

Qualification Pack



Vegetable Grower

Electives: Cole Crops / Leafy Vegetables / Salad Vegetables / Root Vegetables / Cucurbit Crops / Solanaceous Crops / Pod Vegetables / Bulb Vegetables / Perennial Vegetables / Tuber Vegetables / Okra

QP Code: AGR/Q0404

Version: 2.0

NSQF Level: 4

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Qualification Pack

Contents

AGR/Q0404: Vegetable Grower	3
<i>Brief Job Description</i>	3
Applicable National Occupational Standards (NOS)	3
<i>Compulsory NOS</i>	3
<i>Elective 1: Cole Crops</i>	3
<i>Elective 2: Leafy Vegetables</i>	3
<i>Elective 3: Salad Vegetables</i>	4
<i>Elective 4: Root Vegetables</i>	4
<i>Elective 5: Cucurbit Crops</i>	4
<i>Elective 6: Solanaceous Crops</i>	4
<i>Elective 7: Pod Vegetables</i>	4
<i>Elective 8: Bulb Vegetables</i>	4
<i>Elective 9: Perennial Vegetables</i>	4
<i>Elective 10: Tuber Vegetables</i>	5
<i>Elective 11: Okra</i>	5
<i>Qualification Pack (QP) Parameters</i>	5
AGR/N0414: Prepare for vegetable cultivation	7
AGR/N0415: Carry out sowing/planting of vegetables	11
AGR/N0401: Soil nutrient management in vegetable crops	16
AGR/N0402: Weed control and management in vegetable crops	20
AGR/N0403: Integrated pest and disease management in vegetable crops	24
AGR/N0404: Irrigation management in vegetable crops	30
AGR/N9908: Undertake basic entrepreneurial activities for small enterprise	34
AGR/N9903: Maintain health and safety at the workplace	41
DGT/VSQ/N0102: Employability Skills (60 Hours)	47
AGR/N0416: Grow cole crops in a farm	55
AGR/N0417: Grow leafy vegetables in a farm	61
AGR/N0418: Grow salad vegetables in a farm	67
AGR/N0419: Grow root vegetables in a farm	73
AGR/N0420: Grow cucurbit crops in a farm	79
AGR/N0421: Grow solanaceous crops in a farm	85
AGR/N0422: Grow pod vegetables in a farm	91
AGR/N0423: Grow bulb vegetables in a farm	97
AGR/N0424: Grow perennial vegetables in a farm	103
AGR/N0425: Grow tuber vegetables in a farm	109
AGR/N0426: Grow okra in a farm	115
Assessment Guidelines and Weightage	120
<i>Assessment Guidelines</i>	120
<i>Assessment Weightage</i>	121
Acronyms	126
Glossary	127

Qualification Pack

AGR/Q0404: Vegetable Grower

Brief Job Description

A vegetable grower carries out various activities in a farm for cultivation of vegetables, which include preparation of soil, selection of planting material, planting and nurturing the crop and harvesting and marketing the vegetable produce.

Personal Attributes

The individual must be physically strong and have the ability to perform manual work for long duration. The person must be able to manage workers, maintain interpersonal relationship and possess good organizational skills.

Applicable National Occupational Standards (NOS)

Compulsory NOS:

1. [AGR/N0414: Prepare for vegetable cultivation](#)
2. [AGR/N0415: Carry out sowing/planting of vegetables](#)
3. [AGR/N0401: Soil nutrient management in vegetable crops](#)
4. [AGR/N0402: Weed control and management in vegetable crops](#)
5. [AGR/N0403: Integrated pest and disease management in vegetable crops](#)
6. [AGR/N0404: Irrigation management in vegetable crops](#)
7. [AGR/N9908: Undertake basic entrepreneurial activities for small enterprise](#)
8. [AGR/N9903: Maintain health and safety at the workplace](#)
9. [DGT/VSQ/N0102: Employability Skills \(60 Hours\)](#)

Electives (mandatory to select at least one):

Elective 1: Cole Crops

Specializes in growing cole crops such as cauliflower, cabbage, knol-khol, chinese cabbage, broccoli and brussels in a farm.

1. [AGR/N0416: Grow cole crops in a farm](#)

Elective 2: Leafy Vegetables

Qualification Pack

Specializes in growing leafy crops such as spinach, leaf beet, coriander, fenugreek, amaranth and swiss chard in a farm.

1. [AGR/N0417: Grow leafy vegetables in a farm](#)

Elective 3: Salad Vegetables

Specializes in growing salad vegetables such as lettuce, celery, chicory and parsley in a farm.

1. [AGR/N0418: Grow salad vegetables in a farm](#)

Elective 4: Root Vegetables

Specializes in growing root crops such as radish, carrot, turnip, beetroot, parsnip and rutabaga in a farm.

