

## Qualification Pack



# Spice Crop Cultivator

Electives: Herbal Spices/ Seed Spices/ Tree Spices/ Rhizomatous Spices/ Oil-yielding Spices/ Pod Spices/ Berry Spices/ Saffron

QP Code: AGR/Q0603

Version: 2.0

NSQF Level: 4

Agriculture Skill Council of India || 6th Floor, GNG Tower, Plot No. 10, Sector -44, Gurgaon  
Haryana-122004 || email:shrinkhala@asci-india.com

## Qualification Pack

### Contents

AGR/Q0603: Spice Crop Cultivator .....	3
<i>Brief Job Description</i> .....	3
Applicable National Occupational Standards (NOS) .....	3
<i>Compulsory NOS</i> .....	3
<i>Elective 1: Herbal Spices</i> .....	3
<i>Elective 2: Seed Spices</i> .....	3
<i>Elective 3: Tree Spices</i> .....	3
<i>Elective 4: Rhizomatous Spices</i> .....	4
<i>Elective 5: Oil-yielding Spices</i> .....	4
<i>Elective 6: Pod Spices</i> .....	4
<i>Elective 7: Berry Spices</i> .....	4
<i>Elective 8: Saffron</i> .....	4
<i>Qualification Pack (QP) Parameters</i> .....	4
AGR/N0601: Perform soil fertility management for spice crops .....	6
AGR/N0602: Perform weed management in spice crops .....	10
AGR/N0603: Perform integrated pest and disease management in spice crops .....	15
AGR/N0604: Perform irrigation management in spice crops .....	21
AGR/N9903: Maintain health and safety at the workplace .....	26
DGT/VSQ/N0102: Employability Skills (60 Hours) .....	32
AGR/N0629: Carry out the cultivation of herbal spice crops .....	40
AGR/N0630: Carry out cultivation of seed spice crops .....	49
AGR/N0631: Carry out cultivation of tree spice crops .....	57
AGR/N0632: Carry out cultivation of rhizomatous spice crops .....	65
AGR/N0633: Carry out cultivation of oil-yielding spice crops .....	74
AGR/N0634: Carry out cultivation of pod spice crops .....	82
AGR/N0635: Carry out cultivation of berry spice crops .....	91
AGR/N0636: Carry out cultivation of saffron .....	100
Assessment Guidelines and Weightage .....	108
<i>Assessment Guidelines</i> .....	108
<i>Assessment Weightage</i> .....	109
Acronyms .....	113
Glossary .....	114

## Qualification Pack

### AGR/Q0603: Spice Crop Cultivator

#### Brief Job Description

A Spice Crop Cultivator is responsible for cultivating spice crops and, during the process, performs various activities, such as selecting the site and preparing the field, nursery propagation of seedlings, soil fertility, weed, irrigation and Integrated Pest and Disease (IPDM) management. The individual is also responsible for harvesting, post-harvest management and marketing of spice crops. The individual may cultivate different types of spice crops.

#### Personal Attributes

The individual should be physically fit to work for long hours. The person should have decision-making and problem-solving skills. The person should have basic written and verbal communication skills and numerical ability.

#### Applicable National Occupational Standards (NOS)

##### Compulsory NOS:

1. [AGR/N0601: Perform soil fertility management for spice crops](#)
2. [AGR/N0602: Perform weed management in spice crops](#)
3. [AGR/N0603: Perform integrated pest and disease management in spice crops](#)
4. [AGR/N0604: Perform irrigation management in spice crops](#)
5. [AGR/N9903: Maintain health and safety at the workplace](#)
6. [DGT/VSQ/N0102: Employability Skills \(60 Hours\)](#)

##### Electives (mandatory to select at least one):

###### Elective 1: Herbal Spices

It covers the cultivation of herbal spice crops.

1. [AGR/N0629: Carry out the cultivation of herbal spice crops](#)

###### Elective 2: Seed Spices

It covers the cultivation of seed spice crops.

1. [AGR/N0630: Carry out cultivation of seed spice crops](#)

## Qualification Pack

### Elective 3: Tree Spices

It covers the cultivation of tree spice crops.

1. [AGR/N0631: Carry out cultivation of tree spice crops](#)

### Elective 4: Rhizomatous Spices

It covers the cultivation of rhizomatous spice crops.

1. [AGR/N0632: Carry out cultivation of rhizomatous spice crops](#)

### Elective 5: Oil-yielding Spices

It covers the cultivation of oil-yielding spice crops.

1. [AGR/N0633: Carry out cultivation of oil-yielding spice crops](#)

### Elective 6: Pod Spices

It covers the cultivation of pod spice crops.

1. [AGR/N0634: Carry out cultivation of pod spice crops](#)

### Elective 7: Berry Spices

It covers the cultivation of berry spice crops.

1. [AGR/N0635: Carry out cultivation of berry spice crops](#)

### Elective 8: Saffron

It covers the cultivation of saffron.

1. [AGR/N0636: Carry out cultivation of saffron](#)

## Qualification Pack (QP) Parameters

<b>Sector</b>	Agriculture
<b>Sub-Sector</b>	Agriculture Crop Production
<b>Occupation</b>	Spice Crops Cultivation

### Qualification Pack

<b>Country</b>	India
<b>NSQF Level</b>	4
<b>Credits</b>	20
<b>Aligned to NCO/ISCO/ISIC Code</b>	NCO-2015/6111
<b>Minimum Educational Qualification &amp; Experience</b>	12th grade Pass OR 10th grade pass with 2 Years of experience in the relevant field OR 10th grade pass and pursuing continuous schooling OR Previous relevant Qualification of NSQF Level ((3.0) with minimum education as 8th grade pass) with 3 Years of experience in the relevant field OR Previous relevant Qualification of NSQF Level ((3.5) with 1.5 years of experience in the relevant field)
<b>Minimum Level of Education for Training in School</b>	10th Class
<b>Pre-Requisite License or Training</b>	NA
<b>Minimum Job Entry Age</b>	18 Years
<b>Last Reviewed On</b>	NA
<b>Next Review Date</b>	29/03/2026
<b>NSQC Approval Date</b>	29/03/2023
<b>Version</b>	2.0
<b>Reference code on NQR</b>	QG-04-AG-00377-2023-V1-ASCI
<b>NQR Version</b>	1

## Qualification Pack

### AGR/N0601: Perform soil fertility management for spice crops

#### Description

This OS unit is about performing soil fertility management for spice crops which includes determining the nutrient levels in the soil and applying appropriate fertilizers to improve its fertility.

#### Scope

The scope covers the following :

- Coordinate soil testing
- Manage soil fertility

#### Elements and Performance Criteria

##### *Coordinate soil testing*

To be competent, the user/individual on the job must be able to:

- PC1.** arrange the appropriate tools and implements for the collection of soil samples
- PC2.** collect soil samples from the field and label them with the appropriate information, e.g. name of the farmer, location of the farm, previous, present and planned crop, etc.
- PC3.** coordinate with a government-approved soil-testing laboratory for the testing of soil samples

##### *Manage soil fertility*

To be competent, the user/individual on the job must be able to:

- PC4.** select the appropriate organic and inorganic fertilizers to be applied to the soil based on the soil testing report
- PC5.** arrange the required inorganic fertilizers in the appropriate quantity
- PC6.** prepare organic fertilizers using green and animal waste
- PC7.** apply the recommended fertilizers to the soil in an appropriate quantity to achieve the required macro and micronutrient levels
- PC8.** follow the appropriate fertilizer application method and thoroughly incorporate fertilizers into the soil
- PC9.** follow the appropriate measures to control the growth of harmful organisms in the soil, e.g. soil solarization
- PC10.** regulate the dose of fertilizer according to the spice crop cycle
- PC11.** maintain records concerning the use of fertilizers

#### Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** different macro and micronutrients and their importance in maintaining the fertility of the soil
- KU2.** the process of collecting and labelling soil samples
- KU3.** the importance of getting the soil sample tested through a government-approved laboratory

## Qualification Pack

- KU4.** different organic and inorganic fertilizers and their advantages and disadvantages
- KU5.** the importance of using organic and inorganic fertilizers in conjunction, and in the recommended quantities
- KU6.** how to prepare organic fertilizers, such as compost and manure
- KU7.** the common symptoms of nutrient deficiency and toxicity in the soil
- KU8.** different methods of applying fertilizers, such as broadcasting, placement, aerial application, etc.

## Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** read the relevant literature to get the latest updates about the field of work
- GS2.** listen attentively to understand the instructions being given
- GS3.** maintain work-related notes and records
- GS4.** communicate politely and professionally
- GS5.** plan and prioritize tasks to ensure timely completion
- GS6.** coordinate with the co-workers to achieve the work objectives
- GS7.** take quick decisions to deal with any emergencies/ accidents

## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Coordinate soil testing</i>	<b>9</b>	<b>11</b>	-	<b>9</b>
<b>PC1.</b> arrange the appropriate tools and implements for the collection of soil samples	-	-	-	-
<b>PC2.</b> collect soil samples from the field and label them with the appropriate information, e.g. name of the farmer, location of the farm, previous, present and planned crop, etc.	-	-	-	-
<b>PC3.</b> coordinate with a government-approved soil-testing laboratory for the testing of soil samples	-	-	-	-
<i>Manage soil fertility</i>	<b>21</b>	<b>29</b>	-	<b>21</b>
<b>PC4.</b> select the appropriate organic and inorganic fertilizers to be applied to the soil based on the soil testing report	-	-	-	-
<b>PC5.</b> arrange the required inorganic fertilizers in the appropriate quantity	-	-	-	-
<b>PC6.</b> prepare organic fertilizers using green and animal waste	-	-	-	-
<b>PC7.</b> apply the recommended fertilizers to the soil in an appropriate quantity to achieve the required macro and micronutrient levels	-	-	-	-
<b>PC8.</b> follow the appropriate fertilizer application method and thoroughly incorporate fertilizers into the soil	-	-	-	-
<b>PC9.</b> follow the appropriate measures to control the growth of harmful organisms in the soil, e.g. soil solarization	-	-	-	-
<b>PC10.</b> regulate the dose of fertilizer according to the spice crop cycle	-	-	-	-
<b>PC11.</b> maintain records concerning the use of fertilizers	-	-	-	-
<b>NOS Total</b>	<b>30</b>	<b>40</b>	-	<b>30</b>

## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	AGR/N0601
<b>NOS Name</b>	Perform soil fertility management for spice crops
<b>Sector</b>	Agriculture
<b>Sub-Sector</b>	Agriculture Crop Production
<b>Occupation</b>	Spice Crops Cultivation, Spice Crops Cultivation
<b>NSQF Level</b>	4
<b>Credits</b>	2
<b>Version</b>	2.0
<b>Last Reviewed Date</b>	NA
<b>Next Review Date</b>	29/03/2026
<b>NSQC Clearance Date</b>	29/03/2023

## Qualification Pack

### AGR/N0602: Perform weed management in spice crops

#### Description

This OS unit is about performing weed management in spice crops which includes identifying weeds and following the appropriate methods to control them.

#### Scope

The scope covers the following :

- Identify the weed growth
- Perform weed management

#### Elements and Performance Criteria

##### *Identify the weed growth*

To be competent, the user/individual on the job must be able to:

- PC1.** check the spice crop fields regularly to identify the growth of weeds
- PC2.** identify the type and extent of weed infestation in the field to select the appropriate weed control methods

##### *Perform weed management*

To be competent, the user/individual on the job must be able to:

- PC3.** select the weed control method(s), i.e. cultural, mechanical, biological and chemical control methods, based on the type and extent of weed infestation
- PC4.** follow the appropriate cultural weed control method, e.g. crop rotation
- PC5.** use the appropriate tools, implements and equipment for mechanical weed control
- PC6.** adopt the natural enemies of weeds to control the germination of weed seeds or the spread of established plants
- PC7.** select and prepare the recommended herbicide/ bio-herbicide solution for chemical weed control
- PC8.** apply herbicides/ bio-herbicides in the recommended dose, using the appropriate Personal Protection Equipment (PPE)
- PC9.** follow an appropriate combination of cultural, mechanical, biological and chemical weed control methods, as appropriate
- PC10.** identify and retain the weeds of importance during the weeding process
- PC11.** maintain the record concerning the use of herbicides/ bio-herbicides
- PC12.** maintain the herbicides and herbicide application equipment separately to prevent cross-contamination with other

#### Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** different types of commonly found weeds in spice crops and how to identify them

## Qualification Pack

- KU2.** the growth pattern of different types of weeds
- KU3.** the critical period of weed competition
- KU4.** the organic methods of weed control, such as mulching
- KU5.** the cultural, mechanical, biological and chemical weed control methods
- KU6.** the use of appropriate tools and implements for weed control
- KU7.** the benefits of using different weed control methods in combination
- KU8.** the use of appropriate herbicides and bio-herbicides
- KU9.** the importance of identifying and retaining weeds of importance
- KU10.** the appropriate precautions to be taken while preparing and applying herbicides
- KU11.** the importance of using herbicides in the recommended dose

## Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** maintain work-related notes and records
- GS2.** communicate clearly and politely
- GS3.** listen attentively to understand the instructions being given
- GS4.** read the relevant literature to get the latest updates about the field of work
- GS5.** plan and prioritize tasks to ensure timely completion
- GS6.** use of time and resources efficiently
- GS7.** identify appropriate solutions to work-related problems

## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Identify the weed growth</i>	<b>8</b>	<b>12</b>	-	<b>8</b>
<b>PC1.</b> check the spice crop fields regularly to identify the growth of weeds	-	-	-	-
<b>PC2.</b> identify the type and extent of weed infestation in the field to select the appropriate weed control methods	-	-	-	-
<i>Perform weed management</i>	<b>22</b>	<b>28</b>	-	<b>22</b>
<b>PC3.</b> select the weed control method(s), i.e. cultural, mechanical, biological and chemical control methods, based on the type and extent of weed infestation	-	-	-	-
<b>PC4.</b> follow the appropriate cultural weed control method, e.g. crop rotation	-	-	-	-
<b>PC5.</b> use the appropriate tools, implements and equipment for mechanical weed control	-	-	-	-
<b>PC6.</b> adopt the natural enemies of weeds to control the germination of weed seeds or the spread of established plants	-	-	-	-
<b>PC7.</b> select and prepare the recommended herbicide/ bio-herbicide solution for chemical weed control	-	-	-	-
<b>PC8.</b> apply herbicides/ bio-herbicides in the recommended dose, using the appropriate Personal Protection Equipment (PPE)	-	-	-	-
<b>PC9.</b> follow an appropriate combination of cultural, mechanical, biological and chemical weed control methods, as appropriate	-	-	-	-
<b>PC10.</b> identify and retain the weeds of importance during the weeding process	-	-	-	-
<b>PC11.</b> maintain the record concerning the use of herbicides/ bio-herbicides	-	-	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC12.</b> maintain the herbicides and herbicide application equipment separately to prevent cross-contamination with other	-	-	-	-
<b>NOS Total</b>	<b>30</b>	<b>40</b>	<b>-</b>	<b>30</b>

## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	AGR/N0602
<b>NOS Name</b>	Perform weed management in spice crops
<b>Sector</b>	Agriculture
<b>Sub-Sector</b>	Agriculture Crop Production
<b>Occupation</b>	Spice Crops Cultivation
<b>NSQF Level</b>	4
<b>Credits</b>	2
<b>Version</b>	4.0
<b>Last Reviewed Date</b>	NA
<b>Next Review Date</b>	29/03/2026
<b>NSQC Clearance Date</b>	29/03/2023

## Qualification Pack

# AGR/N0603: Perform integrated pest and disease management in spice crops

## Description

This OS unit is about performing Integrated Pest and Disease (IPDM) management in spice crops.

## Scope

The scope covers the following :

- Follow the appropriate preventive measures
- Identify pest and disease infestation in spice crops
- Apply the necessary treatment

## Elements and Performance Criteria

### *Follow the appropriate preventive measures*

To be competent, the user/individual on the job must be able to:

- PC1.** identify and cultivate pest and disease-resistant varieties of spice crops
- PC2.** establish the nursery in a disease-free area to raise vigorous and disease-free seedlings for a healthy crop
- PC3.** follow the appropriate measures to restrict the entry of pathogens into the field through tools and equipment, workers, planting material, irrigation water, etc.
- PC4.** identify and adopt the natural enemies of spice crop pests to control them biologically
- PC5.** carry out crop rotation with appropriate crops to control pest infestation
- PC6.** follow the appropriate measures to prevent favourable conditions for pest and disease outbreaks, e.g. preventing waterlogging by draining out excess water from the field

### *Identify pest and disease infestation in spice crops*

To be competent, the user/individual on the job must be able to:

- PC7.** identify and adopt the natural enemies of the spice crop pests
- PC8.** follow the recommended IPM methods such as light and pheromone traps to identify the presence and population of pests, insects and vectors
- PC9.** conduct regular field visits to identify pest and diseases infestation in spice crop
- PC10.** identify the symptoms of pests and disease infestation and the mode of their transfer
- PC11.** determine the stage of pest and disease incidence along with the extent of damage and Economic Threshold Levels (ETL) of pests
- PC12.** carry out appropriate documentation concerning the pest and disease identification
- PC13.** coordinate with the agricultural extension service agents and diagnostic clinics to determine the causal organism for the spice crop diseases and their treatment
- PC14.** PC14. select the appropriate treatment based on the identification and extent of pest and disease infestation

### *Apply the necessary treatment*

To be competent, the user/individual on the job must be able to:

## Qualification Pack

- PC15.** identify and remove the dead/severely affected crop plants and plant parts to prevent the spread of pests and disease to the healthy plants
- PC16.** follow the recommended measures to eliminate the diseases identified in the spice crop plants, e.g. removing and disposing of the diseased plant parts, controlling soil moisture, spraying appropriate insecticides to eliminate plant disease vectors and viruses, etc.
- PC17.** select the appropriate pesticides to eliminate the pests identified in the spice crops
- PC18.** prepare the pesticides for application taking the necessary personal protection measures
- PC19.** select the appropriate pesticide application method and plant protection equipment for applying pesticides
- PC20.** apply pesticides in the recommended quantity, following the prescription on the pesticide packaging
- PC21.** maintain appropriate records concerning the use of pesticides and insecticides

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** the concept and benefits of integrated pest and disease management
- KU2.** the appropriate preventive measures to be followed to protect spice crops from pest and disease infestation
- KU3.** the relevant biotic and abiotic factors that cause diseases in spice crops
- KU4.** different modes of pest and disease transfer
- KU5.** the common pest and diseases that infest the spice crops and their symptoms
- KU6.** the use of different types of pest traps
- KU7.** the practice and benefits of crop rotation
- KU8.** the importance of conducting regular visits in the crop field to identify pest and disease infestation
- KU9.** how to determine the stage of pest and disease incidence and the extent of damage and ETL of pests
- KU10.** the importance of determining the causal organism for the spice crop diseases and their treatment
- KU11.** how to prepare and apply pesticides safely with the use of relevant PPE
- KU12.** the use of relevant plant protection equipment
- KU13.** the benefits of following the appropriate cultural, mechanical, biological and chemical methods in combination for pest and disease control
- KU14.** the harmful effects of pesticide residue and adoption of Pre-harvest Interval (PHI)
- KU15.** the applicable regulations on pesticide residue

## Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** maintain work-related notes and records
- GS2.** read the relevant literature to get the latest updates about the field of work

## Qualification Pack

- GS3.** listen attentively to understand the instructions being given
- GS4.** communicate politely and professionally
- GS5.** coordinate with the co-workers to achieve the work objectives
- GS6.** plan and prioritize tasks to ensure timely completion
- GS7.** use of time and resources efficiently
- GS8.** take quick decisions to deal with any emergencies/ accidents

## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Follow the appropriate preventive measures</i>	<b>10</b>	<b>18</b>	-	<b>10</b>
<b>PC1.</b> identify and cultivate pest and disease-resistant varieties of spice crops	-	-	-	-
<b>PC2.</b> establish the nursery in a disease-free area to raise vigorous and disease-free seedlings for a healthy crop	-	-	-	-
<b>PC3.</b> follow the appropriate measures to restrict the entry of pathogens into the field through tools and equipment, workers, planting material, irrigation water, etc.	-	-	-	-
<b>PC4.</b> identify and adopt the natural enemies of spice crop pests to control them biologically	-	-	-	-
<b>PC5.</b> carry out crop rotation with appropriate crops to control pest infestation	-	-	-	-
<b>PC6.</b> follow the appropriate measures to prevent favourable conditions for pest and disease outbreaks, e.g. preventing waterlogging by draining out excess water from the field	-	-	-	-
<i>Identify pest and disease infestation in spice crops</i>	<b>10</b>	<b>9</b>	-	<b>10</b>
<b>PC7.</b> identify and adopt the natural enemies of the spice crop pests	-	-	-	-
<b>PC8.</b> follow the recommended IPM methods such as light and pheromone traps to identify the presence and population of pests, insects and vectors	-	-	-	-
<b>PC9.</b> conduct regular field visits to identify pest and diseases infestation in spice crop	-	-	-	-
<b>PC10.</b> identify the symptoms of pests and disease infestation and the mode of their transfer	-	-	-	-
<b>PC11.</b> determine the stage of pest and disease incidence along with the extent of damage and Economic Threshold Levels (ETL) of pests	-	-	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC12.</b> carry out appropriate documentation concerning the pest and disease identification	-	-	-	-
<b>PC13.</b> coordinate with the agricultural extension service agents and diagnostic clinics to determine the causal organism for the spice crop diseases and their treatment	-	-	-	-
<b>PC14.</b> PC14. select the appropriate treatment based on the identification and extent of pest and disease infestation	-	-	-	-
<i>Apply the necessary treatment</i>	<b>10</b>	<b>13</b>	-	<b>10</b>
<b>PC15.</b> identify and remove the dead/severely affected crop plants and plant parts to prevent the spread of pests and disease to the healthy plants	-	-	-	-
<b>PC16.</b> follow the recommended measures to eliminate the diseases identified in the spice crop plants, e.g. removing and disposing of the diseased plant parts, controlling soil moisture, spraying appropriate insecticides to eliminate plant disease vectors and viruses, etc.	-	-	-	-
<b>PC17.</b> select the appropriate pesticides to eliminate the pests identified in the spice crops	-	-	-	-
<b>PC18.</b> prepare the pesticides for application taking the necessary personal protection measures	-	-	-	-
<b>PC19.</b> select the appropriate pesticide application method and plant protection equipment for applying pesticides	-	-	-	-
<b>PC20.</b> apply pesticides in the recommended quantity, following the prescription on the pesticide packaging	-	-	-	-
<b>PC21.</b> maintain appropriate records concerning the use of pesticides and insecticides	-	-	-	-
<b>NOS Total</b>	<b>30</b>	<b>40</b>	-	<b>30</b>

## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	AGR/N0603
<b>NOS Name</b>	Perform integrated pest and disease management in spice crops
<b>Sector</b>	Agriculture
<b>Sub-Sector</b>	Agriculture Crop Production
<b>Occupation</b>	Spice Crops Cultivation
<b>NSQF Level</b>	4
<b>Credits</b>	3
<b>Version</b>	2.0
<b>Last Reviewed Date</b>	NA
<b>Next Review Date</b>	29/03/2026
<b>NSQC Clearance Date</b>	29/03/2023

## Qualification Pack

### AGR/N0604: Perform irrigation management in spice crops

#### Description

This OS unit is about performing irrigation management in spice crops.

#### Scope

The scope covers the following :

- Coordinate the testing of irrigation water
- Install the irrigation system
- Irrigate the spice crops

#### Elements and Performance Criteria

##### *Coordinate the testing of irrigation water*

To be competent, the user/individual on the job must be able to:

- PC1.** collect water samples from the source of irrigation water and label them for testing
- PC2.** coordinate with a government-approved laboratory to determine the water's pH, concentration and composition of soluble salts, Sodium Adsorption Ratio (SAR), etc.
- PC3.** follow the measures recommended by the lab to improve the quality of water, as required

##### *Install the irrigation system*

To be competent, the user/individual on the job must be able to:

- PC4.** select an appropriate irrigation system for irrigating the spice crops
- PC5.** arrange the necessary tools, equipment and materials for the installation of the irrigation system
- PC6.** install the irrigation system or coordinate with an expert for the installation, as appropriate
- PC7.** carry out regular repair and maintenance of the irrigation system

##### *Irrigate the spice crops*

To be competent, the user/individual on the job must be able to:

- PC8.** determine the water requirements of the spice crops
- PC9.** irrigate the spice crops with the recommended quantity, ensuring to avoid over and under irrigation
- PC10.** follow the irrigation schedule recommended for different spice crops, regulating the quantity of water as per their stages of growth
- PC11.** drain out excess water from the field to prevent waterlogging and adverse effects on the crop

#### Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** the impact of irrigation on plant growth and crop yield

## Qualification Pack

- KU2.** different irrigation methods and their advantages and disadvantages
- KU3.** the appropriate irrigation methods for spice crop fields
- KU4.** the timing and method of irrigation appropriate for different soil types and climatic conditions
- KU5.** the importance of carrying out testing of irrigation water
- KU6.** the process of sampling and testing irrigation water
- KU7.** the process of installing different types of irrigation systems and the required tools, equipment and materials
- KU8.** the importance of carrying out regular repair and maintenance of irrigation systems
- KU9.** the irrigation requirements of different spice crops
- KU10.** the appropriate practices to be followed to avoid over and under irrigation
- KU11.** the irrigation schedule recommended for different spice crops
- KU12.** the importance of avoiding waterlogging in spice crop fields

## Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** write work-related notes
- GS2.** read the relevant literature to get the latest updates about the field of work
- GS3.** communicate politely and professionally
- GS4.** listen attentively to understand the instructions being given
- GS5.** identify solutions to work-related issues
- GS6.** plan and prioritize tasks to ensure timely completion
- GS7.** take quick decisions to deal with any emergencies or accidents
- GS8.** use time and resources effectively

## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Coordinate the testing of irrigation water</i>	<b>10</b>	<b>13</b>	-	<b>10</b>
<b>PC1.</b> collect water samples from the source of irrigation water and label them for testing	-	-	-	-
<b>PC2.</b> coordinate with a government-approved laboratory to determine the water's pH, concentration and composition of soluble salts, Sodium Adsorption Ratio (SAR), etc.	-	-	-	-
<b>PC3.</b> follow the measures recommended by the lab to improve the quality of water, as required	-	-	-	-
<i>Install the irrigation system</i>	<b>10</b>	<b>18</b>	-	<b>10</b>
<b>PC4.</b> select an appropriate irrigation system for irrigating the spice crops	-	-	-	-
<b>PC5.</b> arrange the necessary tools, equipment and materials for the installation of the irrigation system	-	-	-	-
<b>PC6.</b> install the irrigation system or coordinate with an expert for the installation, as appropriate	-	-	-	-
<b>PC7.</b> carry out regular repair and maintenance of the irrigation system	-	-	-	-
<i>Irrigate the spice crops</i>	<b>10</b>	<b>9</b>	-	<b>10</b>
<b>PC8.</b> determine the water requirements of the spice crops	-	-	-	-
<b>PC9.</b> irrigate the spice crops with the recommended quantity, ensuring to avoid over and under irrigation	-	-	-	-
<b>PC10.</b> follow the irrigation schedule recommended for different spice crops, regulating the quantity of water as per their stages of growth	-	-	-	-
<b>PC11.</b> drain out excess water from the field to prevent waterlogging and adverse effects on the crop	-	-	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>NOS Total</b>	<b>30</b>	<b>40</b>	<b>-</b>	<b>30</b>

## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	AGR/N0604
<b>NOS Name</b>	Perform irrigation management in spice crops
<b>Sector</b>	Agriculture
<b>Sub-Sector</b>	Agriculture Crop Production
<b>Occupation</b>	Spice Crops Cultivation
<b>NSQF Level</b>	4
<b>Credits</b>	1
<b>Version</b>	2.0
<b>Last Reviewed Date</b>	NA
<b>Next Review Date</b>	29/03/2026
<b>NSQC Clearance Date</b>	29/03/2023

## Qualification Pack

### AGR/N9903: Maintain health and safety at the workplace

#### Description

This OS is about maintaining health and safety of self and other co-workers at the workplace

#### Scope

The scope covers the following :

- Maintain personal hygiene
- Maintain clean and safe workplace
- Administer appropriate emergency procedures

#### Elements and Performance Criteria

##### *Maintain personal hygiene*

To be competent, the user/individual on the job must be able to:

- PC1.** wash hands, legs and face with soap/alcohol based sanitizer at reasonable intervals
- PC2.** wash the worn clothes with soap and sun dry before use next time
- PC3.** ensure the face is covered with mask or three layers of cloth-piece
- PC4.** follow the workplace sanitization norms including distancing from sick people

##### *Maintain clean and safe workplace*

To be competent, the user/individual on the job must be able to:

- PC5.** carry out basic safety checks before operation of all tools, implements, and machinery and report identified hazards to the supervisor
- PC6.** wear appropriate Personal Protective Equipment (PPE) while performing work in accordance with the workplace policy
- PC7.** follow the instructions mentioned on the labels of chemicals/pesticides/fumigants etc to avoid hazards
- PC8.** assess risks prior to performing manual handling jobs, and work according to currently recommended safe practices
- PC9.** sanitize equipment, tools and machinery before and after use
- PC10.** use equipment and materials safely and correctly and return the same to designated storage after use
- PC11.** dispose waste safely and correctly in the designated area
- PC12.** recognize risks to bystanders and take required action to reduce the risks
- PC13.** work in a manner which minimizes environmental damage, ensuring all procedures and instructions for controlling risks are followed
- PC14.** report any accidents, incidents or problems without delay to an appropriate person and take necessary immediate action to reduce further danger
- PC15.** follow government / workplace advisories incase of outbreak of any disease/disaster

##### *Administer appropriate emergency procedures*

To be competent, the user/individual on the job must be able to:

## Qualification Pack

- PC16.** follow procedures for dealing with accidents, fires and emergencies, including communicating location and directions to the location of emergency, as per the workplace requirements
- PC17.** use emergency equipment in accordance with manufacturer's specifications and workplace requirements
- PC18.** provide treatment appropriate to the patient's injuries in accordance with recognized first aid techniques
- PC19.** recover (if practical), clean, inspect/test, refurbish, replace and store the first aid equipment as appropriate
- PC20.** report details of first aid administered in accordance with workplace procedures

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** relevant legislation, standards, policies, and procedures at work
- KU2.** relevant health and safety requirements applicable to the work environment
- KU3.** own job role and responsibilities and sources of information pertaining to work
- KU4.** who to approach for support in order to obtain work related information, clarifications and support
- KU5.** importance of following health, hygiene, safety and quality standards and the impact of not following the standards on consumers and the business
- KU6.** personal hygiene and fitness requirement
- KU7.** importance of sanitization of the workplace
- KU8.** types of Personal Protective Equipment (PPE) required at the workplace and their importance
- KU9.** the correct and safe way to use materials and equipment required for the work
- KU10.** the importance of good housekeeping at the workplace
- KU11.** safe waste disposal methods
- KU12.** methods for minimizing environmental damage during work
- KU13.** the risks to health and safety including contagious diseases and the measures to be taken to control those risks in the area of work
- KU14.** workplace procedures and requirements for the prevention and treatment of workplace injuries/illnesses.
- KU15.** basic emergency first aid procedure
- KU16.** local emergency services
- KU17.** why accidents, incidents and problems should be reported and the appropriate actions to be taken

## Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** record the data as per the requirement
- GS2.** report problems to the appropriate personnel in a timely manner

## Qualification Pack

- GS3.** read instruction manual for hand tool and equipments
- GS4.** communicate clearly and effectively with co-workers, and other stakeholders
- GS5.** comprehend information shared by senior people and experts
- GS6.** make decisions pertaining to personal hygiene and safety
- GS7.** schedule daily activities and draw up priorities
- GS8.** manage relationships with co-workers, manager and other stakeholders
- GS9.** assess situation and identify appropriate control measures

## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Maintain personal hygiene</i>	<b>10</b>	<b>5</b>	-	<b>10</b>
<b>PC1.</b> wash hands, legs and face with soap/alcohol based sanitizer at reasonable intervals	-	-	-	-
<b>PC2.</b> wash the worn clothes with soap and sun dry before use next time	-	-	-	-
<b>PC3.</b> ensure the face is covered with mask or three layers of cloth-piece	-	-	-	-
<b>PC4.</b> follow the workplace sanitization norms including distancing from sick people	-	-	-	-
<i>Maintain clean and safe workplace</i>	<b>15</b>	<b>15</b>	-	<b>15</b>
<b>PC5.</b> carry out basic safety checks before operation of all tools, implements, and machinery and report identified hazards to the supervisor	-	-	-	-
<b>PC6.</b> wear appropriate Personal Protective Equipment (PPE) while performing work in accordance with the workplace policy	-	-	-	-
<b>PC7.</b> follow the instructions mentioned on the labels of chemicals/pesticides/fumigants etc to avoid hazards	-	-	-	-
<b>PC8.</b> assess risks prior to performing manual handling jobs, and work according to currently recommended safe practices	-	-	-	-
<b>PC9.</b> sanitize equipment, tools and machinery before and after use	-	-	-	-
<b>PC10.</b> use equipment and materials safely and correctly and return the same to designated storage after use	-	-	-	-
<b>PC11.</b> dispose waste safely and correctly in the designated area	-	-	-	-
<b>PC12.</b> recognize risks to bystanders and take required action to reduce the risks	-	-	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC13.</b> work in a manner which minimizes environmental damage, ensuring all procedures and instructions for controlling risks are followed	-	-	-	-
<b>PC14.</b> report any accidents, incidents or problems without delay to an appropriate person and take necessary immediate action to reduce further danger	-	-	-	-
<b>PC15.</b> follow government / workplace advisories incase of outbreak of any disease/disaster	-	-	-	-
<i>Administer appropriate emergency procedures</i>	<b>15</b>	<b>5</b>	-	<b>10</b>
<b>PC16.</b> follow procedures for dealing with accidents, fires and emergencies, including communicating location and directions to the location of emergency, as per the workplace requirements	-	-	-	-
<b>PC17.</b> use emergency equipment in accordance with manufacturer's specifications and workplace requirements	-	-	-	-
<b>PC18.</b> provide treatment appropriate to the patient's injuries in accordance with recognized first aid techniques	-	-	-	-
<b>PC19.</b> recover (if practical), clean, inspect/test, refurbish, replace and store the first aid equipment as appropriate	-	-	-	-
<b>PC20.</b> report details of first aid administered in accordance with workplace procedures	-	-	-	-
<b>NOS Total</b>	<b>40</b>	<b>25</b>	-	<b>35</b>

## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	AGR/N9903
<b>NOS Name</b>	Maintain health and safety at the workplace
<b>Sector</b>	Agriculture
<b>Sub-Sector</b>	Generic
<b>Occupation</b>	Generic
<b>NSQF Level</b>	4
<b>Credits</b>	1
<b>Version</b>	4.0
<b>Last Reviewed Date</b>	NA
<b>Next Review Date</b>	29/03/2026
<b>NSQC Clearance Date</b>	29/03/2023

## Qualification Pack

### DGT/VSQ/N0102: Employability Skills (60 Hours)

#### Description

This unit is about employability skills, Constitutional values, becoming a professional in the 21st Century, digital, financial, and legal literacy, diversity and Inclusion, English and communication skills, customer service, entrepreneurship, and apprenticeship, getting ready for jobs and career development.

#### Scope

The scope covers the following :

- Introduction to Employability Skills
- Constitutional values - Citizenship
- Becoming a Professional in the 21st Century
- Basic English Skills
- Career Development & Goal Setting
- Communication Skills
- Diversity & Inclusion
- Financial and Legal Literacy
- Essential Digital Skills
- Entrepreneurship
- Customer Service
- Getting ready for Apprenticeship & Jobs

#### Elements and Performance Criteria

##### *Introduction to Employability Skills*

To be competent, the user/individual on the job must be able to:

- PC1.** identify employability skills required for jobs in various industries
- PC2.** identify and explore learning and employability portals

##### *Constitutional values - Citizenship*

To be competent, the user/individual on the job must be able to:

- PC3.** recognize the significance of constitutional values, including civic rights and duties, citizenship, responsibility towards society etc. and personal values and ethics such as honesty, integrity, caring and respecting others, etc.
- PC4.** follow environmentally sustainable practices

##### *Becoming a Professional in the 21st Century*

To be competent, the user/individual on the job must be able to:

- PC5.** recognize the significance of 21st Century Skills for employment
- PC6.** practice the 21st Century Skills such as Self-Awareness, Behaviour Skills, time management, critical and adaptive thinking, problem-solving, creative thinking, social and cultural awareness, emotional awareness, learning to learn for continuous learning etc. in personal and professional life

##### *Basic English Skills*

To be competent, the user/individual on the job must be able to:

## Qualification Pack

- PC7.** use basic English for everyday conversation in different contexts, in person and over the telephone
- PC8.** read and understand routine information, notes, instructions, mails, letters etc. written in English
- PC9.** write short messages, notes, letters, e-mails etc. in English

### *Career Development & Goal Setting*

To be competent, the user/individual on the job must be able to:

- PC10.** understand the difference between job and career
- PC11.** prepare a career development plan with short- and long-term goals, based on aptitude

### *Communication Skills*

To be competent, the user/individual on the job must be able to:

- PC12.** follow verbal and non-verbal communication etiquette and active listening techniques in various settings
- PC13.** work collaboratively with others in a team

### *Diversity & Inclusion*

To be competent, the user/individual on the job must be able to:

- PC14.** communicate and behave appropriately with all genders and PwD
- PC15.** escalate any issues related to sexual harassment at workplace according to POSH Act

### *Financial and Legal Literacy*

To be competent, the user/individual on the job must be able to:

- PC16.** select financial institutions, products and services as per requirement
- PC17.** carry out offline and online financial transactions, safely and securely
- PC18.** identify common components of salary and compute income, expenses, taxes, investments etc
- PC19.** identify relevant rights and laws and use legal aids to fight against legal exploitation

### *Essential Digital Skills*

To be competent, the user/individual on the job must be able to:

- PC20.** operate digital devices and carry out basic internet operations securely and safely
- PC21.** use e- mail and social media platforms and virtual collaboration tools to work effectively
- PC22.** use basic features of word processor, spreadsheets, and presentations

### *Entrepreneurship*

To be competent, the user/individual on the job must be able to:

- PC23.** identify different types of Entrepreneurship and Enterprises and assess opportunities for potential business through research
- PC24.** develop a business plan and a work model, considering the 4Ps of Marketing Product, Price, Place and Promotion
- PC25.** identify sources of funding, anticipate, and mitigate any financial/ legal hurdles for the potential business opportunity

### *Customer Service*

To be competent, the user/individual on the job must be able to:

- PC26.** identify different types of customers
- PC27.** identify and respond to customer requests and needs in a professional manner.

