonstration, activity	PPT, audio-visual aids, polypropylene bags, jute bags non-waxed paper bag, labels, weighing machine, sealing machine	T: 2:00 P: 5:00

S.No.	Module Name	Session Name	Session Objective	NOS Reference	Methodology	Training Tools/Aids	Duration HH: MM
		8. Packing of produce practical	<ul style="list-style-type: none"> Pack produce in bags of different capacities and recommended standards for sale (recap) 		Hands on training	Polypropylene bags, jute bags, non-waxed paper bag, labels, weighing machine, sealing machine	P: 6:00
		9. Labelling and record maintenance	<ul style="list-style-type: none"> Label the packed item correctly Record information on quality, quantity, type, expenditure incurred in operation. 		Lecture, demonstration, field visit Hands on training	PPT, labels, weighing machine, sealing machine, marker	T: 1:00 P: 4:00
		10. Transportation of the produce	<ul style="list-style-type: none"> Supply management Local transport available 		Class room lecture, facilitator-led discussion Practical demonstration, activity	PPT, charts, audio-visual aids, transportation equipment	T: 3:00 P: 3:00
		11. Record keeping and traceability	<ul style="list-style-type: none"> Maintain records from cultivation to marketing Determine traceability 		Class room lecture, facilitator-led discussion demonstration, activity	Audio-visual aids, pen, paper, white board	T: 1:00 P: 4:00
		12. Book keeping- I	<ul style="list-style-type: none"> Maintain book of accounts Record daily sell and purchase of items Record quantity, quality, manufacture date and batch number of every produce 		Class room lecture, facilitator led discussion, demonstration, activity	Pen, paper, chalk, board, marker, slides, projector	T: 3:00 P: 3:00
		13. Book keeping- II	<ul style="list-style-type: none"> Calculate b:c ratio 		Class room lecture, facilitator led discussion, demonstration, activity	Pen, paper, chalk, board, slides, charts	T: 1:00 P: 5:00
		14. Market regulations	<ul style="list-style-type: none"> Comply with relevant regulations in marketing & sale of the produce 		Class room lecture, activity, role play	Pen, paper, chalk, board, slides, charts	T: 2:00 P: 4:00
		15. Recap	<ul style="list-style-type: none"> Recapitulate complete module learning 		Lecture, activities, role plays, and discussion, field visits, demonstrations	PHB, projector, display screen, white board, marker, duster, paper, pen PPT and relevant audio-visual aids	T: 3:00 P: 4:00

S.No.	Module Name	Session Name	Session Objective	NOS Reference	Methodology	Training Tools/Aids	Duration HH: MM
5	Basic entrepreneurial activities for small enterprise T: 15:00 P: 15:00 (HH:MM)	1. Follow the employability practices	<ul style="list-style-type: none"> Explain the process for resume and interview preparation Describe work culture, organizational workplace duties Explain the stress management practices at a workplace 	AGR/N9908 PC1-PC3, PC6, PC7, PC11, PC13, PC15, PC18, PC23, PC27, KU1-KU7, KU10-KU12, KU14, KU17-KU21, KU22, KU24, GS1-GS5, GS8	Lecture, stage presentation, role plays, group presentations and discussion, field visits	PHB, pen/pencil, notebook, checklist for visit, white board, duster, flip chart board/paper etc., slides in power point presentation showing relevant images	T: 4:00 P: 3:00
		2. Efficient digital skills	<ul style="list-style-type: none"> Describe computer and related digital know how in the organization Describe the appropriate e-commerce platforms in business activities 		Lecture, demonstration, field visit	PHB, projector, display screen, white board, marker, duster, paper, pen PPT and relevant audio-visual aids	T: 3:00 P: 5:00
		3. Ensuring Entrepreneurial practices	<ul style="list-style-type: none"> Explain good banking and insurance practices to be adopted by the employees. Explain the recommended practice for stable enterprise and risk mitigation. Describe employee motivation at work. 		Lecture, stage presentation, role plays, group presentations and discussion, demonstration.	PHB, pen/pencil, notebook, checklist for visit, white board, duster, flip chart board/paper etc., slides in power point presentation showing relevant images	T: 4:00 P: 3:00
		4. Recap	<ul style="list-style-type: none"> 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 P: 4:00
6.	Practices of collective farming and creating farmer groups T: 15:00 P: 15:00 (HH:MM)	1. Collectivization and aggregation to form group organizations- I	<ul style="list-style-type: none"> Explain the concepts of holding meeting and group organizations Describe the procedure for availing credit facility of the groups 	AGR/N9922 PC1,PC2, PC8, PC11, PC13, PC17, PC21, KU1, KU2, KU5-KU10, KU12, KU13, KU14, GS1, GS3-GS5, GS7	Classroom lecture, activity, group discussion, practical	White board, PHB, laptop, projector, flip charts/paper, audio-visual aids	T: 3:00 P: 4:00
		2. Collectivization and aggregation to form group organizations- II	<ul style="list-style-type: none"> To explain the benefits of various capacity building exercises like skill development and training programs. 		Classroom lecture, activity, group discussion, practical	PHB, audio-visual aids, ppt slides with related images	T: 4:00 P: 3:00