1. [AGR/N0419: Grow root vegetables in a farm](#)

Elective 5: Cucurbit Crops

Specializes in growing cucurbit crops such as cucumber, gourds, pumpkin, melons, and summer squash in a farm.

1. [AGR/N0420: Grow cucurbit crops in a farm](#)

Elective 6: Solanaceous Crops

Specializes in growing solanaceous crops such as tomato, chilli, bell pepper and eggplant in a farm.

1. [AGR/N0421: Grow solanaceous crops in a farm](#)

Elective 7: Pod Vegetables

Specializes in growing pod crops in a farm, which are legume vegetables and belong to the pea family such as pea, french bean, dolichos bean, broad bean, cluster bean, lima bean, winged bean and cowpea.

1. [AGR/N0422: Grow pod vegetables in a farm](#)

Elective 8: Bulb Vegetables

Specializes in growing bulb crops such as onion, leek and garlic in a farm.

1. [AGR/N0423: Grow bulb vegetables in a farm](#)

Elective 9: Perennial Vegetables

Specializes in growing perennial crops such as asparagus, artichoke, ivy gourd and pointed gourd in a

Qualification Pack

farm.

1. [AGR/N0424: Grow perennial vegetables in a farm](#)

Elective 10: Tuber Vegetables

Specializes in growing tuber crops such as potato, sweet potato, taro, cassava/ tapioca and yams in a farm.

1. [AGR/N0425: Grow tuber vegetables in a farm](#)

Elective 11: Okra

Specializes in growing okra in a farm.

1. [AGR/N0426: Grow okra in a farm](#)

Qualification Pack (QP) Parameters

Sector	Agriculture
Sub-Sector	Agriculture Crop Production
Occupation	Vegetable Crops Cultivation
Country	India
NSQF Level	4
Credits	23
Aligned to NCO/ISCO/ISIC Code	NCO-2015/ 6111.1300

Qualification Pack

Minimum Educational Qualification & Experience	12th grade Pass OR Completed 2nd year of the 3-year diploma after 10 (and pursuing regular diploma) OR 10th grade pass (plus 2-year NTC) OR 10th grade pass (plus 1-year NTC plus 1 year NAC) OR 8th grade pass with 2 year NTC plus 1 year NAC plus 1 year CITS OR 10th grade pass and pursuing continuous schooling OR 10th grade pass with 2 Years of experience relevant experience OR Previous relevant Qualification of NSQF Level (Level 3.0 with minimum education as 8th Grade pass) with 3 Years of experience relevant experience OR Previous relevant Qualification of NSQF Level (Level 3.5 with 1.5- year relevant experience)
Minimum Level of Education for Training in School	10th Class
Pre-Requisite License or Training	NA
Minimum Job Entry Age	18 Years
Last Reviewed On	NA
Next Review Date	25/02/2024
NSQC Approval Date	25/02/2021
Version	2.0
Reference code on NQR	QG-04-AG-00298-2023-V1.1-ASCI
NQR Version	1.1

Qualification Pack

AGR/N0414: Prepare for vegetable cultivation

Description

This unit is about preparing the site, selecting the vegetable(s) to be grown and preparing quality planting materials.

Scope

The scope covers the following :

- Prepare the site and select vegetable(s) to be grown
- Prepare the planting material

Elements and Performance Criteria

Prepare the site and select the vegetable(s) to be grown

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

- PC1.** select the site with suitable conditions for vegetable growing
- PC2.** determine if soil conditions are suitable for vegetable growing
- PC3.** identify the risks associated with vegetable growing and possible precautions to be taken
- PC4.** select the vegetable(s) and their variety to be cultivated based on various factors
- PC5.** implement measures to make the site suitable for vegetable growing

Prepare the planting material

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

- PC6.** identify suitable planting material such as seeds, seedling, bulbs, tubers, rootstock, etc. as per the type of vegetable and agroclimatic conditions
- PC7.** procure quality planting material from the authorised sources
- PC8.** perform grafting, budding and inarching of planting materials
- PC9.** treat the planting materials with appropriate pesticides and fungicide in recommended dosage to prevent pests and diseases
- PC10.** store the planting material appropriately

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.** classification of vegetables grown in India and their common varieties
- KU4.** various agroclimatic zones in India and the vegetables grown there
- KU5.** site, climate, soil type, soil fertility, nature of subsoil and soil depth suited for growing various vegetables
- KU6.** criteria for selection of vegetables and their varieties for cultivation