## Qualification Pack

**PC28.** follow appropriate hygiene and grooming standards

*Getting ready for apprenticeship & Jobs*

To be competent, the user/individual on the job must be able to:

**PC29.** create a professional Curriculum vitae (Résumé)

**PC30.** search for suitable jobs using reliable offline and online sources such as Employment exchange, recruitment agencies, newspapers etc. and job portals, respectively

**PC31.** apply to identified job openings using offline /online methods as per requirement

**PC32.** answer questions politely, with clarity and confidence, during recruitment and selection

**PC33.** identify apprenticeship opportunities and register for it as per guidelines and requirements

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

**KU1.** need for employability skills and different learning and employability related portals

**KU2.** various constitutional and personal values

**KU3.** different environmentally sustainable practices and their importance

**KU4.** Twenty first (21st) century skills and their importance

**KU5.** how to use English language for effective verbal (face to face and telephonic) and written communication in formal and informal set up

**KU6.** importance of career development and setting long- and short-term goals

**KU7.** about effective communication

**KU8.** POSH Act

**KU9.** Gender sensitivity and inclusivity

**KU10.** different types of financial institutes, products, and services

**KU11.** how to compute income and expenditure

**KU12.** importance of maintaining safety and security in offline and online financial transactions

**KU13.** different legal rights and laws

**KU14.** different types of digital devices and the procedure to operate them safely and securely

**KU15.** how to create and operate an e- mail account and use applications such as word processors, spreadsheets etc.

**KU16.** how to identify business opportunities

**KU17.** types and needs of customers

**KU18.** how to apply for a job and prepare for an interview

**KU19.** apprenticeship scheme and the process of registering on apprenticeship portal

## Generic Skills (GS)

User/individual on the job needs to know how to:

**GS1.** read and write different types of documents/instructions/correspondence

**GS2.** communicate effectively using appropriate language in formal and informal settings

## Qualification Pack

- GS3.** behave politely and appropriately with all
- GS4.** how to work in a virtual mode
- GS5.** perform calculations efficiently
- GS6.** solve problems effectively
- GS7.** pay attention to details
- GS8.** manage time efficiently
- GS9.** maintain hygiene and sanitization to avoid infection

## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Introduction to Employability Skills</i>	<b>1</b>	<b>1</b>	-	-
<b>PC1.</b> identify employability skills required for jobs in various industries	-	-	-	-
<b>PC2.</b> identify and explore learning and employability portals	-	-	-	-
<i>Constitutional values - Citizenship</i>	<b>1</b>	<b>1</b>	-	-
<b>PC3.</b> recognize the significance of constitutional values, including civic rights and duties, citizenship, responsibility towards society etc. and personal values and ethics such as honesty, integrity, caring and respecting others, etc.	-	-	-	-
<b>PC4.</b> follow environmentally sustainable practices	-	-	-	-
<i>Becoming a Professional in the 21st Century</i>	<b>2</b>	<b>4</b>	-	-
<b>PC5.</b> recognize the significance of 21st Century Skills for employment	-	-	-	-
<b>PC6.</b> practice the 21st Century Skills such as Self-Awareness, Behaviour Skills, time management, critical and adaptive thinking, problem-solving, creative thinking, social and cultural awareness, emotional awareness, learning to learn for continuous learning etc. in personal and professional life	-	-	-	-
<i>Basic English Skills</i>	<b>2</b>	<b>3</b>	-	-
<b>PC7.</b> use basic English for everyday conversation in different contexts, in person and over the telephone	-	-	-	-
<b>PC8.</b> read and understand routine information, notes, instructions, mails, letters etc. written in English	-	-	-	-
<b>PC9.</b> write short messages, notes, letters, e-mails etc. in English	-	-	-	-
<i>Career Development &amp; Goal Setting</i>	<b>1</b>	<b>2</b>	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC10.</b> understand the difference between job and career	-	-	-	-
<b>PC11.</b> prepare a career development plan with short- and long-term goals, based on aptitude	-	-	-	-
<i>Communication Skills</i>	<b>2</b>	<b>2</b>	-	-
<b>PC12.</b> follow verbal and non-verbal communication etiquette and active listening techniques in various settings	-	-	-	-
<b>PC13.</b> work collaboratively with others in a team	-	-	-	-
<i>Diversity &amp; Inclusion</i>	<b>1</b>	<b>2</b>	-	-
<b>PC14.</b> communicate and behave appropriately with all genders and PwD	-	-	-	-
<b>PC15.</b> escalate any issues related to sexual harassment at workplace according to POSH Act	-	-	-	-
<i>Financial and Legal Literacy</i>	<b>2</b>	<b>3</b>	-	-
<b>PC16.</b> select financial institutions, products and services as per requirement	-	-	-	-
<b>PC17.</b> carry out offline and online financial transactions, safely and securely	-	-	-	-
<b>PC18.</b> identify common components of salary and compute income, expenses, taxes, investments etc	-	-	-	-
<b>PC19.</b> identify relevant rights and laws and use legal aids to fight against legal exploitation	-	-	-	-
<i>Essential Digital Skills</i>	<b>3</b>	<b>4</b>	-	-
<b>PC20.</b> operate digital devices and carry out basic internet operations securely and safely	-	-	-	-
<b>PC21.</b> use e- mail and social media platforms and virtual collaboration tools to work effectively	-	-	-	-
<b>PC22.</b> use basic features of word processor, spreadsheets, and presentations	-	-	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Entrepreneurship</i>	<b>2</b>	<b>3</b>	-	-
<b>PC23.</b> identify different types of Entrepreneurship and Enterprises and assess opportunities for potential business through research	-	-	-	-
<b>PC24.</b> develop a business plan and a work model, considering the 4Ps of Marketing Product, Price, Place and Promotion	-	-	-	-
<b>PC25.</b> identify sources of funding, anticipate, and mitigate any financial/ legal hurdles for the potential business opportunity	-	-	-	-
<i>Customer Service</i>	<b>1</b>	<b>2</b>	-	-
<b>PC26.</b> identify different types of customers	-	-	-	-
<b>PC27.</b> identify and respond to customer requests and needs in a professional manner.	-	-	-	-
<b>PC28.</b> follow appropriate hygiene and grooming standards	-	-	-	-
<i>Getting ready for apprenticeship &amp; Jobs</i>	<b>2</b>	<b>3</b>	-	-
<b>PC29.</b> create a professional Curriculum vitae (Résumé)	-	-	-	-
<b>PC30.</b> search for suitable jobs using reliable offline and online sources such as Employment exchange, recruitment agencies, newspapers etc. and job portals, respectively	-	-	-	-
<b>PC31.</b> apply to identified job openings using offline /online methods as per requirement	-	-	-	-
<b>PC32.</b> answer questions politely, with clarity and confidence, during recruitment and selection	-	-	-	-
<b>PC33.</b> identify apprenticeship opportunities and register for it as per guidelines and requirements	-	-	-	-
<b>NOS Total</b>	<b>20</b>	<b>30</b>	-	-

## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	DGT/VSQ/N0102
<b>NOS Name</b>	Employability Skills (60 Hours)
<b>Sector</b>	Cross Sectoral
<b>Sub-Sector</b>	Professional Skills
<b>Occupation</b>	Employability
<b>NSQF Level</b>	4
<b>Credits</b>	2
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	NA
<b>Next Review Date</b>	27/05/2024
<b>NSQC Clearance Date</b>	27/05/2021

## Qualification Pack

### AGR/N0629: Carry out the cultivation of herbal spice crops

#### Description

This OS unit is about the cultivation of herbal spice crops, which includes selecting the site, propagating seedlings in the nursery, transplanting activities, crop maintenance, harvesting and post-harvest activities.

#### Scope

The scope covers the following :

- Select an appropriate site
- Arrange the required agricultural inputs
- Propagate seedlings in the nursery
- Prepare the field
- Transplant the seedlings
- Maintain the herbal spice crop
- Perform harvesting and post-harvest management
- Market herbal spices

#### Elements and Performance Criteria

##### *Select an appropriate site*

To be competent, the user/individual on the job must be able to:

- PC1.** select an appropriate site with the recommended agro-climatic conditions for the cultivation of selected herbal spice crops
- PC2.** check the site has the recommended topography, i.e. elevation and slope for the cultivation of herbal spice crops and does not experience waterlogging
- PC3.** ensure the availability of a reliable supply of quality irrigation water at the site
- PC4.** check the site has proximity to the relevant markets for procuring the required agricultural inputs and marketing the spice crops

##### *Arrange the required agricultural inputs*

To be competent, the user/individual on the job must be able to:

- PC5.** determine the requirement of various inputs required for the cultivation of herbal spice crops
- PC6.** identify government-approved sources and procure the required inputs in an appropriate quantity
- PC7.** store the procured agricultural inputs safely in a storage
- PC8.** arrange the necessary tools, equipment and implements for the cultivation of herbal spice crops
- PC9.** maintain records concerning the procurement of agricultural inputs

##### *Propagate seedlings in the nursery*

To be competent, the user/individual on the job must be able to:

- PC10.** prepare the appropriate type of nursery bed, i.e. raised, level or sunken bed, for raising seedlings of the relevant herbal spice crops

## Qualification Pack

- PC11.** follow the appropriate propagation method to propagate seedlings in the nursery, e.g. rhizomes, seeds, cuttings, division, layering, etc.
- PC12.** perform the plant protection and irrigation and nutrient management of seedlings/saplings
- PC13.** identify the maturity indices of seedlings and harvest them using the appropriate tools and implements
- PC14.** store the harvested seedlings at the recommended temperature and humidity to ensure their survival

### *Prepare the field*

To be competent, the user/individual on the job must be able to:

- PC15.** remove any debris and waste materials from the field
- PC16.** carry out ploughing in the main field to remove weeds and achieve the recommended tillth
- PC17.** apply and incorporate a mixture of topsoil/ compost/ manure in the field, as appropriate
- PC18.** create drainage channels in the field to drain out excess water to prevent waterlogging
- PC19.** install an appropriate irrigation system in the field to irrigate the spice crops efficiently with the minimum wastage of water
- PC20.** use the appropriate field preparation tools, implements and machinery appropriately, ensuring personal safety

### *Transplant the seedlings*

To be competent, the user/individual on the job must be able to:

- PC21.** acclimatize the seedlings before transplanting them
- PC22.** transplant seedlings in the main field during the weather recommended for the selected herbal spice crop

### *Maintain the herbal spice crop*

To be competent, the user/individual on the job must be able to:

- PC23.** determine the macro and micronutrient requirements of herbal spice crops and apply the appropriate organic and inorganic fertilizers for their healthy growth
- PC24.** identify the growth of weeds in the herbal spice crops and remove them following the appropriate mechanical, biological and chemical weed control methods
- PC25.** follow the appropriate preventive measures to control pest and disease infestation in herbal spice crops
- PC26.** identify the symptoms of pest and disease infestation in herbal spice crops, such as aphids, whiteflies, powdery mildew, root rot, etc.
- PC27.** select and prepare the appropriate pesticide/insecticide for application and apply it using the appropriate plant protection equipment
- PC28.** follow the combination of appropriate cultural, mechanical and biological pest and disease control measures, as appropriate
- PC29.** ensure personal protection by using the appropriate PPE while applying pesticides/insecticides

### *Perform harvesting and post-harvest management*

To be competent, the user/individual on the job must be able to:

- PC30.** identify the maturity indices of the herbal spice crops and harvest them using the appropriate tools and implements

## Qualification Pack

- PC31.** carry out post-harvest activities, such as cleaning and sun-drying, according to the type of herbal spice crop
- PC32.** store the harvested herbal spice crops under the recommended temperature and humidity, ensuring hygienic conditions in the storage
- PC33.** carry out sorting and grading of the produce based on the applicable parameters
- PC34.** pack the herbal spices in the appropriate packaging
- PC35.** follow the appropriate measures during harvesting and post-harvest handling to preserve the quality of produce

### *Market herbal spices*

To be competent, the user/individual on the job must be able to:

- PC36.** identify the buyers of herbal spices, such as eMandi, procurement agencies, traders, etc.
- PC37.** coordinate and negotiate with the buyer to secure a profitable price for the herbal spices
- PC38.** arrange an appropriate mode of transport to deliver herbal spices to the buyer
- PC39.** process the payments using the appropriate payment method including e-payment methods
- PC40.** calculate the benefit-cost (B:C) ratio
- PC41.** maintain the manual and/or electronic record of sales and payments using the physical registers and/or the relevant computer application

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** different herbal spice crops and their characteristics
- KU2.** the benefits and nutraceutical properties of common herbal spices
- KU3.** the appropriate agro-climatic conditions for the cultivation of herbal spice crops
- KU4.** different planting and cropping systems
- KU5.** the relevant intercultural operations
- KU6.** the agricultural inputs, tools, equipment and implements required for the cultivation of herbal spice crops
- KU7.** the criteria for selecting an appropriate site for the cultivation of herbal spice crops
- KU8.** the requirement of different agricultural inputs for the cultivation of herbal spice crops
- KU9.** the process of propagating the herbal spice crop seedlings in the nursery
- KU10.** how to prepare the field for the cultivation of different herbal spice crops
- KU11.** the process of transplanting seedlings in the main field and the appropriate precautions to be taken
- KU12.** the irrigation requirement of different herbal spice crops
- KU13.** the macro and micronutrient requirements of different herbal spice crops and the appropriate organic and inorganic fertilizers to be used
- KU14.** the common types of weeds found in herbal spice crops and how to control them
- KU15.** the relevant pests and diseases that affect herbal spice crops and the appropriate preventive and remedial measures to be taken
- KU16.** the safe preparation and application of different types of pesticides

## Qualification Pack

- KU17.** the use of appropriate plant protection equipment
- KU18.** the maturity indices of the different herbal spice crops and the use of appropriate tools and implements for harvesting them
- KU19.** the post-harvest management processes relevant to herbal spice crops
- KU20.** the applicable parameters for the sorting and grading of produce
- KU21.** the appropriate measures to be followed during harvesting and post-harvest handling to preserve the quality of herbal spice crop produce
- KU22.** the applicable Good Agricultural Practices (GAP)
- KU23.** different types of buyers of herbal spices
- KU24.** the process of negotiating with buyers
- KU25.** the appropriate packing material and mode of transport for herbal spices
- KU26.** the recommended measures to be followed to protect herbal spices from contamination while transporting them
- KU27.** the use of different payments methods, including e-payment methods
- KU28.** how to calculate the benefit-cost (B:C) ratio
- KU29.** the importance of maintaining records of sales and payments
- KU30.** how to maintain manual and electronic records using the physical registers and the relevant computer application

## Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** maintain work-related notes and records
- GS2.** read the relevant literature to get the latest updates about the field work
- GS3.** communicate politely and professionally
- GS4.** listen attentively to understand the information being shared
- GS5.** plan and schedule tasks for efficient time management
- GS6.** identify possible disruptions to work and take appropriate preventive measures
- GS7.** take quick decisions to deal with workplace emergencies/accidents
- GS8.** evaluate all possible solutions to a problem to select the best one

## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Select an appropriate site</i>	<b>4</b>	<b>5</b>	-	<b>3</b>
<b>PC1.</b> select an appropriate site with the recommended agro-climatic conditions for the cultivation of selected herbal spice crops	-	-	-	-
<b>PC2.</b> check the site has the recommended topography, i.e. elevation and slope for the cultivation of herbal spice crops and does not experience waterlogging	-	-	-	-
<b>PC3.</b> ensure the availability of a reliable supply of quality irrigation water at the site	-	-	-	-
<b>PC4.</b> check the site has proximity to the relevant markets for procuring the required agricultural inputs and marketing the spice crops	-	-	-	-
<i>Arrange the required agricultural inputs</i>	<b>4</b>	<b>5</b>	-	<b>3</b>
<b>PC5.</b> determine the requirement of various inputs required for the cultivation of herbal spice crops	-	-	-	-
<b>PC6.</b> identify government-approved sources and procure the required inputs in an appropriate quantity	-	-	-	-
<b>PC7.</b> store the procured agricultural inputs safely in a storage	-	-	-	-
<b>PC8.</b> arrange the necessary tools, equipment and implements for the cultivation of herbal spice crops	-	-	-	-
<b>PC9.</b> maintain records concerning the procurement of agricultural inputs	-	-	-	-
<i>Propagate seedlings in the nursery</i>	<b>4</b>	<b>5</b>	-	<b>4</b>
<b>PC10.</b> prepare the appropriate type of nursery bed, i.e. raised, level or sunken bed, for raising seedlings of the relevant herbal spice crops	-	-	-	-
<b>PC11.</b> follow the appropriate propagation method to propagate seedlings in the nursery, e.g. rhizomes, seeds, cuttings, division, layering, etc.	-	-	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC12.</b> perform the plant protection and irrigation and nutrient management of seedlings/saplings	-	-	-	-
<b>PC13.</b> identify the maturity indices of seedlings and harvest them using the appropriate tools and implements	-	-	-	-
<b>PC14.</b> store the harvested seedlings at the recommended temperature and humidity to ensure their survival	-	-	-	-
<i>Prepare the field</i>	<b>3</b>	<b>5</b>	-	<b>3</b>
<b>PC15.</b> remove any debris and waste materials from the field	-	-	-	-
<b>PC16.</b> carry out ploughing in the main field to remove weeds and achieve the recommended tilth	-	-	-	-
<b>PC17.</b> apply and incorporate a mixture of topsoil/ compost/ manure in the field, as appropriate	-	-	-	-
<b>PC18.</b> create drainage channels in the field to drain out excess water to prevent waterlogging	-	-	-	-
<b>PC19.</b> install an appropriate irrigation system in the field to irrigate the spice crops efficiently with the minimum wastage of water	-	-	-	-
<b>PC20.</b> use the appropriate field preparation tools, implements and machinery appropriately, ensuring personal safety	-	-	-	-
<i>Transplant the seedlings</i>	<b>3</b>	<b>5</b>	-	<b>4</b>
<b>PC21.</b> acclimatize the seedlings before transplanting them	-	-	-	-
<b>PC22.</b> transplant seedlings in the main field during the weather recommended for the selected herbal spice crop	-	-	-	-
<i>Maintain the herbal spice crop</i>	<b>4</b>	<b>5</b>	-	<b>5</b>
<b>PC23.</b> determine the macro and micronutrient requirements of herbal spice crops and apply the appropriate organic and inorganic fertilizers for their healthy growth	-	-	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC24.</b> identify the growth of weeds in the herbal spice crops and remove them following the appropriate mechanical, biological and chemical weed control methods	-	-	-	-
<b>PC25.</b> follow the appropriate preventive measures to control pest and disease infestation in herbal spice crops	-	-	-	-
<b>PC26.</b> identify the symptoms of pest and disease infestation in herbal spice crops, such as aphids, whiteflies, powdery mildew, root rot, etc.	-	-	-	-
<b>PC27.</b> select and prepare the appropriate pesticide/insecticide for application and apply it using the appropriate plant protection equipment	-	-	-	-
<b>PC28.</b> follow the combination of appropriate cultural, mechanical and biological pest and disease control measures, as appropriate	-	-	-	-
<b>PC29.</b> ensure personal protection by using the appropriate PPE while applying pesticides/insecticides	-	-	-	-
<i>Perform harvesting and post-harvest management</i>	<b>4</b>	<b>5</b>	-	<b>4</b>
<b>PC30.</b> identify the maturity indices of the herbal spice crops and harvest them using the appropriate tools and implements	-	-	-	-
<b>PC31.</b> carry out post-harvest activities, such as cleaning and sun-drying, according to the type of herbal spice crop	-	-	-	-
<b>PC32.</b> store the harvested herbal spice crops under the recommended temperature and humidity, ensuring hygienic conditions in the storage	-	-	-	-
<b>PC33.</b> carry out sorting and grading of the produce based on the applicable parameters	-	-	-	-
<b>PC34.</b> pack the herbal spices in the appropriate packaging	-	-	-	-
<b>PC35.</b> follow the appropriate measures during harvesting and post-harvest handling to preserve the quality of produce	-	-	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Market herbal spices</i>	4	5	-	4
<b>PC36.</b> identify the buyers of herbal spices, such as eMandi, procurement agencies, traders, etc.	-	-	-	-
<b>PC37.</b> coordinate and negotiate with the buyer to secure a profitable price for the herbal spices	-	-	-	-
<b>PC38.</b> arrange an appropriate mode of transport to deliver herbal spices to the buyer	-	-	-	-
<b>PC39.</b> process the payments using the appropriate payment method including e-payment methods	-	-	-	-
<b>PC40.</b> calculate the benefit-cost (B:C) ratio	-	-	-	-
<b>PC41.</b> maintain the manual and/or electronic record of sales and payments using the physical registers and/or the relevant computer application	-	-	-	-
<b>NOS Total</b>	<b>30</b>	<b>40</b>	<b>-</b>	<b>30</b>

## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	AGR/N0629
<b>NOS Name</b>	Carry out the cultivation of herbal spice crops
<b>Sector</b>	Agriculture
<b>Sub-Sector</b>	Agriculture Crop Production
<b>Occupation</b>	Spice Crops Cultivation
<b>NSQF Level</b>	4
<b>Credits</b>	1
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	NA
<b>Next Review Date</b>	29/03/2026
<b>NSQC Clearance Date</b>	29/03/2023

## Qualification Pack

### AGR/N0630: Carry out cultivation of seed spice crops

#### Description

This OS unit is about the cultivation of seed spice crops which includes field preparation, seed sowing activities, crop maintenance, harvesting and post-harvest activities.