S.No.	Module Name	Session Name	Session Objective	NOS Reference	Methodology	Training Tools/Aids	Duration HH: MM
		3. Collectivization and aggregation to form group organizations- II	<ul style="list-style-type: none"> To determine the objectives of the group and the activities, operations of the group income generating enterprises. 		Classroom lecture, Demonstration, activity, group discussion	White board, PHB, laptop, projector, flip charts/paper, audio-visual aids	T: 4:00 P: 4:00
		Recap	<ul style="list-style-type: none"> Recapitulate complete module learning 		Classroom lecture, activity, group discussion, practical	White board, PHB, laptop, projector, flip charts/paper, audio-visual aids	T: 4:00 P: 4:00
7.	Sanitation and Hygiene T: 05:00 P: 05:00 (HH:MM)	1. Personal hygiene practices	<ul style="list-style-type: none"> Describe the process for maintaining good hygienic practices at workplace. Explain the follow the workplace sanitization norms including distancing from sick people 	AGR/N99 03 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: 3:00 P: 2:00
		2. Cleanliness Around the Workplace	<ul style="list-style-type: none"> Importance of workplace safety. Explain the know abouts of PPE kit. 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: 2:00 P: 3:00
8.	Safety and Emergency Procedures T: 10:00 P: 10:00 (HH:MM)	1. Safety at the Workplace-I	<ul style="list-style-type: none"> Explain basic safety checks before operating all machinery and vehicles Identifying work that requires plant protection equipment Explain the dangers of insecticides/fumigants and their safety measures 	AGR/N99 03 PC5, PC7, PC9PC11, PC12, PC13, PC14, PC16, PC20, KU12, KU11, KU13, KU17, GS1-GS9	Classroom lecture, discussion, demonstration, activity	Whiteboard, marker, pen, note pad, participant handbook, related power point presentation, etc.	T: 3:00 P: 3:00
		2. Safety at the Workplace-II	<ul style="list-style-type: none"> Explain the dispose of waste safely and correctly in a designated area Explain acts in a way that minimizes environmental damage 			White board, PHB, laptop, projector, flip charts/paper, audio-visual aids	T: 3:00 P: 4:00
		3. Safety at the Workplace-III	<ul style="list-style-type: none"> Explain the use of emergency procedures according to Company standards Inform administration about first aid as per workplace procedure 			PHB, audio-visual aids, ppt slides with related images	T: 4:00 P: 3:00

S.No.	Module Name	Session Name	Session Objectives	NOS Reference	Methodology	Training Tools / Aids	Duration
							HH:MM
9.	Employability Skills (60hrs)	Introduction to Employability Skills	<ul style="list-style-type: none">Describe importance of Employability SkillsPrepare a note on different industries, trends, required skills	DGT/VSQ /N0102	Classroom lecture, Team Activity	White-Board and, Markers, Chart Paper and Sketch pens, LCD Projector	1:30
		Constitutional Values: Citizenship	<ul style="list-style-type: none">Detail the principles of constitution of IndiaIdentify the various environmentally sustainable practices		Classroom lecture, Team Activity	Laptop, PPT, White board Markers, note pad, pen etc.	1:30
		Becoming a Professional in the 21st Century	<ul style="list-style-type: none">Discuss relevant 21st century skills required for employmentPractice critical thinking and decision making skills		Classroom lecture, Team Activity	Laptop, PPT, White board Markers, note pad, pen etc.	2:30
		Basic Skills-I	<ul style="list-style-type: none">Read English text with appropriate articulationPractice basic English words, sentences, punctuationDemonstrate active listening and reading skills		Classroom lecture, Team Activity, Role play, video session	Laptop, PPT, White board Markers, note pad, pen etc.	5:00
		Basic Skills-II					Practical, demonstration, role play
		Career Development and Goal Setting	<ul style="list-style-type: none">Identify well-defined short- and long-term goalsExplain how to build a career pathwayConduct job market researchDiscuss 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
							HH:MM
		Communication Skills	<ul style="list-style-type: none"> Explain the importance of communication at workplace Demonstrate effective communication strategies 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	<ul style="list-style-type: none"> Explain the need of diversity at workplace Identify the various PwD policies applicable at workplace 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	<ul style="list-style-type: none"> Discuss various financial institutions, products, and services 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	<ul style="list-style-type: none"> Detail the use and features of various MS Office tools, like MS Word, MS Excel, MS PowerPoint, etc. Demonstrate how to operate digital devices Create an e-mail id and follow e- mail etiquette to exchange e -mails 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	<ul style="list-style-type: none"> 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
							HH:MM
		Entrepreneurship	<ul style="list-style-type: none"> Describe the types of entrepreneurship and enterprises Describe the 4Ps Of Marketing-Product, Price, Place and Promotion and Apply the mas Per requirement 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	<ul style="list-style-type: none"> Identify types of customers and how to deal with them Identify methods to get customer feedback and how to implement them Explain various tools used to collect customer feedback 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	<ul style="list-style-type: none"> Practice personal grooming strategies Illustrate the use of online platforms for job hunting Detail the concept of Apprenticeship Demonstrate how to enroll for Apprenticeship programs. Draft a professional Curriculum Vitae (CV) 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- Medicinal and Aromatic Plants Grower	
Job Role	Medicinal and Aromatic Plants Grower
Qualification Pack	AGR/Q0901
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 70% of aggregate marks to successfully clear the assessment.
7.	In case of <i>unsuccessful completion</i> , the trainee may seek reassessment on the Qualification Pack.