Qualification Pack

- KU7.** natural and man-made sources of water and quality of water
- KU8.** how topography of the landscape affects water flow, rainfall pattern, irrigation and drainage
- KU9.** risks involved in vegetable growing and precautions to be taken
- KU10.** suitable time to plant based on the precipitation, humidity, etc.
- KU11.** cultivation period and yield of various varieties
- KU12.** resistance and vulnerability of planting material to various pests and diseases
- KU13.** resistance to various abiotic stress
- KU14.** advantages and disadvantages of transplanting and direct sowing methods
- KU15.** quality criteria and indicators of seedling and other planting material
- KU16.** seed/planting material treatment methods
- KU17.** need and procedure for grafting, budding and inarching of planting materials
- KU18.** authorized sources of procuring genetically true and pure planting material
- KU19.** appropriate storage methodology for the planting material
- KU20.** importance of following environmental and ecological best farming practices to minimise the impact on the environment

Generic Skills (GS)

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

- GS1.** write in local language to make personal notes and notes for workers
- GS2.** read names of vegetables and farm features in English and/or local language
- GS3.** read dates, health and safety symbols in English and/or local language
- GS4.** provide direction and instructions to other workers
- GS5.** evaluate adequacy of information available for sound decision making
- GS6.** prepare a workplan that meets the requirements of the customers
- GS7.** identify the objectives, concerns and priorities of the customers
- GS8.** identify array of solutions that address needs of the customers
- GS9.** think through the problem, evaluate the possible solution(s) and take up an optimum/ best possible solution(s)

Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Prepare the site and select the vegetable(s) to be grown</i>	10	10	-	15
PC1. select the site with suitable conditions for vegetable growing	-	-	-	-
PC2. determine if soil conditions are suitable for vegetable growing	-	-	-	-
PC3. identify the risks associated with vegetable growing and possible precautions to be taken	-	-	-	-
PC4. select the vegetable(s) and their variety to be cultivated based on various factors	-	-	-	-
PC5. implement measures to make the site suitable for vegetable growing	-	-	-	-
<i>Prepare the planting material</i>	20	30	-	15
PC6. identify suitable planting material such as seeds, seedling, bulbs, tubers, rootstock, etc. as per the type of vegetable and agroclimatic conditions	-	-	-	-
PC7. procure quality planting material from the authorised sources	-	-	-	-
PC8. perform grafting, budding and inarching of planting materials	-	-	-	-
PC9. treat the planting materials with appropriate pesticides and fungicide in recommended dosage to prevent pests and diseases	-	-	-	-
PC10. store the planting material appropriately	-	-	-	-
NOS Total	30	40	-	30

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	AGR/N0414
NOS Name	Prepare for vegetable cultivation
Sector	Agriculture
Sub-Sector	Agriculture Crop Production
Occupation	Vegetable Crops Cultivation
NSQF Level	4
Credits	1
Version	1.0
Last Reviewed Date	NA
Next Review Date	25/02/2024
NSQC Clearance Date	25/02/2021

Qualification Pack

AGR/N0415: Carry out sowing/planting of vegetables

Description

This unit is about planning, preparing the land and sowing/planting of appropriate planting materials for vegetable cultivation.

Scope

The scope covers the following :

- Plan for sowing/planting
- Prepare the bed for sowing/planting
- Sow/plant the planting materials as per the plan

Elements and Performance Criteria

Plan for sowing/planting

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

- PC1.** select the appropriate planting system after considering the slope of the land
- PC2.** prepare the rough layout of the farm providing sufficient space between the plants, windbreaks area and other necessary facilities
- PC3.** prepare the sowing/plantation plan and calendar as per the plants selected and climatic conditions

Prepare the beds for sowing/planting

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

- PC4.** remove the unwanted plant material and general debris from the field
- PC5.** set out and level the planting areas
- PC6.** mark out the positions of plants and farm features with the help of the plan
- PC7.** coordinate with an authorised lab to get the soil sample tested
- PC8.** apply the recommended measures for soil improvement
- PC9.** prepare the land for sowing/planting thorough primary and secondary cultivation methods
- PC10.** prepare the seed beds as per the requirement of the planting material and soil type

Sow/plant the planting material as per the plan

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

- PC11.** select healthy seeds/planting material for sowing/planting
- PC12.** sow/plant the seeds/planting material using appropriate method
- PC13.** transplant seedlings as per the requirement
- PC14.** ensure adequate depth and spacing between the plants to obtain optimum plant density
- PC15.** provide the necessary immediate aftercare to the new plantings