#### Scope

The scope covers the following :

- Prepare the field for sowing seeds
- Sow the seeds of seed spice crop
- Maintain the seed spice crop
- Perform harvesting and post-harvest management
- Market seed spices

#### Elements and Performance Criteria

##### *Prepare the field for sowing seeds*

To be competent, the user/individual on the job must be able to:

- PC1.** select well-drained and loamy soil or sandy soil rich in organic matter according to the selected seed spice crop
- PC2.** carry out ploughing in the main field for the recommended number of times to achieve a fine tilth
- PC3.** incorporate the recommended quantity of Farm Yard Manure (FYM) in the field during its preparation for the cultivation of seed spice crops
- PC4.** create the appropriate type of bed in the field for sowing seeds of the selected seed spice crop
- PC5.** create water channels for irrigation and drainage or install an appropriate type of irrigation system for the irrigation of crop

##### *Sow the seeds of seed spice crop*

To be competent, the user/individual on the job must be able to:

- PC6.** procure seeds from government-approved sources, such as certified nurseries and vendors
- PC7.** carry out pre-sowing seed treatment using the recommended fungicide to protect them from relevant pests and diseases
- PC8.** carry out seed splitting according to the selected seed spice crop, e.g. coriander, to aid their germination and achieve a good germination percentage
- PC9.** sow seeds in the field, maintaining the appropriate planting density by following the recommended seed rate

##### *Maintain the seed spice crop*

To be competent, the user/individual on the job must be able to:

- PC10.** carry out top dressing after the recommended number of days after sowing for the irrigated crops

## Qualification Pack

- PC11.** irrigate the seed spice crops with an appropriate quantity of water following the recommended irrigation schedule
- PC12.** prepare and apply the recommended pre-emergence herbicide to suppress the emergence of weeds
- PC13.** carry out thinning after an appropriate number of days after sowing and perform weeding, when necessary
- PC14.** follow the appropriate preventive measures to control pest and disease infestation in oil-yielding spice crops
- PC15.** identify the symptoms of pest and disease infestation in seed spice crops, such as aphids, powdery mildew, wilt, root rot, etc.
- PC16.** select and prepare the appropriate pesticides/insecticides and apply them using the appropriate plant protection equipment
- PC17.** ensure personal protection by using the appropriate PPE while applying pesticides/insecticides
- PC18.** follow the combination of appropriate cultural, mechanical and biological pest and disease control measures, as appropriate

### *Perform harvesting and post-harvest management*

To be competent, the user/individual on the job must be able to:

- PC19.** identify the maturity indices of seed spice crops and harvest them using the appropriate tools and implements
- PC20.** carry out post-harvest activities, such as cleaning, sun-drying and threshing according to the type of seed spice crop
- PC21.** carry out sorting and grading of the produce based on the applicable parameters
- PC22.** store the harvested seed spice crops under the recommended temperature and humidity, ensuring hygienic conditions in the storage

### *Market seed spices*

To be competent, the user/individual on the job must be able to:

- PC23.** identify the buyers of seed spices, such as eMandi, procurement agencies, traders, etc.
- PC24.** coordinate and negotiate with the buyer to secure a profitable price for the seed spices
- PC25.** arrange an appropriate mode of transport to deliver seed spices to the buyer
- PC26.** follow the recommended measures to protect the seed spices from contamination while handling and transporting them
- PC27.** process the payments using the appropriate payment method including e-payment methods
- PC28.** calculate the benefit-cost (B:C) ratio
- PC29.** maintain the manual and/or electronic record of sales and payments using the physical registers and/or the relevant computer application

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** different seed spice crops and their characteristics
- KU2.** the benefits and nutraceutical properties of common seed spices
- KU3.** the appropriate agro-climatic conditions for the cultivation of seed spice crops

## Qualification Pack

- KU4.** different planting and cropping systems
- KU5.** the relevant intercultural operations
- KU6.** the agricultural inputs, tools, equipment and implements required for the cultivation of seed spice crops
- KU7.** the criteria for selecting an appropriate site for the cultivation of seed spice crops
- KU8.** the requirement of different agricultural inputs for the cultivation of seed spice crops
- KU9.** the process of propagating the seed spice crop seedlings in the nursery
- KU10.** how to prepare the field for the cultivation of different seed spice crops
- KU11.** the process of transplanting seedlings in the main field and the appropriate precautions to be taken
- KU12.** the recommended planting density for different seed spice crops
- KU13.** the irrigation requirement of different seed spice crops
- KU14.** the macro and micronutrient requirements of different seed spice crops and the appropriate organic and inorganic fertilizers to be used
- KU15.** the common types of weeds found in seed spice crops and how to control them
- KU16.** the relevant pests and diseases that affect seed spice crops and the appropriate preventive and remedial measures to be taken
- KU17.** the safe preparation and application of different types of pesticides
- KU18.** the use of appropriate plant protection equipment
- KU19.** the maturity indices of the different seed spice crops and the use of appropriate tools and implements for harvesting them
- KU20.** the post-harvest management processes relevant to seed spice crops
- KU21.** the appropriate measures to be followed during harvesting and post-harvest handling to preserve the quality of seed spice crop produce
- KU22.** the applicable parameters for the sorting and grading of produce
- KU23.** the applicable Good Agricultural Practices (GAP)
- KU24.** different types of buyers of seed spices
- KU25.** the process of negotiating with buyers
- KU26.** the appropriate packing material and mode of transport for seed spices
- KU27.** the recommended measures to be followed to protect seed spices from contamination while transporting them
- KU28.** the use of different payments methods, including e-payment methods
- KU29.** how to calculate the benefit-cost (B:C) ratio
- KU30.** the importance of maintaining records of sales and payments
- KU31.** how to maintain manual and electronic records using the physical registers and the relevant computer application

## Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** maintain work-related notes and records

## Qualification Pack

- GS2.** read the relevant literature to get the latest updates about the field of work
- GS3.** listen attentively to understand the instructions being given
- GS4.** communicate politely and professionally
- GS5.** coordinate with the co-workers to achieve the work objectives
- GS6.** plan and prioritize tasks to ensure timely completion
- GS7.** use of time and resources efficiently
- GS8.** take quick decisions to deal with any emergencies/ accidents

## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Prepare the field for sowing seeds</i>	<b>6</b>	<b>7</b>	-	<b>6</b>
<b>PC1.</b> select well-drained and loamy soil or sandy soil rich in organic matter according to the selected seed spice crop	-	-	-	-
<b>PC2.</b> carry out ploughing in the main field for the recommended number of times to achieve a fine tilth	-	-	-	-
<b>PC3.</b> incorporate the recommended quantity of Farm Yard Manure (FYM) in the field during its preparation for the cultivation of seed spice crops	-	-	-	-
<b>PC4.</b> create the appropriate type of bed in the field for sowing seeds of the selected seed spice crop	-	-	-	-
<b>PC5.</b> create water channels for irrigation and drainage or install an appropriate type of irrigation system for the irrigation of crop	-	-	-	-
<i>Sow the seeds of seed spice crop</i>	<b>6</b>	<b>8</b>	-	<b>5</b>
<b>PC6.</b> procure seeds from government-approved sources, such as certified nurseries and vendors	-	-	-	-
<b>PC7.</b> carry out pre-sowing seed treatment using the recommended fungicide to protect them from relevant pests and diseases	-	-	-	-
<b>PC8.</b> carry out seed splitting according to the selected seed spice crop, e.g. coriander, to aid their germination and achieve a good germination percentage	-	-	-	-
<b>PC9.</b> sow seeds in the field, maintaining the appropriate planting density by following the recommended seed rate	-	-	-	-
<i>Maintain the seed spice crop</i>	<b>6</b>	<b>8</b>	-	<b>6</b>
<b>PC10.</b> carry out top dressing after the recommended number of days after sowing for the irrigated crops	-	-	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC11.</b> irrigate the seed spice crops with an appropriate quantity of water following the recommended irrigation schedule	-	-	-	-
<b>PC12.</b> prepare and apply the recommended pre-emergence herbicide to suppress the emergence of weeds	-	-	-	-
<b>PC13.</b> carry out thinning after an appropriate number of days after sowing and perform weeding, when necessary	-	-	-	-
<b>PC14.</b> follow the appropriate preventive measures to control pest and disease infestation in oil-yielding spice crops	-	-	-	-
<b>PC15.</b> identify the symptoms of pest and disease infestation in seed spice crops, such as aphids, powdery mildew, wilt, root rot, etc.	-	-	-	-
<b>PC16.</b> select and prepare the appropriate pesticides/insecticides and apply them using the appropriate plant protection equipment	-	-	-	-
<b>PC17.</b> ensure personal protection by using the appropriate PPE while applying pesticides/insecticides	-	-	-	-
<b>PC18.</b> follow the combination of appropriate cultural, mechanical and biological pest and disease control measures, as appropriate	-	-	-	-
<i>Perform harvesting and post-harvest management</i>	<b>6</b>	<b>8</b>	-	<b>8</b>
<b>PC19.</b> identify the maturity indices of seed spice crops and harvest them using the appropriate tools and implements	-	-	-	-
<b>PC20.</b> carry out post-harvest activities, such as cleaning, sun-drying and threshing according to the type of seed spice crop	-	-	-	-
<b>PC21.</b> carry out sorting and grading of the produce based on the applicable parameters	-	-	-	-
<b>PC22.</b> store the harvested seed spice crops under the recommended temperature and humidity, ensuring hygienic conditions in the storage	-	-	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Market seed spices</i>	<b>6</b>	<b>9</b>	-	<b>5</b>
<b>PC23.</b> identify the buyers of seed spices, such as eMandi, procurement agencies, traders, etc.	-	-	-	-
<b>PC24.</b> coordinate and negotiate with the buyer to secure a profitable price for the seed spices	-	-	-	-
<b>PC25.</b> arrange an appropriate mode of transport to deliver seed spices to the buyer	-	-	-	-
<b>PC26.</b> follow the recommended measures to protect the seed spices from contamination while handling and transporting them	-	-	-	-
<b>PC27.</b> process the payments using the appropriate payment method including e-payment methods	-	-	-	-
<b>PC28.</b> calculate the benefit-cost (B:C) ratio	-	-	-	-
<b>PC29.</b> maintain the manual and/or electronic record of sales and payments using the physical registers and/or the relevant computer application	-	-	-	-
<b>NOS Total</b>	<b>30</b>	<b>40</b>	-	<b>30</b>

## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	AGR/N0630
<b>NOS Name</b>	Carry out cultivation of seed spice crops
<b>Sector</b>	Agriculture
<b>Sub-Sector</b>	Agriculture Crop Production
<b>Occupation</b>	Spice Crops Cultivation
<b>NSQF Level</b>	4
<b>Credits</b>	1
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	NA
<b>Next Review Date</b>	29/03/2026
<b>NSQC Clearance Date</b>	29/03/2023

## Qualification Pack

### AGR/N0631: Carry out cultivation of tree spice crops

#### Description

This OS unit is about cultivating tree spice crops, including propagating tree spice crop seedlings, field preparation, transplanting activities, crop maintenance, harvesting and post-harvest activities

#### Scope

The scope covers the following :

- Propagate tree spice crop seedlings
- Prepare the field for transplanting seedlings
- Transplant and maintain the seedlings
- Perform harvesting and post-harvest management
- Market tree spices

#### Elements and Performance Criteria

##### *Propagate tree spice crop seedlings*

To be competent, the user/individual on the job must be able to:

- PC1.** select the appropriate tree spice cultivars for cultivation
- PC2.** prepare the appropriate type of nursery bed for the propagation of tree spice crops seedlings
- PC3.** extract seeds from the ripe fruits of high-yielding trees and prepare them for sowing by de-pulping and drying them, as required
- PC4.** sow the seeds in the nursery bed within the appropriate duration as recommended for the selected tree spice crop
- PC5.** maintain the seedlings in the nursery to ensure their optimum growth, performing their nutrient, irrigation and health management
- PC6.** carry out vegetative propagation of the tree spice crop saplings, following the appropriate methods, e.g. budding and grafting
- PC7.** determine the readiness of seedlings for being transplanted in the main field and harvest them at the appropriate age using the relevant tools and implements
- PC8.** store the harvested seedlings at the recommended temperature and humidity to ensure their survival

##### *Prepare the field for transplanting seedlings*

To be competent, the user/individual on the job must be able to:

- PC9.** ensure the availability of the appropriate type of soil according to the selected tree spice crop, such as deep rich loams with high humus content/ laterite soils/well-drained clay/ red soil, etc.
- PC10.** prepare pits of the recommended dimensions in the main field, maintaining the recommended spacing between pits
- PC11.** apply the recommended bio-fertilizer and organic fertilizers in the pits before sowing

##### *Transplant and maintain the seedlings*

To be competent, the user/individual on the job must be able to:

## Qualification Pack

- PC12.** transplant seedlings in the pits, providing them immediate care, such as mulching and irrigation
- PC13.** arrange appropriate shading for the seedlings to protect them from direct sunlight
- PC14.** irrigate the tree spice crops with the recommended quantity according to the weather and the recommended irrigation schedule
- PC15.** apply the recommended organic and inorganic fertilizers to meet the macro and micronutrient needs of tree spice crops
- PC16.** identify weeds growing among the tree spice crop plants and carry out weeding using the appropriate tools and implements
- PC17.** follow the appropriate preventive measures to protect the tree spice crops from the relevant pests and diseases
- PC18.** identify the signs of pest and disease infestation in the tree spice crops, e.g. leaf-eating caterpillar, leaf rot, leaf spot, black spot, quick wilt, etc.
- PC19.** select the appropriate pesticide/insecticide and prepare it for application as per the manufacturer's instructions
- PC20.** apply pesticide//insecticide using the appropriate plant protection equipment, ensuring personal protection with the use of relevant PPE

### *Perform harvesting and post-harvest management*

To be competent, the user/individual on the job must be able to:

- PC21.** identify the maturity indices of the tree spice crops and harvest them at the appropriate stage using the relevant tools and implements
- PC22.** carry out post-harvest activities, such as cleaning and sun-drying according to the type of tree spice crop
- PC23.** store the harvested tree spice crops under the recommended temperature and humidity, ensuring hygienic conditions in the storage

### *Market tree spices*

To be competent, the user/individual on the job must be able to:

- PC24.** identify the buyers of tree spices, such as eMandi, procurement agencies, traders, etc.
- PC25.** coordinate and negotiate with the buyer to secure a profitable price for the tree spices
- PC26.** arrange an appropriate mode of transport to deliver tree spices to the buyer
- PC27.** follow the recommended measures to protect the tree spices from contamination while handling and transporting them
- PC28.** process the payments using the appropriate payment method including e-payment methods
- PC29.** calculate the benefit-cost (B:C) ratio
- PC30.** maintain the manual and/or electronic record of sales and payments using the physical registers and/or the relevant computer application

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** different tree spice crops and their characteristics
- KU2.** the benefits and nutraceutical properties of common tree spices
- KU3.** the appropriate agro-climatic conditions for the cultivation of tree spice crops

## Qualification Pack

- KU4.** different planting and cropping systems
- KU5.** the relevant intercultural operations
- KU6.** the agricultural inputs, tools, equipment and implements required for the cultivation of tree spice crops
- KU7.** the criteria for selecting an appropriate site for the cultivation of tree spice crops
- KU8.** the requirement of different agricultural inputs for the cultivation of tree spice crops
- KU9.** the process of propagating the tree spice crop seedlings in the nursery
- KU10.** how to prepare the field for the cultivation of different tree spice crops
- KU11.** the process of transplanting seedlings in the main field and the appropriate precautions to be taken
- KU12.** the recommended planting density for different tree spice crops
- KU13.** the irrigation requirement of different tree spice crops
- KU14.** the macro and micronutrient requirements of different tree spice crops and the appropriate organic and inorganic fertilizers to be used
- KU15.** the common types of weeds found in tree spice crops and how to control them
- KU16.** the relevant pests and diseases that affect tree spice crops and the appropriate preventive and remedial measures to be taken
- KU17.** the safe preparation and application of different types of pesticides
- KU18.** the use of appropriate plant protection equipment
- KU19.** the maturity indices of the different tree spice crops and the use of appropriate tools and implements for harvesting them
- KU20.** the post-harvest management processes relevant to tree spice crops
- KU21.** the appropriate measures to be followed during harvesting and post-harvest handling to preserve the quality of tree spice crop produce
- KU22.** the applicable parameters for the sorting and grading of produce
- KU23.** the applicable Good Agricultural Practices (GAP)
- KU24.** different types of buyers of tree spices
- KU25.** the process of negotiating with buyers
- KU26.** the appropriate packing material and mode of transport for tree spices
- KU27.** the recommended measures to be followed to protect tree spices from contamination while transporting them
- KU28.** the use of different payments methods, including e-payment methods
- KU29.** how to calculate the benefit-cost (B:C) ratio
- KU30.** the importance of maintaining records of sales and payments
- KU31.** how to maintain manual and electronic records using the physical registers and the relevant computer application

## Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** maintain work-related notes and records

## Qualification Pack

- GS2.** communicate clearly and politely
- GS3.** listen attentively to understand the instructions being given
- GS4.** read the relevant literature to get the latest updates about the field of work
- GS5.** plan and prioritize tasks to ensure timely completion
- GS6.** use of time and resources efficiently
- GS7.** identify appropriate solutions to work-related problems

## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Propagate tree spice crop seedlings</i>	<b>6</b>	<b>9</b>	-	<b>5</b>
<b>PC1.</b> select the appropriate tree spice cultivars for cultivation	-	-	-	-
<b>PC2.</b> prepare the appropriate type of nursery bed for the propagation of tree spice crops seedlings	-	-	-	-
<b>PC3.</b> extract seeds from the ripe fruits of high-yielding trees and prepare them for sowing by de-pulping and drying them, as required	-	-	-	-
<b>PC4.</b> sow the seeds in the nursery bed within the appropriate duration as recommended for the selected tree spice crop	-	-	-	-
<b>PC5.</b> maintain the seedlings in the nursery to ensure their optimum growth, performing their nutrient, irrigation and health management	-	-	-	-
<b>PC6.</b> carry out vegetative propagation of the tree spice crop saplings, following the appropriate methods, e.g. budding and grafting	-	-	-	-
<b>PC7.</b> determine the readiness of seedlings for being transplanted in the main field and harvest them at the appropriate age using the relevant tools and implements	-	-	-	-
<b>PC8.</b> store the harvested seedlings at the recommended temperature and humidity to ensure their survival	-	-	-	-
<i>Prepare the field for transplanting seedlings</i>	<b>6</b>	<b>8</b>	-	<b>8</b>
<b>PC9.</b> ensure the availability of the appropriate type of soil according to the selected tree spice crop, such as deep rich loams with high humus content/ laterite soils/well-drained clay/ red soil, etc.	-	-	-	-
<b>PC10.</b> prepare pits of the recommended dimensions in the main field, maintaining the recommended spacing between pits	-	-	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC11.</b> apply the recommended bio-fertilizer and organic fertilizers in the pits before sowing	-	-	-	-
<i>Transplant and maintain the seedlings</i>	<b>6</b>	<b>8</b>	-	<b>6</b>
<b>PC12.</b> transplant seedlings in the pits, providing them immediate care, such as mulching and irrigation	-	-	-	-
<b>PC13.</b> arrange appropriate shading for the seedlings to protect them from direct sunlight	-	-	-	-
<b>PC14.</b> irrigate the tree spice crops with the recommended quantity according to the weather and the recommended irrigation schedule	-	-	-	-
<b>PC15.</b> apply the recommended organic and inorganic fertilizers to meet the macro and micronutrient needs of tree spice crops	-	-	-	-
<b>PC16.</b> identify weeds growing among the tree spice crop plants and carry out weeding using the appropriate tools and implements	-	-	-	-
<b>PC17.</b> follow the appropriate preventive measures to protect the tree spice crops from the relevant pests and diseases	-	-	-	-
<b>PC18.</b> identify the signs of pest and disease infestation in the tree spice crops, e.g. leaf-eating caterpillar, leaf rot, leaf spot, black spot, quick wilt, etc.	-	-	-	-
<b>PC19.</b> select the appropriate pesticide/insecticide and prepare it for application as per the manufacturer's instructions	-	-	-	-
<b>PC20.</b> apply pesticide//insecticide using the appropriate plant protection equipment, ensuring personal protection with the use of relevant PPE	-	-	-	-
<i>Perform harvesting and post-harvest management</i>	<b>6</b>	<b>8</b>	-	<b>5</b>
<b>PC21.</b> identify the maturity indices of the tree spice crops and harvest them at the appropriate stage using the relevant tools and implements	-	-	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC22.</b> carry out post-harvest activities, such as cleaning and sun-drying according to the type of tree spice crop	-	-	-	-
<b>PC23.</b> store the harvested tree spice crops under the recommended temperature and humidity, ensuring hygienic conditions in the storage	-	-	-	-
<i>Market tree spices</i>	<b>6</b>	<b>7</b>	-	<b>6</b>
<b>PC24.</b> identify the buyers of tree spices, such as eMandi, procurement agencies, traders, etc.	-	-	-	-
<b>PC25.</b> coordinate and negotiate with the buyer to secure a profitable price for the tree spices	-	-	-	-
<b>PC26.</b> arrange an appropriate mode of transport to deliver tree spices to the buyer	-	-	-	-
<b>PC27.</b> follow the recommended measures to protect the tree spices from contamination while handling and transporting them	-	-	-	-
<b>PC28.</b> process the payments using the appropriate payment method including e-payment methods	-	-	-	-
<b>PC29.</b> calculate the benefit-cost (B:C) ratio	-	-	-	-
<b>PC30.</b> maintain the manual and/or electronic record of sales and payments using the physical registers and/or the relevant computer application	-	-	-	-
<b>NOS Total</b>	<b>30</b>	<b>40</b>	-	<b>30</b>

## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	AGR/N0631
<b>NOS Name</b>	Carry out cultivation of tree spice crops
<b>Sector</b>	Agriculture
<b>Sub-Sector</b>	Agriculture Crop Production
<b>Occupation</b>	Spice Crops Cultivation
<b>NSQF Level</b>	4
<b>Credits</b>	1
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	NA
<b>Next Review Date</b>	29/03/2026
<b>NSQC Clearance Date</b>	29/03/2023

## Qualification Pack

### AGR/N0632: Carry out cultivation of rhizomatous spice crops

#### Description

This OS unit is about cultivating rhizomatous spice crops, including nursery propagation of seedlings, field preparation, transplanting seedlings, crop maintenance, harvesting and post-harvest activities.

#### Scope

The scope covers the following :

- Propagate rhizomatous spice crop seedlings
- Prepare the field for transplanting seedlings
- Transplant and maintain the seedlings
- Perform harvesting and post-harvest management
- Market rhizomatous spices

#### Elements and Performance Criteria

##### *Propagate rhizomatous spice crop seedlings*

To be competent, the user/individual on the job must be able to:

- PC1.** select the appropriate rhizomatous spice crop cultivars for cultivation
- PC2.** ensure the availability of the appropriate type of soil for rhizomatous spice crop cultivation, such as well-drained loamy soil rich in humus, friable red loamy soil, etc.
- PC3.** prepare the appropriate type of nursery bed for the cultivation of rhizomatous spice crops
- PC4.** arrange the required quantity of seed and seed rhizomes for the cultivation of rhizomatous spice crop
- PC5.** treat the seeds and seed rhizomes using the appropriate fungicide in the recommended quantity
- PC6.** sow the treated seeds and seed rhizomes at the recommended planting density
- PC7.** maintain the rhizomatous spice crop seedlings in the nursery, performing their irrigation, nutrition and health management
- PC8.** determine the maturity of rhizomatous spice crop seedlings and harvest them at the appropriate age using the relevant tools and implements
- PC9.** store the harvested seedlings at the recommended temperature and humidity

##### *Prepare the field for transplanting seedlings*

To be competent, the user/individual on the job must be able to:

- PC10.** prepare the main field by carrying out ploughing for the recommended number of times using the appropriate implements, such as the chisel plough, disc plough and cultivator
- PC11.** apply lime in the field with laterite soil in the recommended quantity, incorporating it thoroughly
- PC12.** create pits of the recommended dimensions in the main field, filling them with well-decomposed manure
- PC13.** maintain the recommended spacing between the pits to allow adequate space for the plants to grow

## Qualification Pack

### *Transplant and maintain the seedlings*

To be competent, the user/individual on the job must be able to:

- PC14.** select healthy and disease-free whole or split mother and finger rhizomes for planting
- PC15.** carry out planting during the recommended weather for the optimum yield
- PC16.** plant rhizomes in the pits, providing them immediate care, such as mulching and irrigation
- PC17.** irrigate the rhizomatous spice crops with the recommended quantity according to the weather and the recommended irrigation schedule
- PC18.** apply the recommended organic and inorganic fertilizers to the rhizomatous crops according to their macro and micronutrient needs
- PC19.** carry out intercropping with the recommended crops for the best utilization of soil nutrients
- PC20.** identify weeds growing among the rhizomatous spice crop plants and carry out weeding using the appropriate tools and implements
- PC21.** follow the appropriate preventive measures to protect the rhizomatous spice crops from the relevant pests and diseases
- PC22.** identify the signs of pest and disease infestation in the rhizomatous spice crops, e.g. rhizome scale, shoot borer, leaf blotch, leaf spot, rhizome rot, etc.
- PC23.** select the appropriate pesticide/insecticide and prepare it for application as per the manufacturer's instructions
- PC24.** apply pesticide//insecticide using the appropriate plant protection equipment, ensuring personal protection with the use of relevant PPE

### *Perform harvesting and post-harvest management*

To be competent, the user/individual on the job must be able to:

- PC25.** identify the maturity indices of the rhizomatous spice crops
- PC26.** carry out ploughing in the field and collect rhizomes through hand picking or lift the clumps using a spade
- PC27.** carry out post-harvest activities, such as clearing mud and other extraneous matter adhering to the harvested rhizomatous spice crop
- PC28.** carry out sorting and grading of the produce based on the applicable parameters
- PC29.** store the harvested rhizomatous spice crop under the recommended temperature and humidity, ensuring hygienic conditions in the storage

### *Market rhizomatous spices*

To be competent, the user/individual on the job must be able to:

- PC30.** identify the buyers of rhizomatous spices, such as eMandi, procurement agencies, traders, etc.
- PC31.** coordinate and negotiate with the buyer to secure a profitable price for the rhizomatous spices
- PC32.** arrange an appropriate mode of transport to deliver rhizomatous spices to the buyer
- PC33.** follow the recommended measures to protect the rhizomatous spices from contamination while handling and transporting them
- PC34.** process the payments using the appropriate payment method including e-payment methods
- PC35.** calculate the benefit-cost (B:C) ratio
- PC36.** maintain the manual and/or electronic record of sales and payments using the physical registers and/or the relevant computer application

## Qualification Pack

### Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** different rhizomatous spice crops and their characteristics
- KU2.** the benefits and nutraceutical properties of common rhizomatous spices
- KU3.** the appropriate agro-climatic conditions for the cultivation of rhizomatous spice crops
- KU4.** different planting and cropping systems
- KU5.** the relevant intercultural operations
- KU6.** the agricultural inputs, tools, equipment and implements required for the cultivation of rhizomatous spice crops
- KU7.** the criteria for selecting an appropriate site for the cultivation of rhizomatous spice crops
- KU8.** the requirement of different agricultural inputs for the cultivation of rhizomatous spice crops
- KU9.** the process of propagating the rhizomatous spice crop seedlings in the nursery
- KU10.** how to prepare the field for the cultivation of different rhizomatous spice crops
- KU11.** the process of transplanting seedlings in the main field and the appropriate precautions to be taken
- KU12.** the recommended planting density for different rhizomatous spice crops
- KU13.** the irrigation requirement of different rhizomatous spice crops
- KU14.** the macro and micronutrient requirements of different rhizomatous spice crops and the appropriate organic and inorganic fertilizers to be used
- KU15.** the common types of weeds found in rhizomatous spice crops and how to control them
- KU16.** the relevant pests and diseases that affect rhizomatous crops and the appropriate preventive and remedial measures to be taken
- KU17.** the safe preparation and application of different types of pesticides
- KU18.** the use of appropriate plant protection equipment
- KU19.** the maturity indices of the different rhizomatous spice crops and the use of appropriate tools and implements for harvesting them
- KU20.** the post-harvest management processes relevant to rhizomatous spice crops
- KU21.** the appropriate measures to be followed during harvesting and post-harvest handling to preserve the quality of rhizomatous spice crop produce
- KU22.** the applicable parameters for the sorting and grading of produce
- KU23.** the applicable Good Agricultural Practices (GAP)
- KU24.** different types of buyers of rhizomatous spices
- KU25.** the process of negotiating with buyers
- KU26.** the appropriate packing material and mode of transport for rhizomatous spices
- KU27.** the recommended measures to be followed to protect rhizomatous spices from contamination while transporting them
- KU28.** the use of different payments methods, including e-payment methods
- KU29.** how to calculate the benefit-cost (B:C) ratio
- KU30.** the importance of maintaining records of sales and payments

## Qualification Pack

**KU31.** how to maintain manual and electronic records using the physical registers and the relevant computer application

### Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** maintain work-related notes and records
- GS2.** read the relevant literature to get the latest updates about the field of work
- GS3.** listen attentively to understand the instructions being given
- GS4.** communicate politely and professionally
- GS5.** coordinate with the co-workers to achieve the work objectives
- GS6.** plan and prioritize tasks to ensure timely completion
- GS7.** use of time and resources efficiently
- GS8.** take quick decisions to deal with any emergencies/ accidents

## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Propagate rhizomatous spice crop seedlings</i>	<b>6</b>	<b>8</b>	-	<b>5</b>
<b>PC1.</b> select the appropriate rhizomatous spice crop cultivars for cultivation	-	-	-	-
<b>PC2.</b> ensure the availability of the appropriate type of soil for rhizomatous spice crop cultivation, such as well-drained loamy soil rich in humus, friable red loamy soil, etc.	-	-	-	-
<b>PC3.</b> prepare the appropriate type of nursery bed for the cultivation of rhizomatous spice crops	-	-	-	-
<b>PC4.</b> arrange the required quantity of seed and seed rhizomes for the cultivation of rhizomatous spice crop	-	-	-	-
<b>PC5.</b> treat the seeds and seed rhizomes using the appropriate fungicide in the recommended quantity	-	-	-	-
<b>PC6.</b> sow the treated seeds and seed rhizomes at the recommended planting density	-	-	-	-
<b>PC7.</b> maintain the rhizomatous spice crop seedlings in the nursery, performing their irrigation, nutrition and health management	-	-	-	-
<b>PC8.</b> determine the maturity of rhizomatous spice crop seedlings and harvest them at the appropriate age using the relevant tools and implements	-	-	-	-
<b>PC9.</b> store the harvested seedlings at the recommended temperature and humidity	-	-	-	-
<i>Prepare the field for transplanting seedlings</i>	<b>6</b>	<b>7</b>	-	<b>6</b>
<b>PC10.</b> prepare the main field by carrying out ploughing for the recommended number of times using the appropriate implements, such as the chisel plough, disc plough and cultivator	-	-	-	-
<b>PC11.</b> apply lime in the field with laterite soil in the recommended quantity, incorporating it thoroughly	-	-	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC12.</b> create pits of the recommended dimensions in the main field, filling them with well-decomposed manure	-	-	-	-
<b>PC13.</b> maintain the recommended spacing between the pits to allow adequate space for the plants to grow	-	-	-	-
<i>Transplant and maintain the seedlings</i>	<b>6</b>	<b>8</b>	-	<b>6</b>
<b>PC14.</b> select healthy and disease-free whole or split mother and finger rhizomes for planting	-	-	-	-
<b>PC15.</b> carry out planting during the recommended weather for the optimum yield	-	-	-	-
<b>PC16.</b> plant rhizomes in the pits, providing them immediate care, such as mulching and irrigation	-	-	-	-
<b>PC17.</b> irrigate the rhizomatous spice crops with the recommended quantity according to the weather and the recommended irrigation schedule	-	-	-	-
<b>PC18.</b> apply the recommended organic and inorganic fertilizers to the rhizomatous crops according to their macro and micronutrient needs	-	-	-	-
<b>PC19.</b> carry out intercropping with the recommended crops for the best utilization of soil nutrients	-	-	-	-
<b>PC20.</b> identify weeds growing among the rhizomatous spice crop plants and carry out weeding using the appropriate tools and implements	-	-	-	-
<b>PC21.</b> follow the appropriate preventive measures to protect the rhizomatous spice crops from the relevant pests and diseases	-	-	-	-
<b>PC22.</b> identify the signs of pest and disease infestation in the rhizomatous spice crops, e.g. rhizome scale, shoot borer, leaf blotch, leaf spot, rhizome rot, etc.	-	-	-	-
<b>PC23.</b> select the appropriate pesticide/insecticide and prepare it for application as per the manufacturer's instructions	-	-	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC24.</b> apply pesticide//insecticide using the appropriate plant protection equipment, ensuring personal protection with the use of relevant PPE	-	-	-	-
<i>Perform harvesting and post-harvest management</i>	<b>6</b>	<b>8</b>	-	<b>8</b>
<b>PC25.</b> identify the maturity indices of the rhizomatous spice crops	-	-	-	-
<b>PC26.</b> carry out ploughing in the field and collect rhizomes through hand picking or lift the clumps using a spade	-	-	-	-
<b>PC27.</b> carry out post-harvest activities, such as clearing mud and other extraneous matter adhering to the harvested rhizomatous spice crop	-	-	-	-
<b>PC28.</b> carry out sorting and grading of the produce based on the applicable parameters	-	-	-	-
<b>PC29.</b> store the harvested rhizomatous spice crop under the recommended temperature and humidity, ensuring hygienic conditions in the storage	-	-	-	-
<i>Market rhizomatous spices</i>	<b>6</b>	<b>9</b>	-	<b>5</b>
<b>PC30.</b> identify the buyers of rhizomatous spices, such as eMandi, procurement agencies, traders, etc.	-	-	-	-
<b>PC31.</b> coordinate and negotiate with the buyer to secure a profitable price for the rhizomatous spices	-	-	-	-
<b>PC32.</b> arrange an appropriate mode of transport to deliver rhizomatous spices to the buyer	-	-	-	-
<b>PC33.</b> follow the recommended measures to protect the rhizomatous spices from contamination while handling and transporting them	-	-	-	-
<b>PC34.</b> process the payments using the appropriate payment method including e-payment methods	-	-	-	-
<b>PC35.</b> calculate the benefit-cost (B:C) ratio	-	-	-	-
<b>PC36.</b> maintain the manual and/or electronic record of sales and payments using the physical registers and/or the relevant computer application	-	-	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>NOS Total</b>	<b>30</b>	<b>40</b>	<b>-</b>	<b>30</b>

## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	AGR/N0632
<b>NOS Name</b>	Carry out cultivation of rhizomatous spice crops
<b>Sector</b>	Agriculture
<b>Sub-Sector</b>	Agriculture Crop Production
<b>Occupation</b>	Spice Crops Cultivation
<b>NSQF Level</b>	4
<b>Credits</b>	1
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	NA
<b>Next Review Date</b>	29/03/2026
<b>NSQC Clearance Date</b>	29/03/2023

## Qualification Pack

### AGR/N0633: Carry out cultivation of oil-yielding spice crops

#### Description

This OS unit is about the cultivation of oil-yielding spice crops, which includes nursery propagation of seedlings, field preparation, transplanting seedlings, crop maintenance, harvesting and post-harvest activities

#### Scope

The scope covers the following :

- Propagate oil-yielding spice crop seedlings
- Prepare the field and transplant seedlings
- Maintain the seedlings
- Perform harvesting and post-harvest management
- Market spice extract oils

#### Elements and Performance Criteria

##### *Propagate oil-yielding spice crop seedlings*

To be competent, the user/individual on the job must be able to:

- PC1.** select high-yielding and pest and disease-resistant varieties of oil-yielding spice crops for cultivation
- PC2.** check the availability of well-drained loam or sandy loam soils rich in organic matter for the cultivation of oil-yielding spice crops
- PC3.** check the soil's pH using a pH meter and apply the appropriate treatment to adjust the pH, as required
- PC4.** carry out vegetative propagation of oil-yielding spice crops through stolons in the nursery
- PC5.** ensure to undertake nursery propagation during the appropriate weather to prepare the planting material for the cultivation season on time

##### *Prepare the field and transplant seedlings*

To be competent, the user/individual on the job must be able to:

- PC6.** carry out ploughing and harrowing in the field for the recommended number of times to achieve a fine tilth
- PC7.** create beds of the recommended size with furrows in the field to facilitate irrigation and minimize the growth of weeds
- PC8.** prepare stolons for planting, cutting them into pieces of appropriate length
- PC9.** select the appropriate season for planting the oil-yielding spice crops to get a healthy yield
- PC10.** plant the stolons in furrows at the recommended planting depth and density
- PC11.** irrigate the planted stolons with the recommended quantity of water after planting

##### *Maintain the seedlings*

To be competent, the user/individual on the job must be able to:

- PC12.** apply the recommended organic and inorganic fertilizers in the recommended quantity to achieve the healthy growth of oil-yielding spice crop plants