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
AGR/N0901.Prepare for the cultivation of MAPs	30	40	-	30	100	25
AGR/N0902.Carry out cultivation of MAPs	30	40	-	30	100	30
AGR/N0903.Carry out harvesting, post-harvest processing and marketing of MAPs	30	40	-	30	100	25
AGR/N9908.Undertake basic entrepreneurial activities for small enterprise	30	40	-	30	100	5
AGR/N9922.Engage in collective farming/activity	30	40	-	30	100	5
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	210	255	-	185	650	100

Annexure-III

QR Codes –Video Links

Chapter No.	Unit No.	Topic	QR Code Links	QR code (s)
Chapter -2 Preparation for the cultivation of MAPs	Unit 2.1 - Principles of Nursery Management	Site Location and Interculture Operations	https://www.youtube.com/watch?v=1nSJ4QwjM_8	 Site Location and Interculture Operations
	Unit 3.1 - Cultivation using Good Agricultural Practices (GAP)	GAP of Medicinal Plants (1)	https://www.youtube.com/watch?v=NMsUpnHCBVw	 GAP of Medicinal Plants (1)
Chapter -3 Process of Cultivating MAPs	Unit 3.2 - Nursery Bed Preparation	GAP of Medicinal Plants (2)	https://www.youtube.com/watch?v=6rynK_EC1Nc	 GAP of Medicinal Plants (2)
	Unit 3.3 - Seed/ Planting Material Selection and Propagation	GAP of Medicinal Plants (3) - Correct identification	https://www.youtube.com/watch?app=desktop&v=9Wx4fb3ejE4	 GAP of Medicinal Plants (3) - Correct identification
		Cultivation of Rabi Medicinal Plants	https://www.youtube.com/watch?v=15eriQr2k1M&ab_channel=SAARCAgricultureCentre	 Cultivation of Rabi Medicinal Plants
	Unit 4.1 - Harvesting of medicinal plants	Harvesting, Storage and Records	https://www.youtube.com/watch?v=pUpVUIZM5jk	 Harvesting, Storage and Records
Chapter -4 Process of Harvesting, Processing and Marketing of MAPs	Unit 4.2 - Post-harvest management	Production, Processing & Storage of Medicinal & Aromatic Plants	https://www.youtube.com/watch?v=rBAb3ZHfkok	 Production, Processing & Storage of Medicinal & Aromatic Plants
	Unit 4.3 - Sorting, Packaging, Storage and Transportation	NIAM - Marketing of Medicinal & Aromatic Plants	https://www.youtube.com/watch?v=zu2RaQN5t4s	 NIAM - Marketing of Medicinal & Aromatic Plants

Chapter No.	Unit No.	Topic	QR Code Links	QR code (s)
Chapter -5 Basic Entrepreneurial Activities for Small Enterprises	Unit 5.1 - Agriculture Enterprise planning	Schemes for setting of Start ups in MAP	https://www.youtube.com/watch?v=sx0jOQrMbjk	 Schemes for setting of Start ups in MAP
		Get Subsidy For Medicinal Plant Farmin	https://www.youtube.com/watch?v=a10CVfFtji4	 Get Subsidy For Medicinal Plant Farmin
Chapter -6 Engagement in Collective Farming Activities	UNIT 6.1 - Collectivization and Aggregation to form Group Organizations	FPO - Medicinal Plants Ministry of AYUSH	https://www.youtube.com/watch?v=GtUL3y6VxQA	 FPO - Medicinal Plants Ministry of AYUSH





Skill India

कौशल भारत - कुशल भारत



सत्यमेव जयते
GOVERNMENT OF INDIA
MINISTRY OF SKILL DEVELOPMENT
& ENTREPRENEURSHIP



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



Scan this QR to access eBook

<https://eskillindia.org/Home/handbook/141>



ASCI

Agriculture Skill Council of India

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