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

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- KU1.** relevant legislation, standards, policies, and procedures at work
- KU2.** relevant health and safety requirements applicable to the work environment
- KU3.** type of vegetable farm to be planned
- KU4.** factors to be considered for plantation of a vegetable farm
- KU5.** planting schedules and timelines based on seasons and plant types
- KU6.** method of interpretation of scale plan features
- KU7.** positions and boundaries to be marked on the land
- KU8.** design principles for farms
- KU9.** template, symbols and features used in design documents for farms
- KU10.** methods of marking lines, curves and positions on the land
- KU11.** how tilth, soil structure, depth of land preparation and seasonality and timing of cultivations affect the germination of seeds
- KU12.** importance of identifying soil texture, structure, pH and land conditions of the planting site
- KU13.** how to identify soil texture, structure, pH and land conditions of the planting site
- KU14.** importance of preparation of land for planting
- KU15.** primary and secondary cultivation methods
- KU16.** tools and techniques used for land preparation
- KU17.** various types of beds prepared for vegetable crops
- KU18.** appropriate planting conditions for various plants
- KU19.** planting techniques - using a planting board and stakes; transplanting
- KU20.** vegetable planting systems
- KU21.** permaculture principles for planting
- KU22.** importance of planting depth and firming and immediate aftercare

Generic Skills (GS)

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

- GS1.** prepare farm/ plantation calendar in local language in a clear manner so that all workers can understand
- GS2.** read names of plants and farm features in English and/or local language
- GS3.** read dates, health and safety symbols in English and/or local language
- GS4.** provide direction and instructions to other workers
- GS5.** evaluate adequacy of information available for sound decision making
- GS6.** prepare a workplan that meets the requirements of the customers
- GS7.** think through the problem, evaluate the possible solution(s) and choose best possible solution(s)

Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Plan for sowing/planting</i>	5	10	-	5
PC1. select the appropriate planting system after considering the slope of the land	-	-	-	-
PC2. prepare the rough layout of the farm providing sufficient space between the plants, windbreaks area and other necessary facilities	-	-	-	-
PC3. prepare the sowing/plantation plan and calendar as per the plants selected and climatic conditions	-	-	-	-
<i>Prepare the beds for sowing/planting</i>	15	20	-	15
PC4. remove the unwanted plant material and general debris from the field	-	-	-	-
PC5. set out and level the planting areas	-	-	-	-
PC6. mark out the positions of plants and farm features with the help of the plan	-	-	-	-
PC7. coordinate with an authorised lab to get the soil sample tested	-	-	-	-
PC8. apply the recommended measures for soil improvement	-	-	-	-
PC9. prepare the land for sowing/planting thorough primary and secondary cultivation methods	-	-	-	-
PC10. prepare the seed beds as per the requirement of the planting material and soil type	-	-	-	-
<i>Sow/plant the planting material as per the plan</i>	10	10	-	10
PC11. select healthy seeds/planting material for sowing/planting	-	-	-	-
PC12. sow/plant the seeds/planting material using appropriate method	-	-	-	-

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC13. transplant seedlings as per the requirement	-	-	-	-
PC14. ensure adequate depth and spacing between the plants to obtain optimum plant density	-	-	-	-
PC15. provide the necessary immediate aftercare to the new plantings	-	-	-	-
NOS Total	30	40	-	30

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	AGR/N0415
NOS Name	Carry out sowing/planting of vegetables
Sector	Agriculture
Sub-Sector	Agriculture Crop Production
Occupation	Vegetable Crops Cultivation
NSQF Level	4
Credits	1
Version	1.0
Last Reviewed Date	NA
Next Review Date	25/02/2024
NSQC Clearance Date	25/02/2021

Qualification Pack

AGR/N0401: Soil nutrient management in vegetable crops

Description

This OS deals about the activities carried out to manage soil nutrients.

Scope

The scope covers the following :

- Identification of macro and micro-nutrients in soil and its testing
- Application of organic and chemical fertilizers

Elements and Performance Criteria

Identification of macro & micro-nutrients in soil and its testing

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

- PC1.** identify the macro and micro-nutrients required for the plant growth
- PC2.** collect soil samples from the field for testing
- PC3.** coordinate with an authorised lab to get the soil sample tested
- PC4.** interpret the details in the Soil Health Card to determine the nutrient and fertilizer needs of the soil for a particular crop

Application of organic and chemical fertilizers

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

- PC5.** select appropriate organic fertilizer including farm yard manure
- PC6.** apply organic and inorganic fertilizer in the recommended dosage at the right time
- PC7.** prepare and apply compost and vermicompost in the recommended quantity
- PC8.** follow soil conservation practices

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.** impact of not following the health, hygiene, safety and quality standards on consumers and the business
- KU5.** basic concepts of plant nutrition
- KU6.** basic concepts of soil fertility
- KU7.** soil sample collection method
- KU8.** soil pH and liming
- KU9.** different types of macro and micro-nutrients