## Qualification Pack

- PC13.** carry out regular irrigation in the field as per the recommended irrigation schedule and prevailing weather conditions
- PC14.** drain out excess water from the field to prevent waterlogging
- PC15.** identify the growth of weeds in the field and follow the mechanical, cultural, biological and chemical weed control methods in combination as appropriate
- PC16.** carry out crop rotation with the appropriate crops for optimal utilization of soil nutrients and control weed and pest infestation
- PC17.** follow the appropriate preventive measures to control pest and disease infestation in oil-yielding spice crops
- PC18.** identify the symptoms of pest and disease infestation in oil-yielding spice crops, such as hairy caterpillars, cutworms, stolon rot, leaf blight, etc.
- PC19.** select and prepare the appropriate pesticide/insecticide for application and apply it using the appropriate plant protection equipment
- PC20.** ensure personal protection by using the appropriate PPE while applying pesticides/insecticides

### *Perform harvesting and post-harvest management*

To be competent, the user/individual on the job must be able to:

- PC21.** identify the maturity indices of oil-yielding spice crops and harvest them using the appropriate tools and implements
- PC22.** follow the appropriate measures during harvesting and post-harvest handling to preserve the quality of produce, e.g. the oil content
- PC23.** undertake shade drying of the harvested oil-yielding spice crop for the recommended duration
- PC24.** carry out sorting and grading based on the applicable parameters
- PC25.** store the oil-yielding spice crop under the recommended temperature for an appropriate duration
- PC26.** carry out distillation to extract oil from the harvested oil-yielding spice crop
- PC27.** perform oil purification using the appropriate tools, equipment and recommended compounds
- PC28.** pack the purified oil using the appropriate packaging, e.g. Polyvinyl Chloride (PVC) drums, Galvanized Iron (GI) drums or aluminium containers

### *Market spice extract oils*

To be competent, the user/individual on the job must be able to:

- PC29.** identify the buyers of spice extract oils, such as eMandi, procurement agencies, traders, etc.
- PC30.** coordinate and negotiate with the buyer to secure a profitable price for the spice extract oils
- PC31.** arrange an appropriate mode of transport to deliver spice extract oils to the buyer
- PC32.** follow the recommended measures to protect the spice extract oils from contamination while transporting them
- PC33.** process the payments using the appropriate payment method including e-payment methods
- PC34.** calculate the benefit-cost (B:C) ratio
- PC35.** maintain the manual and/or electronic record of sales and payments using the physical registers and/or the relevant computer application

## Qualification Pack

### Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** different oil-yielding spice crops and their characteristics
- KU2.** the benefits and nutraceutical properties of common oil-yielding spices
- KU3.** the appropriate agro-climatic conditions for the cultivation of oil-yielding spice crops
- KU4.** different planting and cropping systems
- KU5.** the relevant intercultural operations
- KU6.** the agricultural inputs, tools, equipment and implements required for the cultivation of oil-yielding spice crops
- KU7.** the criteria for selecting an appropriate site for the cultivation of oil-yielding spice crops
- KU8.** the requirement of different agricultural inputs for the cultivation of oil-yielding spice crops
- KU9.** the process of propagating the oil-yielding spice crop seedlings in the nursery
- KU10.** how to prepare the field for the cultivation of different oil-yielding spice crops
- KU11.** the process of transplanting seedlings in the main field and the appropriate precautions to be taken
- KU12.** the recommended planting density for different oil-yielding spice crops
- KU13.** the irrigation requirement of different oil-yielding spice crops
- KU14.** the macro and micronutrient requirements of different oil-yielding spice crops and the appropriate organic and inorganic fertilizers to be used
- KU15.** the common types of weeds found in oil-yielding spice crops and how to control them
- KU16.** the relevant pests and diseases that affect tree oil-yielding crops and the appropriate preventive and remedial measures to be taken
- KU17.** the safe preparation and application of different types of pesticides
- KU18.** the use of appropriate plant protection equipment
- KU19.** the maturity indices of the different oil-yielding spice crops and the use of appropriate tools and implements for harvesting them
- KU20.** the post-harvest management processes relevant to oil-yielding spice crops and the use of relevant tools and equipment
- KU21.** the appropriate measures to be followed during harvesting and post-harvest handling to preserve the quality of oil-yielding spice crop produce
- KU22.** the applicable parameters for the sorting and grading of produce
- KU23.** the applicable Good Agricultural Practices (GAP)
- KU24.** different types of buyers of spice extract oils
- KU25.** the process of negotiating with buyers
- KU26.** the appropriate packing material and mode of transport for spice extract oils
- KU27.** the recommended measures to be followed to protect spice extract oils from contamination while transporting them
- KU28.** the use of different payments methods, including e-payment methods
- KU29.** how to calculate the benefit-cost (B:C) ratio
- KU30.** the importance of maintaining records of sales and payments

## Qualification Pack

**KU31.** how to maintain manual and electronic records using the physical registers and the relevant computer application

### Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** maintain work-related notes and records
- GS2.** communicate clearly and politely
- GS3.** listen attentively to understand the instructions being given
- GS4.** read the relevant literature to get the latest updates about the field of work
- GS5.** plan and prioritize tasks to ensure timely completion
- GS6.** use of time and resources efficiently
- GS7.** identify appropriate solutions to work-related problems

## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Propagate oil-yielding spice crop seedlings</i>	<b>6</b>	<b>7</b>	-	<b>6</b>
<b>PC1.</b> select high-yielding and pest and disease-resistant varieties of oil-yielding spice crops for cultivation	-	-	-	-
<b>PC2.</b> check the availability of well-drained loam or sandy loam soils rich in organic matter for the cultivation of oil-yielding spice crops	-	-	-	-
<b>PC3.</b> check the soil's pH using a pH meter and apply the appropriate treatment to adjust the pH, as required	-	-	-	-
<b>PC4.</b> carry out vegetative propagation of oil-yielding spice crops through stolons in the nursery	-	-	-	-
<b>PC5.</b> ensure to undertake nursery propagation during the appropriate weather to prepare the planting material for the cultivation season on time	-	-	-	-
<i>Prepare the field and transplant seedlings</i>	<b>6</b>	<b>8</b>	-	<b>5</b>
<b>PC6.</b> carry out ploughing and harrowing in the field for the recommended number of times to achieve a fine tilth	-	-	-	-
<b>PC7.</b> create beds of the recommended size with furrows in the field to facilitate irrigation and minimize the growth of weeds	-	-	-	-
<b>PC8.</b> prepare stolons for planting, cutting them into pieces of appropriate length	-	-	-	-
<b>PC9.</b> select the appropriate season for planting the oil-yielding spice crops to get a healthy yield	-	-	-	-
<b>PC10.</b> plant the stolons in furrows at the recommended planting depth and density	-	-	-	-
<b>PC11.</b> irrigate the planted stolons with the recommended quantity of water after planting	-	-	-	-
<i>Maintain the seedlings</i>	<b>6</b>	<b>8</b>	-	<b>6</b>

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC12.</b> apply the recommended organic and inorganic fertilizers in the recommended quantity to achieve the healthy growth of oil-yielding spice crop plants	-	-	-	-
<b>PC13.</b> carry out regular irrigation in the field as per the recommended irrigation schedule and prevailing weather conditions	-	-	-	-
<b>PC14.</b> drain out excess water from the field to prevent waterlogging	-	-	-	-
<b>PC15.</b> identify the growth of weeds in the field and follow the mechanical, cultural, biological and chemical weed control methods in combination as appropriate	-	-	-	-
<b>PC16.</b> carry out crop rotation with the appropriate crops for optimal utilization of soil nutrients and control weed and pest infestation	-	-	-	-
<b>PC17.</b> follow the appropriate preventive measures to control pest and disease infestation in oil-yielding spice crops	-	-	-	-
<b>PC18.</b> identify the symptoms of pest and disease infestation in oil-yielding spice crops, such as hairy caterpillars, cutworms, stolon rot, leaf blight, etc.	-	-	-	-
<b>PC19.</b> select and prepare the appropriate pesticide/insecticide for application and apply it using the appropriate plant protection equipment	-	-	-	-
<b>PC20.</b> ensure personal protection by using the appropriate PPE while applying pesticides/insecticides	-	-	-	-
<i>Perform harvesting and post-harvest management</i>	<b>6</b>	<b>8</b>	-	<b>8</b>
<b>PC21.</b> identify the maturity indices of oil-yielding spice crops and harvest them using the appropriate tools and implements	-	-	-	-
<b>PC22.</b> follow the appropriate measures during harvesting and post-harvest handling to preserve the quality of produce, e.g. the oil content	-	-	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC23.</b> undertake shade drying of the harvested oil-yielding spice crop for the recommended duration	-	-	-	-
<b>PC24.</b> carry out sorting and grading based on the applicable parameters	-	-	-	-
<b>PC25.</b> store the oil-yielding spice crop under the recommended temperature for an appropriate duration	-	-	-	-
<b>PC26.</b> carry out distillation to extract oil from the harvested oil-yielding spice crop	-	-	-	-
<b>PC27.</b> perform oil purification using the appropriate tools, equipment and recommended compounds	-	-	-	-
<b>PC28.</b> pack the purified oil using the appropriate packaging, e.g. Polyvinyl Chloride (PVC) drums, Galvanized Iron (GI) drums or aluminium containers	-	-	-	-
<i>Market spice extract oils</i>	<b>6</b>	<b>9</b>	-	<b>5</b>
<b>PC29.</b> identify the buyers of spice extract oils, such as eMandi, procurement agencies, traders, etc.	-	-	-	-
<b>PC30.</b> coordinate and negotiate with the buyer to secure a profitable price for the spice extract oils	-	-	-	-
<b>PC31.</b> arrange an appropriate mode of transport to deliver spice extract oils to the buyer	-	-	-	-
<b>PC32.</b> follow the recommended measures to protect the spice extract oils from contamination while transporting them	-	-	-	-
<b>PC33.</b> process the payments using the appropriate payment method including e-payment methods	-	-	-	-
<b>PC34.</b> calculate the benefit-cost (B:C) ratio	-	-	-	-
<b>PC35.</b> maintain the manual and/or electronic record of sales and payments using the physical registers and/or the relevant computer application	-	-	-	-
<b>NOS Total</b>	<b>30</b>	<b>40</b>	-	<b>30</b>

## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	AGR/N0633
<b>NOS Name</b>	Carry out cultivation of oil-yielding spice crops
<b>Sector</b>	Agriculture
<b>Sub-Sector</b>	Agriculture Crop Production
<b>Occupation</b>	Spice Crops Cultivation
<b>NSQF Level</b>	4
<b>Credits</b>	1
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	NA
<b>Next Review Date</b>	29/03/2026
<b>NSQC Clearance Date</b>	29/03/2023

## Qualification Pack

### AGR/N0634: Carry out cultivation of pod spice crops

#### Description

This OS unit is about cultivating pod spice crops, including nursery propagation of seedlings, field preparation, transplanting seedlings, crop maintenance, harvesting and post-harvest activities.

#### Scope

The scope covers the following :

- Propagate pod spice crop seedlings
- Prepare the field and transplant seedlings
- Maintain the seedlings
- Perform harvesting and post-harvest management
- Market pod spices

#### Elements and Performance Criteria

##### *Propagate pod spice crop seedlings*

To be competent, the user/individual on the job must be able to:

- PC1.** select appropriate varieties of pod spice crops for cultivation
- PC2.** check the availability of loamy soil for pod spice crop cultivation
- PC3.** ensure the site selected for pod spice crop cultivation does not experience high-velocity winds
- PC4.** select the appropriate season for the cultivation of pod spice crops
- PC5.** collect pod spice crop seeds from healthy and high-yielding plants
- PC6.** treat the seeds using the appropriate fungicide
- PC7.** prepare the nursery bed of the appropriate size, incorporating well-rotten manure, wood ash and jungle soil
- PC8.** check the soil's pH using a pH meter and apply the appropriate treatment, e.g. lime, to adjust the pH, as required
- PC9.** sow seeds in the nursery bed at the recommended seed rate and cover the nursery bed with a thin layer of fine sand
- PC10.** arrange appropriate shading to protect the nursery bed and seedlings from direct sunlight
- PC11.** carry out mulching to preserve soil moisture in the nursery bed
- PC12.** establish clonal/secondary nursery for large-scale multiplication of high-yielding varieties of pod spice crop
- PC13.** harvest the seedlings from the primary nursery bed after the recommended duration and transplant them into the secondary nursery bed
- PC14.** maintain the recommended planting density in the secondary nursery bed
- PC15.** carry out vegetative propagation of pod spice crop saplings through suckers, if required
- PC16.** determine the maturity of seedlings/saplings for being transplanted in the field and harvest them using the appropriate tools and implements

## Qualification Pack

### *Prepare the field and transplant seedlings*

To be competent, the user/individual on the job must be able to:

- PC17.** prepare pits of the recommended dimensions in the main field at the recommended spacing
- PC18.** install the appropriate irrigation system
- PC19.** arrange appropriate shade in the field to protect the seedlings from direct sunlight
- PC20.** transplant the seedlings in the main field and provide them immediate aftercare, e.g. mulching and irrigation

### *Maintain the seedlings*

To be competent, the user/individual on the job must be able to:

- PC21.** irrigate the pod spice crop plants as per the recommended irrigation schedule and prevailing weather conditions
- PC22.** regulate the shade in the field according to the rainfed and irrigated cultivation
- PC23.** follow the appropriate preventive measures to control pest and disease infestation in pod spice crops
- PC24.** identify the symptoms of pest and disease infestation in the pod spice crops, e.g. thrips, hairy caterpillar, shoot borer, mosaic disease, capsule rot, etc.
- PC25.** select and prepare the appropriate pesticide/insecticide for application and apply it using the appropriate plant protection equipment
- PC26.** ensure personal protection by using the appropriate PPE while applying pesticides/insecticides
- PC27.** follow the combination of appropriate cultural, mechanical and biological pest and disease control measures, as appropriate
- PC28.** carry out fumigation in the field, as appropriate

### *Perform harvesting and post-harvest management*

To be competent, the user/individual on the job must be able to:

- PC29.** identify the maturity indices of pod spice crops and harvest them using the appropriate tools and implements, ensuring to harvest the crop at the appropriate stage
- PC30.** follow the appropriate measures during harvesting and post-harvest handling to preserve the quality of produce
- PC31.** sort and grade the produce based on the applicable parameters
- PC32.** store the harvested crop at the recommended temperature and humidity, ensuring hygienic conditions in the storage

### *Market pod spices*

To be competent, the user/individual on the job must be able to:

- PC33.** identify the buyers of pod spices, such as eMandi, procurement agencies, traders, etc.
- PC34.** coordinate and negotiate with the buyer to secure a profitable price for the pod spices
- PC35.** arrange an appropriate mode of transport to deliver pod spices to the buyer
- PC36.** process the payments using the appropriate payment method including e-payment methods
- PC37.** calculate the benefit-cost (B:C) ratio
- PC38.** maintain the manual and/or electronic record of sales and payments using the physical registers and/or the relevant computer application

## Knowledge and Understanding (KU)

## Qualification Pack

The individual on the job needs to know and understand:

- KU1.** different pod spice crops and their characteristics
- KU2.** the benefits and nutraceutical properties of common pod spices
- KU3.** the appropriate agro-climatic conditions for the cultivation of pod spice crops
- KU4.** different planting and cropping systems
- KU5.** the relevant intercultural operations
- KU6.** the agricultural inputs, tools, equipment and implements required for the cultivation of pod spice crops
- KU7.** the criteria for selecting an appropriate site for the cultivation of pod spice crops
- KU8.** the requirement of different agricultural inputs for the cultivation of pod spice crops
- KU9.** the process of propagating the pod spice crop seedlings in the nursery
- KU10.** the requirement of setting up a clonal/secondary nursery
- KU11.** how to prepare the field for the cultivation of different pod spice crops
- KU12.** the process of transplanting seedlings in the main field and the appropriate precautions
- KU13.** the recommended planting density for different pod spice crops
- KU14.** the irrigation requirement of different pod spice crops
- KU15.** the macro and micronutrient requirements of different pod spice crops and the appropriate organic and inorganic fertilizers to be used
- KU16.** the common types of weeds found in pod spice crops and how to control them
- KU17.** the relevant pests and diseases that affect the pod crops and the appropriate preventive and remedial measures to be taken
- KU18.** the safe preparation and application of different types of pesticides
- KU19.** the use of appropriate plant protection equipment
- KU20.** the maturity indices of the different pod spice crops and the use of appropriate tools and implements for harvesting them
- KU21.** the post-harvest management processes relevant to pod spice crops
- KU22.** the appropriate measures to be followed during harvesting and post-harvest handling to preserve the quality of pod spice crop produce
- KU23.** the applicable parameters for the sorting and grading of produce
- KU24.** the applicable Good Agricultural Practices (GAP)
- KU25.** different types of buyers of pod spices
- KU26.** the process of negotiating with buyers
- KU27.** the appropriate packing material and mode of transport for pod spices
- KU28.** the recommended measures to be followed to protect pod spices from contamination while transporting them
- KU29.** the use of different payments methods, including e-payment methods
- KU30.** how to calculate the benefit-cost (B:C) ratio
- KU31.** the importance of maintaining records of sales and payments
- KU32.** how to maintain manual and electronic records using the physical registers and the relevant computer application

## Qualification Pack

### Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** maintain work-related notes and records
- GS2.** read the relevant literature to get the latest updates about the field of work
- GS3.** listen attentively to understand the instructions being given
- GS4.** communicate politely and professionally
- GS5.** coordinate with the co-workers to achieve the work objectives
- GS6.** plan and prioritize tasks to ensure timely completion
- GS7.** use of time and resources efficiently
- GS8.** take quick decisions to deal with any emergencies/ accidents

## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Propagate pod spice crop seedlings</i>	<b>6</b>	<b>9</b>	-	<b>5</b>
<b>PC1.</b> select appropriate varieties of pod spice crops for cultivation	-	-	-	-
<b>PC2.</b> check the availability of loamy soil for pod spice crop cultivation	-	-	-	-
<b>PC3.</b> ensure the site selected for pod spice crop cultivation does not experience high-velocity winds	-	-	-	-
<b>PC4.</b> select the appropriate season for the cultivation of pod spice crops	-	-	-	-
<b>PC5.</b> collect pod spice crop seeds from healthy and high-yielding plants	-	-	-	-
<b>PC6.</b> treat the seeds using the appropriate fungicide	-	-	-	-
<b>PC7.</b> prepare the nursery bed of the appropriate size, incorporating well-rotten manure, wood ash and jungle soil	-	-	-	-
<b>PC8.</b> check the soil's pH using a pH meter and apply the appropriate treatment, e.g. lime, to adjust the pH, as required	-	-	-	-
<b>PC9.</b> sow seeds in the nursery bed at the recommended seed rate and cover the nursery bed with a thin layer of fine sand	-	-	-	-
<b>PC10.</b> arrange appropriate shading to protect the nursery bed and seedlings from direct sunlight	-	-	-	-
<b>PC11.</b> carry out mulching to preserve soil moisture in the nursery bed	-	-	-	-
<b>PC12.</b> establish clonal/secondary nursery for large-scale multiplication of high-yielding varieties of pod spice crop	-	-	-	-
<b>PC13.</b> harvest the seedlings from the primary nursery bed after the recommended duration and transplant them into the secondary nursery bed	-	-	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC14.</b> maintain the recommended planting density in the secondary nursery bed	-	-	-	-
<b>PC15.</b> carry out vegetative propagation of pod spice crop saplings through suckers, if required	-	-	-	-
<b>PC16.</b> determine the maturity of seedlings/saplings for being transplanted in the field and harvest them using the appropriate tools and implements	-	-	-	-
<i>Prepare the field and transplant seedlings</i>	<b>6</b>	<b>8</b>	-	<b>8</b>
<b>PC17.</b> prepare pits of the recommended dimensions in the main field at the recommended spacing	-	-	-	-
<b>PC18.</b> install the appropriate irrigation system	-	-	-	-
<b>PC19.</b> arrange appropriate shade in the field to protect the seedlings from direct sunlight	-	-	-	-
<b>PC20.</b> transplant the seedlings in the main field and provide them immediate aftercare, e.g. mulching and irrigation	-	-	-	-
<i>Maintain the seedlings</i>	<b>6</b>	<b>8</b>	-	<b>6</b>
<b>PC21.</b> irrigate the pod spice crop plants as per the recommended irrigation schedule and prevailing weather conditions	-	-	-	-
<b>PC22.</b> regulate the shade in the field according to the rainfed and irrigated cultivation	-	-	-	-
<b>PC23.</b> follow the appropriate preventive measures to control pest and disease infestation in pod spice crops	-	-	-	-
<b>PC24.</b> identify the symptoms of pest and disease infestation in the pod spice crops, e.g. thrips, hairy caterpillar, shoot borer, mosaic disease, capsule rot, etc.	-	-	-	-
<b>PC25.</b> select and prepare the appropriate pesticide/insecticide for application and apply it using the appropriate plant protection equipment	-	-	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC26.</b> ensure personal protection by using the appropriate PPE while applying pesticides/insecticides	-	-	-	-
<b>PC27.</b> follow the combination of appropriate cultural, mechanical and biological pest and disease control measures, as appropriate	-	-	-	-
<b>PC28.</b> carry out fumigation in the field, as appropriate	-	-	-	-
<i>Perform harvesting and post-harvest management</i>	<b>6</b>	<b>8</b>	-	<b>5</b>
<b>PC29.</b> identify the maturity indices of pod spice crops and harvest them using the appropriate tools and implements, ensuring to harvest the crop at the appropriate stage	-	-	-	-
<b>PC30.</b> follow the appropriate measures during harvesting and post-harvest handling to preserve the quality of produce	-	-	-	-
<b>PC31.</b> sort and grade the produce based on the applicable parameters	-	-	-	-
<b>PC32.</b> store the harvested crop at the recommended temperature and humidity, ensuring hygienic conditions in the storage	-	-	-	-
<i>Market pod spices</i>	<b>6</b>	<b>7</b>	-	<b>6</b>
<b>PC33.</b> identify the buyers of pod spices, such as eMandi, procurement agencies, traders, etc.	-	-	-	-
<b>PC34.</b> coordinate and negotiate with the buyer to secure a profitable price for the pod spices	-	-	-	-
<b>PC35.</b> arrange an appropriate mode of transport to deliver pod spices to the buyer	-	-	-	-
<b>PC36.</b> process the payments using the appropriate payment method including e-payment methods	-	-	-	-
<b>PC37.</b> calculate the benefit-cost (B:C) ratio	-	-	-	-
<b>PC38.</b> maintain the manual and/or electronic record of sales and payments using the physical registers and/or the relevant computer application	-	-	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>NOS Total</b>	<b>30</b>	<b>40</b>	<b>-</b>	<b>30</b>

## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	AGR/N0634
<b>NOS Name</b>	Carry out cultivation of pod spice crops
<b>Sector</b>	Agriculture
<b>Sub-Sector</b>	Agriculture Crop Production
<b>Occupation</b>	Spice Crops Cultivation
<b>NSQF Level</b>	4
<b>Credits</b>	1
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	NA
<b>Next Review Date</b>	29/03/2026
<b>NSQC Clearance Date</b>	29/03/2023

## Qualification Pack

### AGR/N0635: Carry out cultivation of berry spice crops

#### Description

This OS unit is about cultivating berry spice crops, including nursery propagation of seedlings, field preparation, transplanting seedlings, crop maintenance, harvesting and post-harvest activities.

#### Scope

The scope covers the following :

- Select an appropriate site
- Propagate berry spice crop saplings
- Prepare the field for transplanting saplings
- Transplant the saplings
- Maintain the berry spice crop vines/plants
- Carry out weeding and pruning
- Perform harvesting and post-harvest management
- Market berry spices

#### Elements and Performance Criteria

##### *Select an appropriate site*

To be competent, the user/individual on the job must be able to:

- PC1.** select a site with the recommended rainfall, temperature and humidity suitable for the cultivation of berry spice crops
- PC2.** ensure the site does not experience waterlogging and has well-drained soil, rich in organic content
- PC3.** check the availability of required inputs, such as labour, planting material, fertilizers, etc.

##### *Propagate berry spice crop saplings*

To be competent, the user/individual on the job must be able to:

- PC4.** extract runner shoots from high-yielding and healthy berry spice crop vines/plants
- PC5.** follow the recommended method to propagate berry spice crop seedlings/saplings, e.g. rooted cuttings through traditional/ rapid multiplication/ trench/ serpentine method for black pepper
- PC6.** plant the berry spice crop planting material, e.g. cuttings during the months recommended for the selected crop
- PC7.** maintain the saplings, applying appropriate organic and inorganic fertilizers to meet their nutrient requirements
- PC8.** follow the appropriate measures to protect them from relevant pests and diseases and apply the appropriate treatment to treat pest and disease infestation
- PC9.** harvest the saplings at the appropriate stage of growth and maintain them under the appropriate conditions to ensure their survival before transplantation

##### *Prepare the field for transplanting saplings*

To be competent, the user/individual on the job must be able to:

## Qualification Pack

**PC10.** carry out ploughing in the field to a fine tilth

**PC11.** prepare pits of the recommended dimensions at appropriate spacing for planting the berry crop saplings

**PC12.** fill in the pits with an appropriate quantity of FYM/compost mixed with topsoil

### *Transplant the saplings*

To be competent, the user/individual on the job must be able to:

**PC13.** transplant the berry spice crop saplings in the field taking the necessary precautions

**PC14.** maintain the appropriate planting depth and density while transplanting berry spice crop vines/plants

**PC15.** provide appropriate care to seedlings/saplings, e.g. application of water and recommended fertilizers

**PC16.** install appropriate support to train the growth of berry spice crop vines/plants

**PC17.** cultivate the recommended types of trees to train the berry spice crop vines during the later stages of their growth

### *Maintain the berry spice crop vines/plants*

To be competent, the user/individual on the job must be able to:

**PC18.** apply the recommended organic and inorganic fertilizers in the recommended quantity to achieve the healthy growth of berry spice crop vines/plants

**PC19.** follow the recommended schedule for applying fertilizers to the berry spice crop vines/plants

**PC20.** carry out irrigation with the recommended quantity of water as per the appropriate irrigation schedule

**PC21.** follow the appropriate preventive measures to control pest and disease infestation in berry spice crops

**PC22.** identify the symptoms of pest and disease infestation in berry spice crops, such as Leaf caterpillars, leaf gall and thrips, top shoot borer, foot rot, slow wilt, anthracnose, etc.

**PC23.** select and prepare the appropriate pesticide/insecticide for application and apply it using the appropriate plant protection equipment

**PC24.** apply the recommended treatment in an appropriate quantity to prevent spike shedding in berry spice crops

**PC25.** use the appropriate PPE while applying pesticides/insecticides to ensure personal protection

### *Carry out weeding and pruning*

To be competent, the user/individual on the job must be able to:

**PC26.** identify and remove weeds growing among the berry spice crop vines/plants

**PC27.** carry out weeding at the recommended intervals

**PC28.** identify vines/plants with excessive foliage and prune them using the appropriate tools and implements

### *Perform harvesting and post-harvest management*

To be competent, the user/individual on the job must be able to:

**PC29.** identify the maturity indices of the berry spice crops

**PC30.** select the appropriate months for harvesting the berry spice crop, according to the crop grown

**PC31.** carry out harvesting after the recommended number of years after planting the berry spice crops

## Qualification Pack

- PC32.** carry out post-harvest activities, such as dipping in hot water and sun drying
- PC33.** carry out sorting and grading of the produce based on the applicable parameters
- PC34.** store the harvested berry spice crop under the recommended temperature and humidity, ensuring hygienic conditions in the storage

### *Market the berry spices*

To be competent, the user/individual on the job must be able to:

- PC35.** identify the buyers of berry spices, such as procurement agencies, traders, exporters, etc.
- PC36.** negotiate with the identified buyer(s) to secure a profitable price for the crop
- PC37.** arrange an appropriate mode of transport to deliver berry spices to the buyer
- PC38.** follow the recommended measures to protect the berry spices from contamination while handling and transporting them
- PC39.** process the payments using the appropriate payment method including e-payment methods
- PC40.** calculate the benefit-cost (B:C) ratio
- PC41.** maintain the manual and/or electronic record of sales and payments using the physical registers and/or the relevant computer application

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** different berry spice crops and their characteristics
- KU2.** the appropriate agro-climatic conditions for the cultivation of berry spice crops
- KU3.** the intercultural operations relevant to berry spice crops
- KU4.** the agricultural inputs, tools, equipment and implements required for the cultivation of berry spice crops
- KU5.** the criteria for selecting an appropriate site for the cultivation of berry spice crops
- KU6.** the requirement of different agricultural inputs for the cultivation of berry spice crops
- KU7.** the process of propagating the berry spice crop saplings in the nursery
- KU8.** how to prepare the field for the cultivation of different berry spice crops
- KU9.** the process of transplanting seedlings in the main field and the appropriate precautions to be taken
- KU10.** the recommended planting depth and density for different berry spice crops
- KU11.** the irrigation requirement of different berry spice crops at different stages of their growth
- KU12.** the macro and micronutrient requirements of different berry spice crops and the appropriate organic and inorganic fertilizers to be used
- KU13.** the common types of weeds found in berry spice crops and how to control them
- KU14.** the relevant pests and diseases that affect the berry crops and the appropriate preventive and remedial measures to be taken
- KU15.** the safe preparation and application of different types of pesticides
- KU16.** the use of appropriate plant protection equipment
- KU17.** the maturity indices of the different berry spice crops and the use of appropriate tools and implements for harvesting them

## Qualification Pack

- KU18.** the post-harvest management processes relevant to berry spice crops
- KU19.** the appropriate measures to be followed during harvesting and post-harvest handling to preserve the quality of berry spice crop produce
- KU20.** the applicable parameters for the sorting and grading of produce
- KU21.** the applicable Good Agricultural Practices (GAP)
- KU22.** different types of buyers of berry spices
- KU23.** the appropriate packing material and mode of transport for berry spices
- KU24.** the recommended measures to be followed to protect berry spices from contamination while transporting them
- KU25.** the use of different payments methods, including e-payment methods
- KU26.** how to calculate the benefit-cost (B:C) ratio
- KU27.** the importance of maintaining records of sales and payments
- KU28.** how to maintain manual and electronic records using the physical registers and the relevant computer application

## Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** maintain work-related notes and records
- GS2.** read the relevant literature to get the latest updates about the field of work
- GS3.** listen attentively to understand the instructions being given
- GS4.** communicate politely and professionally
- GS5.** coordinate with the co-workers to achieve the work objectives
- GS6.** plan and prioritize tasks to ensure timely completion
- GS7.** use of time and resources efficiently
- GS8.** take quick decisions to deal with any emergencies/ accidents

## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Select an appropriate site</i>	<b>3</b>	<b>4</b>	-	<b>3</b>
<b>PC1.</b> select a site with the recommended rainfall, temperature and humidity suitable for the cultivation of berry spice crops	-	-	-	-
<b>PC2.</b> ensure the site does not experience waterlogging and has well-drained soil, rich in organic content	-	-	-	-
<b>PC3.</b> check the availability of required inputs, such as labour, planting material, fertilizers, etc.	-	-	-	-
<i>Propagate berry spice crop saplings</i>	<b>3</b>	<b>4</b>	-	<b>3</b>
<b>PC4.</b> extract runner shoots from high-yielding and healthy berry spice crop vines/plants	-	-	-	-
<b>PC5.</b> follow the recommended method to propagate berry spice crop seedlings/saplings, e.g. rooted cuttings through traditional/ rapid multiplication/ trench/ serpentine method for black pepper	-	-	-	-
<b>PC6.</b> plant the berry spice crop planting material, e.g. cuttings during the months recommended for the selected crop	-	-	-	-
<b>PC7.</b> maintain the saplings, applying appropriate organic and inorganic fertilizers to meet their nutrient requirements	-	-	-	-
<b>PC8.</b> follow the appropriate measures to protect them from relevant pests and diseases and apply the appropriate treatment to treat pest and disease infestation	-	-	-	-
<b>PC9.</b> harvest the saplings at the appropriate stage of growth and maintain them under the appropriate conditions to ensure their survival before transplantation	-	-	-	-
<i>Prepare the field for transplanting saplings</i>	<b>4</b>	<b>4</b>	-	<b>3</b>
<b>PC10.</b> carry out ploughing in the field to a fine tilth	-	-	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC11.</b> prepare pits of the recommended dimensions at appropriate spacing for planting the berry crop saplings	-	-	-	-
<b>PC12.</b> fill in the pits with an appropriate quantity of FYM/compost mixed with topsoil	-	-	-	-
<i>Transplant the saplings</i>	<b>3</b>	<b>5</b>	-	<b>4</b>
<b>PC13.</b> transplant the berry spice crop saplings in the field taking the necessary precautions	-	-	-	-
<b>PC14.</b> maintain the appropriate planting depth and density while transplanting berry spice crop vines/plants	-	-	-	-
<b>PC15.</b> provide appropriate care to seedlings/saplings, e.g. application of water and recommended fertilizers	-	-	-	-
<b>PC16.</b> install appropriate support to train the growth of berry spice crop vines/plants	-	-	-	-
<b>PC17.</b> cultivate the recommended types of trees to train the berry spice crop vines during the later stages of their growth	-	-	-	-
<i>Maintain the berry spice crop vines/plants</i>	<b>4</b>	<b>5</b>	-	<b>4</b>
<b>PC18.</b> apply the recommended organic and inorganic fertilizers in the recommended quantity to achieve the healthy growth of berry spice crop vines/plants	-	-	-	-
<b>PC19.</b> follow the recommended schedule for applying fertilizers to the berry spice crop vines/plants	-	-	-	-
<b>PC20.</b> carry out irrigation with the recommended quantity of water as per the appropriate irrigation schedule	-	-	-	-
<b>PC21.</b> follow the appropriate preventive measures to control pest and disease infestation in berry spice crops	-	-	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC22.</b> identify the symptoms of pest and disease infestation in berry spice crops, such as Leaf caterpillars, leaf gall and thrips, top shoot borer, foot rot, slow wilt, anthracnose, etc.	-	-	-	-
<b>PC23.</b> select and prepare the appropriate pesticide/insecticide for application and apply it using the appropriate plant protection equipment	-	-	-	-
<b>PC24.</b> apply the recommended treatment in an appropriate quantity to prevent spike shedding in berry spice crops	-	-	-	-
<b>PC25.</b> use the appropriate PPE while applying pesticides/insecticides to ensure personal protection	-	-	-	-
<i>Carry out weeding and pruning</i>	<b>4</b>	<b>6</b>	-	<b>4</b>
<b>PC26.</b> identify and remove weeds growing among the berry spice crop vines/plants	-	-	-	-
<b>PC27.</b> carry out weeding at the recommended intervals	-	-	-	-
<b>PC28.</b> identify vines/plants with excessive foliage and prune them using the appropriate tools and implements	-	-	-	-
<i>Perform harvesting and post-harvest management</i>	<b>4</b>	<b>6</b>	-	<b>4</b>
<b>PC29.</b> identify the maturity indices of the berry spice crops	-	-	-	-
<b>PC30.</b> select the appropriate months for harvesting the berry spice crop, according to the crop grown	-	-	-	-
<b>PC31.</b> carry out harvesting after the recommended number of years after planting the berry spice crops	-	-	-	-
<b>PC32.</b> carry out post-harvest activities, such as dipping in hot water and sun drying	-	-	-	-
<b>PC33.</b> carry out sorting and grading of the produce based on the applicable parameters	-	-	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC34.</b> store the harvested berry spice crop under the recommended temperature and humidity, ensuring hygienic conditions in the storage	-	-	-	-
<i>Market the berry spices</i>	<b>5</b>	<b>6</b>	-	<b>5</b>
<b>PC35.</b> identify the buyers of berry spices, such as procurement agencies, traders, exporters, etc.	-	-	-	-
<b>PC36.</b> negotiate with the identified buyer(s) to secure a profitable price for the crop	-	-	-	-
<b>PC37.</b> arrange an appropriate mode of transport to deliver berry spices to the buyer	-	-	-	-
<b>PC38.</b> follow the recommended measures to protect the berry spices from contamination while handling and transporting them	-	-	-	-
<b>PC39.</b> process the payments using the appropriate payment method including e-payment methods	-	-	-	-
<b>PC40.</b> calculate the benefit-cost (B:C) ratio	-	-	-	-
<b>PC41.</b> maintain the manual and/or electronic record of sales and payments using the physical registers and/or the relevant computer application	-	-	-	-
<b>NOS Total</b>	<b>30</b>	<b>40</b>	-	<b>30</b>

## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	AGR/N0635
<b>NOS Name</b>	Carry out cultivation of berry spice crops
<b>Sector</b>	Agriculture
<b>Sub-Sector</b>	Agriculture Crop Production
<b>Occupation</b>	Spice Crops Cultivation
<b>NSQF Level</b>	4
<b>Credits</b>	1
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	NA
<b>Next Review Date</b>	29/03/2026
<b>NSQC Clearance Date</b>	29/03/2023

## Qualification Pack

### AGR/N0636: Carry out cultivation of saffron

#### Description

This OS unit is about cultivating the saffron spice crop, including procuring and treating the planting material, field preparation and planting, crop maintenance, harvesting and post-harvest activities.

#### Scope

The scope covers the following :

- Select an appropriate site
- Arrange the planting material
- Sort and treat saffron corms
- Prepare the field and plant saffron corms
- Maintain the saffron plants
- Perform harvesting and post-harvest management
- Market the saffron

#### Elements and Performance Criteria

##### *Select an appropriate site*

To be competent, the user/individual on the job must be able to:

- PC1.** select a site with the recommended sunlight exposure, temperature and rainfall for the cultivation of saffron
- PC2.** check the site is located at an appropriate altitude suitable for the cultivation of saffron
- PC3.** check the soil at the site is appropriately textured and well-drained with the recommended pH
- PC4.** determine the availability of required inputs, such as planting material, fertilizers and labour at the site

##### *Arrange the planting material*

To be competent, the user/individual on the job must be able to:

- PC5.** identify the appropriate sources, e.g. Krishi Vigyan Kendra (KVK), agricultural universities and government-approved vendors, to procure saffron corms for saffron cultivation
- PC6.** check the quality of saffron corms to ensure they have the appropriate characteristics, e.g. recommended weight, for successful flowering and healthy growth
- PC7.** procure saffron corms in the required quantity and store them under the recommended temperature and humidity to maintain their quality

##### *Sort and treat saffron corms*

To be competent, the user/individual on the job must be able to:

- PC8.** identify and sort out the injured and diseased corms, if any
- PC9.** remove the outer scales of corms before planting
- PC10.** treat corms using the appropriate treatment before planting to control corm rot infection and other soil borne diseases

## Qualification Pack

**PC11.** dry the treated corms in shade for the recommended duration to achieve the appropriate moisture levels

### *Prepare the field and plant saffron corms*

To be competent, the user/individual on the job must be able to:

**PC12.** identify and remove debris and waste material from the field before ploughing

**PC13.** carry out deep ploughing in the field to remove weeds and roots and achieve the recommended tilth

**PC14.** carry out planking to crush the hard clods, smoothen the soil surface and compact the soil lightly

**PC15.** create drainage channels in the field to drain excess water and prevent waterlogging in saffron field

**PC16.** install the appropriate irrigation system in saffron field, e.g. sprinkler irrigation system to irrigate the saffron crop

**PC17.** plant saffron corms in rows at the recommended spacing and depth, following the recommended seed rate

**PC18.** maintain saffron corms in the correct position while planting them

**PC19.** provide appropriate care to the planted saffron corms, e.g. application of water and recommended fertilizers

### *Maintain the saffron plants*

To be competent, the user/individual on the job must be able to:

**PC20.** determine the water requirements of saffron plants based on their stage of growth and climatic conditions

**PC21.** carry out irrigation with the appropriate quantity of water, following the recommended irrigation schedule

**PC22.** carry out hoeing in the saffron field at the recommended intervals to ensure effective soil aeration for the healthy growth of saffron plants

**PC23.** adopt Integrated Nutrient Management (INM) strategies for the optimum growth of saffron plants

**PC24.** apply the recommended manures and bio-fertilizers in the recommended quantity to achieve the healthy growth of saffron plants

**PC25.** follow the recommended fertilizer application method, e.g. band application, and appropriate schedule as per the INM strategy

**PC26.** check the saffron field for infestation by rodent pests, e.g. rats and porcupines, and follow the appropriate control methods, such as fumigation of burrows to repel rodents and closing burrows

**PC27.** follow the appropriate pest and disease control measures, such as the adoption of natural enemies of saffron insect and mite pests, e.g. lacewing, ladybird beetle, predatory thrips, etc.