Qualification Pack

- KU10.** function of different macro and micro-nutrients
- KU11.** common symptoms of nutrient deficiency in plants
- KU12.** different types of green manure crops
- KU13.** method of application of farm yard manure in the recommended dose and at suitable time
- KU14.** method of preparation and application of compost and vermicompost
- KU15.** different types of fertilizers and their nutrient content
- KU16.** the recommended dosage and application time of fertilizer for the vegetable crop
- KU17.** different methods of fertilizer application
- KU18.** harmful effects of over-dosage of fertilizers
- KU19.** importance of soil conservation and various soil conservation practices

Generic Skills (GS)

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

- GS1.** track latest development in vegetable crop nutrient management by reading brochures, pamphlets and product information sheets
- GS2.** read and understand safety and usage instruction of chemical fertilizers
- GS3.** maintain effective working relationships
- GS4.** communicate clearly and effectively with others like farmers, concerned officer/stakeholders
- GS5.** comprehend information shared by senior people and experts
- GS6.** make decisions pertaining to the concerned area of work
- GS7.** identify problems that may arise in carrying out tasks and take preventative action
- GS8.** plan and organize field procedures related to nutrient management
- GS9.** plan procurement of farmyard manure and fertilizer in right quantity and time
- GS10.** organize meetings / demonstrations with agricultural experts, whenever necessary
- GS11.** think through the problem, evaluate the possible solution(s) and adopt an optimum /best possible solution(s)
- GS12.** apply, analyze, and evaluate the information gathered from observation, experience, reasoning, or communication, as a guide to thought and action

Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Identification of macro & micro-nutrients in soil and its testing</i>	10	20	-	10
PC1. identify the macro and micro-nutrients required for the plant growth	-	-	-	-
PC2. collect soil samples from the field for testing	-	-	-	-
PC3. coordinate with an authorised lab to get the soil sample tested	-	-	-	-
PC4. interpret the details in the Soil Health Card to determine the nutrient and fertilizer needs of the soil for a particular crop	-	-	-	-
<i>Application of organic and chemical fertilizers</i>	15	30	-	15
PC5. select appropriate organic fertilizer including farm yard manure	-	-	-	-
PC6. apply organic and inorganic fertilizer in the recommended dosage at the right time	-	-	-	-
PC7. prepare and apply compost and vermicompost in the recommended quantity	-	-	-	-
PC8. follow soil conservation practices	-	-	-	-
NOS Total	25	50	-	25

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	AGR/N0401
NOS Name	Soil nutrient management in vegetable crops
Sector	Agriculture
Sub-Sector	Agriculture Crop Production
Occupation	Vegetable Crops Cultivation
NSQF Level	4
Credits	1
Version	2.0
Last Reviewed Date	27/01/2022
Next Review Date	25/02/2024
NSQC Clearance Date	25/02/2021

Qualification Pack

AGR/N0402: Weed control and management in vegetable crops

Description

This OS deals with management of weeds in a vegetable farm

Scope

The scope covers the following :

- Identification of weeds and record-keeping
- Weed management at various stages of plant cycle

Elements and Performance Criteria

Identification of weeds and record keeping

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

- PC1.** inspect the field periodically and assess the weed of importance
- PC2.** identify the types of weed in the vegetable crop as against the growth stage of the crop
- PC3.** maintain records of the weed and share it with experts, if needed

Weed Management at various stages of plant cycle

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

- PC4.** follow appropriate preventative methods to prevent weeds
- PC5.** follow suitable cultural and mechanical methods to control weeds
- PC6.** select the recommended herbicide as per the crop need
- PC7.** spray the herbicide including bio-herbicide safely, and as per the recommended dosage
- PC8.** select the combination of different types of weed control methods for effective weed management

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.** impact of not following the health, hygiene, safety and quality standards on consumers and the business
- KU5.** various types of weed of vegetable crops
- KU6.** different weed control methods- preventative, cultural, mechanical, biological and chemical
- KU7.** advantages and disadvantages of different weeding methods
- KU8.** critical period of crop-weed completion
- KU9.** different types of herbicides

Qualification Pack

- KU10.** band and patch application of herbicides
- KU11.** adverse conditions to be avoided at the time of herbicides application
- KU12.** procedures involved in soil solarization & pasteurization
- KU13.** environmental norms to be adhered to during herbicide application
- KU14.** herbicide residue and its effect
- KU15.** ways to minimize pollution caused due to overuse of herbicides
- KU16.** list of banned herbicides

Generic Skills (GS)

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

- GS1.** track latest development in weed management by reading newspaper, brochures, magazines
- GS2.** read and understand safety and usage instruction of herbicides
- GS3.** communicate clearly and effectively with others like farmers, concerned officer/stakeholders
- GS4.** comprehend information shared by senior people and experts
- GS5.** make decisions pertaining to the concerned area of work
- GS6.** identify problems that may arise in carrying out tasks and take preventative action
- GS7.** organize meetings / demonstrations with agricultural departments, whenever necessary
- GS8.** manage relationships with laborers and other co-farmers
- GS9.** think through the problem, evaluate the possible solution(s) and adopt an optimum /best possible solution(s)
- GS10.** apply, analyze, and evaluate the information gathered from observation, experience, reasoning, or communication, as a guide to thought and action

Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Identification of weeds and record keeping</i>	10	15	-	10
PC1. inspect the field periodically and assess the weed of importance	-	-	-	-
PC2. identify the types of weed in the vegetable crop as against the growth stage of the crop	-	-	-	-
PC3. maintain records of the weed and share it with experts, if needed	-	-	-	-
<i>Weed Management at various stages of plant cycle</i>	15	30	-	20
PC4. follow appropriate preventative methods to prevent weeds	-	-	-	-
PC5. follow suitable cultural and mechanical methods to control weeds	-	-	-	-
PC6. select the recommended herbicide as per the crop need	-	-	-	-
PC7. spray the herbicide including bio-herbicide safely, and as per the recommended dosage	-	-	-	-
PC8. select the combination of different types of weed control methods for effective weed management	-	-	-	-
NOS Total	25	45	-	30

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	AGR/N0402
NOS Name	Weed control and management in vegetable crops
Sector	Agriculture
Sub-Sector	Agriculture Crop Production
Occupation	Vegetable Crops Cultivation
NSQF Level	4
Credits	0.5
Version	2.0
Last Reviewed Date	27/01/2022
Next Review Date	25/02/2024
NSQC Clearance Date	25/02/2021

Qualification Pack

AGR/N0403: Integrated pest and disease management in vegetable crops

Description

This OS deals with various measures to prevent and control insects, pests and diseases in vegetable crops.

Scope

The scope covers the following :

- Identify pests infesting the vegetable crops and their behavior
- Identify diseases prevalent in vegetable crops and their symptoms
- Follow preventive and curative methods to manage pest and disease in vegetable crops

Elements and Performance Criteria

Identify pests infesting the vegetable crops and their behavior

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

- PC1.** identify types of pests (cutworm, nematode, leaf miner fly, potato tuber moth, aphid) in vegetable crops
- PC2.** take action on the pest alerts received from diagnostic clinics, state and central agencies, agri universities etc
- PC3.** identify stages of crop and pest incidence
- PC4.** diagnose symptoms and extent of damage
- PC5.** identify natural enemies of the pest such as lady bird, ground beetles, hoverfly and adopt them for pest control

Identify diseases prevalent in vegetable crops and their symptoms

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

- PC6.** identify major vegetable crop diseases such as leaf spot, purple blotch, bacterial wilt, common scab, late blight
- PC7.** identify the crop stage and disease incidence
- PC8.** conduct regular field scouting to identify disease symptoms and plant disease vectors
- PC9.** co-ordinate with extension agents and diagnostic clinics to confirm the causal organism for a disease

Follow preventive and curative methods to manage pest and disease in vegetable crops

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

- PC10.** restrict entry of pathogens into fields through planting material, irrigation water, workers and tools
- PC11.** use pest and disease resistant varieties of crop
- PC12.** carry out proper irrigation scheduling based on crop needs to prevent high soil moisture
- PC13.** carry out pruning of plant if affected by diseases (if need arises)
- PC14.** carry out crop rotation with suitable crops
- PC15.** use a suitable combination of biological, mechanical and chemical control methods for effective pest and disease management

Qualification Pack

- PC16.** apply pesticides safely as per the recommendation of the state agricultural university / department / experts / manufacturer
- PC17.** record the details of the pesticides application to the crops

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.** the impact of not following the health, hygiene, safety and quality standards on consumers and the business
- KU5.** various types of diseases in vegetable crops and their symptoms
- KU6.** different biotic and abiotic factors causing diseases/disorder in plants
- KU7.** various types of pests infecting the vegetable crop
- KU8.** different mode of transmissions of disease such as implements, vectors, water, rain, wind
- KU9.** importance of safe production methods and safe produce
- KU10.** economic threshold level for vegetable crop pests
- KU11.** effect of a disease and yield loss
- KU12.** different types of preventive and control methods for crop pest and diseases
- KU13.** advantages of natural enemies
- KU14.** various mechanical control (traps, sticky plates etc)
- KU15.** bio-pesticides and pheromones used in IPM (Integrated Pest Mangement)
- KU16.** advantages of biological control of insects, pest & diseases
- KU17.** record keeping system
- KU18.** safety measures to be followed and first aid
- KU19.** spraying tools and equipment
- KU20.** national and international standards on pesticide residues
- KU21.** list of pesticides/pesticides formulation banned in India
- KU22.** ways to minimize pollution caused due to overuse of pesticides

Generic Skills (GS)

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

- GS1.** report problems to the appropriate personnel in a timely manner viz extension worker, agriculture officer
- GS2.** track latest development in insect /pest / disease management by reading newspaper, brochures, magazines
- GS3.** read and understand safety and usage instruction of pesticide / herbicides
- GS4.** maintain effective working relationships

Qualification Pack

- GS5.** communicate clearly and effectively with others like farmers, concerned officer/stakeholders
- GS6.** comprehend information shared by senior people and experts
- GS7.** identify problems that may arise in carrying out activities for pest and disease management
- GS8.** plan and organize integrated insect/pest/disease management
- GS9.** think through the problem, evaluate the possible solution(s) and adopt an optimum /best possible solution(s) quickly to resolve delays
- GS10.** apply, analyze, and evaluate the information gathered from observation, experience, reasoning, or communication, as a guide to thought and action

Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Identify pests infesting the vegetable crops and their behavior</i>	10	10	-	5
PC1. identify types of pests (cutworm, nematode, leaf miner fly, potato tuber moth, aphid) in vegetable crops	-	-	-	-
PC2. take action on the pest alerts received from diagnostic clinics, state and central agencies, agri universities etc	-	-	-	-
PC3. identify stages of crop and pest incidence	-	-	-	-
PC4. diagnose symptoms and extent of damage	-	-	-	-
PC5. identify natural enemies of the pest such as lady bird, ground beetles, hoverfly and adopt them for pest control	-	-	-	-
<i>Identify diseases prevalent in vegetable crops and their symptoms</i>	10	5	-	10
PC6. identify major vegetable crop diseases such as leaf spot, purple blotch, bacterial wilt, common scab, late blight	-	-	-	-
PC7. identify the crop stage and disease incidence	-	-	-	-
PC8. conduct regular field scouting to identify disease symptoms and plant disease vectors	-	-	-	-
PC9. co-ordinate with extension agents and diagnostic clinics to confirm the causal organism for a disease	-	-	-	-
<i>Follow preventive and curative methods to manage pest and disease in vegetable crops</i>	10	25	-	15
PC10. restrict entry of pathogens into fields through planting material, irrigation water, workers and tools	-	-	-	-
PC11. use pest and disease resistant varieties of crop	-	-	-	-

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC12. carry out proper irrigation scheduling based on crop needs to prevent high soil moisture	-	-	-	-
PC13. carry out pruning of plant if affected by diseases (if need arises)	-	-	-	-
PC14. carry out crop rotation with suitable crops	-	-	-	-
PC15. use a suitable combination of biological, mechanical and chemical control methods for effective pest and disease management	-	-	-	-
PC16. apply pesticides safely as per the recommendation of the state agricultural university / department / experts /manufacturer	-	-	-	-
PC17. record the details of the pesticides application to the crops	-	-	-	-
NOS Total	30	40	-	30

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	AGR/N0403
NOS Name	Integrated pest and disease management in vegetable crops
Sector	Agriculture
Sub-Sector	Agriculture Crop Production
Occupation	Vegetable Crops Cultivation
NSQF Level	4
Credits	1
Version	2.0
Last Reviewed Date	27/01/2022
Next Review Date	25/02/2024
NSQC Clearance Date	25/02/2021

Qualification Pack

AGR/N0404: Irrigation management in vegetable crops

Description

This OS deals with irrigation management during cultivation of vegetable crops

Scope

The scope covers the following :

- Select the appropriate irrigation method
- Irrigate the vegetable crop

Elements and Performance Criteria

Select the appropriate irrigation method

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

- PC1.** coordinate with an authorised lab to get the water sample tested
- PC2.** select the suitable irrigation method in consultation with the expert

Irrigate the vegetable crop

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

- PC3.** ensure adequate water supply at various life stages of the crop
- PC4.** implement measures to ensure optimum water use efficiency
- PC5.** ensure proper water drainage
- PC6.** employ micro-irrigation techniques (example: drip irrigation using appropriate equipments, sprinklers) based on the requirement of specific crops
- PC7.** carry out fertigation, if required
- PC8.** ensure measures to prevent diseases occurring due to increase in moisture/water content
- PC9.** plug spills/leakages and take support of the experts, if unable to rectify
- PC10.** optimize usage of electricity/energy in various tasks/activities/processes

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.** impact of not following the health, hygiene, safety and quality standards on consumers and the business
- KU5.** timing and method of irrigation appropriate for a given soil type and climatic conditions
- KU6.** quantity of water required for the specific crop and its effect on the yield
- KU7.** basic irrigation principles