**PC28.** identify the symptoms of disease infestation in saffron plants, e.g. corm rot/dry rot, bacterial rot, bulb rot, and root rot, in saffron plants

**PC29.** select and prepare the appropriate pesticide treatment and apply it in the recommended quantity to eliminate saffron crop pests and diseases

**PC30.** follow the pesticide label instructions for the safe and effective application of pesticides, e.g. use of appropriate personal protection and plant protection equipment

## Qualification Pack

**PC31.** identify and remove weeds growing among the saffron plants

**PC32.** carry out weeding at the recommended intervals using the appropriate weeding tools and implements

### *Perform harvesting and post-harvest management*

To be competent, the user/individual on the job must be able to:

**PC33.** identify the maturity indices of saffron flowers

**PC34.** pick saffron flowers after the recommended duration following their emergence

**PC35.** maintain the appropriate hygiene standards while picking saffron flowers, e.g. use of gloves and collect them appropriate containers, such as craft paper bags and willow baskets

**PC36.** separate the stigma of saffron flowers within the recommended duration after flower picking to achieve the optimum pistil recovery

**PC37.** dry saffron at the recommended temperature using hot air dryer or solar dryer, to achieve the appropriate texture and flavour

**PC38.** pack the dry saffron in air-tight containers, maintaining the recommended moisture content

**PC39.** store the packed saffron at the recommended temperature ensuring hygienic conditions for its optimum shelf life

### *Market the saffron*

To be competent, the user/individual on the job must be able to:

**PC40.** identify the buyers of saffron, such as procurement agencies, traders, exporters, etc.

**PC41.** negotiate with the identified buyer(s) to secure a profitable price for the crop

**PC42.** arrange an appropriate mode of transport to deliver saffron to the buyer

**PC43.** follow the recommended measures to protect saffron from contamination during its handling and transporting them

**PC44.** process the payments using the appropriate payment method including e-payment methods

**PC45.** calculate the benefit-cost (B:C) ratio

**PC46.** maintain the manual and/or electronic record of sales and payments using the physical registers and/or the relevant computer application

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

**KU1.** the appropriate agro-climatic conditions suitable for the cultivation of saffron

**KU2.** the importance of procuring planting material and agricultural inputs from reliable sources, such as KVKs, agricultural universities and government-approved vendors

**KU3.** the appropriate quality characteristics to be checked while procuring saffron corms and the appropriate conditions for storing them before planting

**KU4.** the criteria for sorting out corms unsuitable for planting

**KU5.** the appropriate treatment to treat saffron corms before planting them

**KU6.** the importance of drying the treated corms to achieve the appropriate moisture levels for planting

**KU7.** the process of preparing the field for planting saffron corms, e.g. deep ploughing and planking

## Qualification Pack

- KU8.** the importance of creating drainage channels in saffron fields to prevent waterlogging
- KU9.** the benefit of using irrigation systems
- KU10.** the appropriate irrigation system to be used for irrigating the saffron crop
- KU11.** the process of planting saffron corms
- KU12.** the recommended spacing, depth and seed rate for saffron crop
- KU13.** the water requirements of saffron plants and the appropriate irrigation schedule
- KU14.** the importance of carrying out hoeing in the saffron field at the recommended intervals
- KU15.** the benefit of adopting Integrated Nutrient Management (INM) strategies for saffron cultivation
- KU16.** the recommended manures and bio-fertilizers to be applied to saffron plants and the appropriate fertilizer application method to be followed
- KU17.** the signs of pest and disease infestation in saffron plants and the appropriate preventive and remedial measures to be followed
- KU18.** the appropriate safety measures to be taken while preparing and applying pesticides
- KU19.** the common weeds found in saffron fields and the appropriate preventive and remedial measures
- KU20.** the maturity indices of saffron crop and the appropriate time to pick them
- KU21.** the appropriate hygiene measures to be taken while picking saffron flowers
- KU22.** the relevant post-harvest activities, e.g. separation of stigma and drying
- KU23.** the appropriate packing material to be used for packing saffron and the appropriate conditions for storing packed saffron
- KU24.** different types of buyers of saffron
- KU25.** the appropriate packing material and mode of transport for saffron
- KU26.** the recommended measures to be followed to protect saffron from contamination while transporting them
- KU27.** the use of different payments methods, including e-payment methods
- KU28.** how to calculate the benefit-cost (B:C) ratio
- KU29.** the importance of maintaining records of sales and payments
- KU30.** how to maintain manual and electronic records using the physical registers and the relevant computer application

## Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** maintain work-related notes and records
- GS2.** listen attentively to understand the instructions being given
- GS3.** communicate politely and professionally
- GS4.** read the relevant literature to get the latest updates about the field of work
- GS5.** plan and prioritize tasks to ensure timely completion
- GS6.** coordinate with the co-workers to achieve the work objectives
- GS7.** take quick decisions to deal with any emergencies/ accidents

## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Select an appropriate site</i>	<b>4</b>	<b>5</b>	-	<b>4</b>
<b>PC1.</b> select a site with the recommended sunlight exposure, temperature and rainfall for the cultivation of saffron	-	-	-	-
<b>PC2.</b> check the site is located at an appropriate altitude suitable for the cultivation of saffron	-	-	-	-
<b>PC3.</b> check the soil at the site is appropriately textured and well-drained with the recommended pH	-	-	-	-
<b>PC4.</b> determine the availability of required inputs, such as planting material, fertilizers and labour at the site	-	-	-	-
<i>Arrange the planting material</i>	<b>4</b>	<b>5</b>	-	<b>4</b>
<b>PC5.</b> identify the appropriate sources, e.g. Krishi Vigyan Kendra (KVK), agricultural universities and government-approved vendors, to procure saffron corms for saffron cultivation	-	-	-	-
<b>PC6.</b> check the quality of saffron corms to ensure they have the appropriate characteristics, e.g. recommended weight, for successful flowering and healthy growth	-	-	-	-
<b>PC7.</b> procure saffron corms in the required quantity and store them under the recommended temperature and humidity to maintain their quality	-	-	-	-
<i>Sort and treat saffron corms</i>	<b>4</b>	<b>5</b>	-	<b>4</b>
<b>PC8.</b> identify and sort out the injured and diseased corms, if any	-	-	-	-
<b>PC9.</b> remove the outer scales of corms before planting	-	-	-	-
<b>PC10.</b> treat corms using the appropriate treatment before planting to control corm rot infection and other soil borne diseases	-	-	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC11.</b> dry the treated corms in shade for the recommended duration to achieve the appropriate moisture levels	-	-	-	-
<i>Prepare the field and plant saffron corms</i>	<b>4</b>	<b>5</b>	-	<b>4</b>
<b>PC12.</b> identify and remove debris and waste material from the field before ploughing	-	-	-	-
<b>PC13.</b> carry out deep ploughing in the field to remove weeds and roots and achieve the recommended tilth	-	-	-	-
<b>PC14.</b> carry out planking to crush the hard clods, smoothen the soil surface and compact the soil lightly	-	-	-	-
<b>PC15.</b> create drainage channels in the field to drain excess water and prevent waterlogging in saffron field	-	-	-	-
<b>PC16.</b> install the appropriate irrigation system in saffron field, e.g. sprinkler irrigation system to irrigate the saffron crop	-	-	-	-
<b>PC17.</b> plant saffron corms in rows at the recommended spacing and depth, following the recommended seed rate	-	-	-	-
<b>PC18.</b> maintain saffron corms in the correct position while planting them	-	-	-	-
<b>PC19.</b> provide appropriate care to the planted saffron corms, e.g. application of water and recommended fertilizers	-	-	-	-
<i>Maintain the saffron plants</i>	<b>5</b>	<b>8</b>	-	<b>5</b>
<b>PC20.</b> determine the water requirements of saffron plants based on their stage of growth and climatic conditions	-	-	-	-
<b>PC21.</b> carry out irrigation with the appropriate quantity of water, following the recommended irrigation schedule	-	-	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC22.</b> carry out hoeing in the saffron field at the recommended intervals to ensure effective soil aeration for the healthy growth of saffron plants	-	-	-	-
<b>PC23.</b> adopt Integrated Nutrient Management (INM) strategies for the optimum growth of saffron plants	-	-	-	-
<b>PC24.</b> apply the recommended manures and bio-fertilizers in the recommended quantity to achieve the healthy growth of saffron plants	-	-	-	-
<b>PC25.</b> follow the recommended fertilizer application method, e.g. band application, and appropriate schedule as per the INM strategy	-	-	-	-
<b>PC26.</b> check the saffron field for infestation by rodent pests, e.g. rats and porcupines, and follow the appropriate control methods, such as fumigation of burrows to repel rodents and closing burrows	-	-	-	-
<b>PC27.</b> follow the appropriate pest and disease control measures, such as the adoption of natural enemies of saffron insect and mite pests, e.g. lacewing, ladybird beetle, predatory thrips, etc.	-	-	-	-
<b>PC28.</b> identify the symptoms of disease infestation in saffron plants, e.g. corm rot/dry rot, bacterial rot, bulb rot, and root rot, in saffron plants	-	-	-	-
<b>PC29.</b> select and prepare the appropriate pesticide treatment and apply it in the recommended quantity to eliminate saffron crop pests and diseases	-	-	-	-
<b>PC30.</b> follow the pesticide label instructions for the safe and effective application of pesticides, e.g. use of appropriate personal protection and plant protection equipment	-	-	-	-
<b>PC31.</b> identify and remove weeds growing among the saffron plants	-	-	-	-
<b>PC32.</b> carry out weeding at the recommended intervals using the appropriate weeding tools and implements	-	-	-	-
<i>Perform harvesting and post-harvest management</i>	<b>4</b>	<b>5</b>	-	<b>4</b>
<b>PC33.</b> identify the maturity indices of saffron flowers	-	-	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC34.</b> pick saffron flowers after the recommended duration following their emergence	-	-	-	-
<b>PC35.</b> maintain the appropriate hygiene standards while picking saffron flowers, e.g. use of gloves and collect them appropriate containers, such as craft paper bags and willow baskets	-	-	-	-
<b>PC36.</b> separate the stigma of saffron flowers within the recommended duration after flower picking to achieve the optimum pistil recovery	-	-	-	-
<b>PC37.</b> dry saffron at the recommended temperature using hot air dryer or solar dryer, to achieve the appropriate texture and flavour	-	-	-	-
<b>PC38.</b> pack the dry saffron in air-tight containers, maintaining the recommended moisture content	-	-	-	-
<b>PC39.</b> store the packed saffron at the recommended temperature ensuring hygienic conditions for its optimum shelf life	-	-	-	-
<i>Market the saffron</i>	<b>5</b>	<b>7</b>	-	<b>5</b>
<b>PC40.</b> identify the buyers of saffron, such as procurement agencies, traders, exporters, etc.	-	-	-	-
<b>PC41.</b> negotiate with the identified buyer(s) to secure a profitable price for the crop	-	-	-	-
<b>PC42.</b> arrange an appropriate mode of transport to deliver saffron to the buyer	-	-	-	-
<b>PC43.</b> follow the recommended measures to protect saffron from contamination during its handling and transporting them	-	-	-	-
<b>PC44.</b> process the payments using the appropriate payment method including e-payment methods	-	-	-	-
<b>PC45.</b> calculate the benefit-cost (B:C) ratio	-	-	-	-
<b>PC46.</b> maintain the manual and/or electronic record of sales and payments using the physical registers and/or the relevant computer application	-	-	-	-
<b>NOS Total</b>	<b>30</b>	<b>40</b>	-	<b>30</b>

## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	AGR/N0636
<b>NOS Name</b>	Carry out cultivation of saffron
<b>Sector</b>	Agriculture
<b>Sub-Sector</b>	Agriculture Crop Production
<b>Occupation</b>	Spice Crops Cultivation
<b>NSQF Level</b>	4
<b>Credits</b>	1
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	NA
<b>Next Review Date</b>	29/03/2026
<b>NSQC Clearance Date</b>	29/03/2023

## Assessment Guidelines and Assessment Weightage

### Assessment Guidelines

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) (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. Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training center (as per assessment criteria below).
4. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/ training center based on these criteria.
5. In case of successfully passing only certain number of NOSs, the trainee is eligible to take subsequent assessment on the balance NOS's to pass the Qualification Pack.
6. In case of unsuccessful completion, the trainee may seek reassessment on the Qualification Pack

## Qualification Pack

**Minimum Aggregate Passing % at QP Level : 70**

(Please note: Every Trainee should score a minimum aggregate passing percentage as specified above, to successfully clear the Qualification Pack assessment.)

## Assessment Weightage

Compulsory NOS

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
AGR/N0601.Perform soil fertility management for spice crops	30	40	0	30	100	20
AGR/N0602.Perform weed management in spice crops	30	40	0	30	100	10
AGR/N0603.Perform integrated pest and disease management in spice crops	30	40	0	30	100	20
AGR/N0604.Perform irrigation management in spice crops	30	40	0	30	100	10
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
<b>Total</b>	<b>180</b>	<b>215</b>	<b>-</b>	<b>155</b>	<b>550</b>	<b>70</b>

Elective: 1 Herbal Spices

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
AGR/N0629.Carry out the cultivation of herbal spice crops	30	40	0	30	100	30
<b>Total</b>	<b>30</b>	<b>40</b>	<b>-</b>	<b>30</b>	<b>100</b>	<b>30</b>

### Qualification Pack

#### Elective: 2 Seed Spices

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
AGR/N0630.Carry out cultivation of seed spice crops	30	40	0	30	100	30
<b>Total</b>	<b>30</b>	<b>40</b>	<b>-</b>	<b>30</b>	<b>100</b>	<b>30</b>

#### Elective: 3 Tree Spices

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
AGR/N0631.Carry out cultivation of tree spice crops	30	40	0	30	100	30
<b>Total</b>	<b>30</b>	<b>40</b>	<b>-</b>	<b>30</b>	<b>100</b>	<b>30</b>

#### Elective: 4 Rhizomatous Spices

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
AGR/N0632.Carry out cultivation of rhizomatous spice crops	30	40	0	30	100	30
<b>Total</b>	<b>30</b>	<b>40</b>	<b>-</b>	<b>30</b>	<b>100</b>	<b>30</b>

#### Elective: 5 Oil-yielding Spices

### Qualification Pack

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
AGR/N0633.Carry out cultivation of oil-yielding spice crops	30	40	0	30	100	30
<b>Total</b>	<b>30</b>	<b>40</b>	<b>-</b>	<b>30</b>	<b>100</b>	<b>30</b>

Elective: 6 Pod Spices

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
AGR/N0634.Carry out cultivation of pod spice crops	30	40	0	30	100	30
<b>Total</b>	<b>30</b>	<b>40</b>	<b>-</b>	<b>30</b>	<b>100</b>	<b>30</b>

Elective: 7 Berry Spices

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
AGR/N0635.Carry out cultivation of berry spice crops	30	40	0	30	100	30
<b>Total</b>	<b>30</b>	<b>40</b>	<b>-</b>	<b>30</b>	<b>100</b>	<b>30</b>

Elective: 8 Saffron

### Qualification Pack

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
AGR/N0636.Carry out cultivation of saffron	30	40	0	30	100	30
<b>Total</b>	<b>30</b>	<b>40</b>	<b>-</b>	<b>30</b>	<b>100</b>	<b>30</b>

## Qualification Pack

### Acronyms

<b>NOS</b>	National Occupational Standard(s)
<b>NSQF</b>	National Skills Qualifications Framework
<b>QP</b>	Qualifications Pack
<b>TVET</b>	Technical and Vocational Education and Training

## Qualification Pack

### Glossary

<b>Sector</b>	Sector is a conglomeration of different business operations having similar business and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests.
<b>Sub-sector</b>	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.
<b>Occupation</b>	Occupation is a set of job roles, which perform similar/ related set of functions in an industry.
<b>Job role</b>	Job role defines a unique set of functions that together form a unique employment opportunity in an organisation.
<b>Occupational Standards (OS)</b>	OS specify the standards of performance an individual must achieve when carrying out a function in the workplace, together with the Knowledge and Understanding (KU) they need to meet that standard consistently. Occupational Standards are applicable both in the Indian and global contexts.
<b>Performance Criteria (PC)</b>	Performance Criteria (PC) are statements that together specify the standard of performance required when carrying out a task.
<b>National Occupational Standards (NOS)</b>	NOS are occupational standards which apply uniquely in the Indian context.
<b>Qualifications Pack (QP)</b>	QP comprises the set of OS, together with the educational, training and other criteria required to perform a job role. A QP is assigned a unique qualifications pack code.
<b>Unit Code</b>	Unit code is a unique identifier for an Occupational Standard, which is denoted by an 'N'
<b>Unit Title</b>	Unit title gives a clear overall statement about what the incumbent should be able to do.
<b>Description</b>	Description gives a short summary of the unit content. This would be helpful to anyone searching on a database to verify that this is the appropriate OS they are looking for.
<b>Scope</b>	Scope is a set of statements specifying the range of variables that an individual may have to deal with in carrying out the function which have a critical impact on quality of performance required.

## Qualification Pack

<b>Knowledge and Understanding (KU)</b>	Knowledge and Understanding (KU) are statements which together specify the technical, generic, professional and organisational specific knowledge that an individual needs in order to perform to the required standard.
<b>Organisational Context</b>	Organisational context includes the way the organisation is structured and how it operates, including the extent of operative knowledge managers have of their relevant areas of responsibility.
<b>Technical Knowledge</b>	Technical knowledge is the specific knowledge needed to accomplish specific designated responsibilities.
<b>Core Skills/ Generic Skills (GS)</b>	Core skills or Generic Skills (GS) are a group of skills that are the key to learning and working in today's world. These skills are typically needed in any work environment in today's world. These skills are typically needed in any work environment. In the context of the OS, these include communication related skills that are applicable to most job roles.
<b>Electives</b>	Electives are NOS/set of NOS that are identified by the sector as contributive to specialization in a job role. There may be multiple electives within a QP for each specialized job role. Trainees must select at least one elective for the successful completion of a QP with Electives.
<b>Options</b>	Options are NOS/set of NOS that are identified by the sector as additional skills. There may be multiple options within a QP. It is not mandatory to select any of the options to complete a QP with Options.