Qualification Pack

- KU8.** critical periods of water need for vegetable crops
- KU9.** factors to consider in scheduling irrigation
- KU10.** irrigation practices and strategies
- KU11.** different types of irrigation methods
- KU12.** various types of micro irrigation equipments to be used (mistlers, drippers, sprinklers, foggers, etc)
- KU13.** relative advantages and disadvantages of different irrigation methods
- KU14.** basic concept of fertigation
- KU15.** methods to improve the irrigation water quality
- KU16.** water use efficiency
- KU17.** advantages of good drainage
- KU18.** harmful effects of excess and deficit irrigation water
- KU19.** basics of electricity and prevalent energy efficient devices
- KU20.** common practices of conserving electricity/energy

Generic Skills (GS)

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

- GS1.** track latest development in irrigation management by reading newspaper, brochures, magazines
- GS2.** maintain effective working relationships
- GS3.** communicate clearly and effectively with others like farmers, concerned officer/stakeholders
- GS4.** comprehend information shared by senior people and experts
- GS5.** make decisions pertaining to types of irrigation methods to be used
- GS6.** apply basic arithmetic and algebraic principles
- GS7.** plan and organize timely irrigation
- GS8.** organize meeting of farmers and experts, if necessary
- GS9.** think through the problem, evaluate the possible solution(s) and adopt an optimum /best possible solution(s) quickly to resolve delays
- GS10.** decide the strategies for water-efficient and cost-effective irrigation
- GS11.** apply, analyze, and evaluate the information gathered from observation, experience, reasoning, or communication, as a guide to thought and action

Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Select the appropriate irrigation method</i>	10	5	-	10
PC1. coordinate with an authorised lab to get the water sample tested	-	-	-	-
PC2. select the suitable irrigation method in consultation with the expert	-	-	-	-
<i>Irrigate the vegetable crop</i>	15	40	-	20
PC3. ensure adequate water supply at various life stages of the crop	-	-	-	-
PC4. implement measures to ensure optimum water use efficiency	-	-	-	-
PC5. ensure proper water drainage	-	-	-	-
PC6. employ micro-irrigation techniques (example: drip irrigation using appropriate equipments, sprinklers) based on the requirement of specific crops	-	-	-	-
PC7. carry out fertigation, if required	-	-	-	-
PC8. ensure measures to prevent diseases occurring due to increase in moisture/water content	-	-	-	-
PC9. plug spills/leakages and take support of the experts, if unable to rectify	-	-	-	-
PC10. optimize usage of electricity/energy in various tasks/activities/processes	-	-	-	-
NOS Total	25	45	-	30

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	AGR/N0404
NOS Name	Irrigation management in vegetable crops
Sector	Agriculture
Sub-Sector	Agriculture Crop Production
Occupation	Vegetable Crops Cultivation
NSQF Level	3
Credits	0.5
Version	2.0
Last Reviewed Date	27/01/2022
Next Review Date	25/02/2024
NSQC Clearance Date	25/02/2021

Qualification Pack

AGR/N9908: Undertake basic entrepreneurial activities for small enterprise

Description

This OS unit is about undertaking basic entrepreneurial or business activities in the agriculture sector.

Scope

The scope covers the following :

- Plan the agricultural enterprise/ business
- Manage the agricultural production process
- Manage the post-production and marketing processes

Elements and Performance Criteria

Plan the agricultural enterprise/ business

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

- PC1.** analyse the demand and supply of the relevant agricultural produce in the market
- PC2.** identify the target customers and assess their needs and expectations with respect to the quality and price of the produce
- PC3.** identify various types of agricultural entrepreneurship/ business opportunities
- PC4.** plan agricultural production with the use of relevant and efficient technologies for availing funds
- PC5.** identify appropriate and authentic advisory services/Government authority for skill upgradation to successfully plan and implement business activities
- PC6.** prepare a basic business plan for the agricultural entrepreneurship/business activities
- PC7.** identify appropriate sources of funding for the agricultural entrepreneurship/ business
- PC8.** coordinate with the relevant government authorities to subscribe to the relevant government schemes and programs to benefit from them
- PC9.** ensure compliance with the government structural reforms and framework along with the applicable rules and regulations while setting up the agricultural enterprise/ business

Manage the agricultural production process

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

- PC10.** select and arrange the necessary resources for the business operations
- PC11.** ensure the use of relevant and efficient production technologies as per planning and availability of funds
- PC12.** follow the recommended practices for efficient input resource management
- PC13.** optimise the production processes and output through the amalgamation of existing practices with smart technologies
- PC14.** follow the recommended sustainability practices during agricultural production to prevent adverse impacts on the environment and produce viz. deforestation, loss of biodiversity, soil degradation, etc.

Qualification Pack

Manage the post-production and marketing processes

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

- PC15.** ensure the availability of proper storage infrastructures and facilities post-production of the produce as per the industry quality standards
- PC16.** collect information related to the wholesale and retail price of produce
- PC17.** calculate the costs incurred and determine the price of the produce for profitability
- PC18.** ensure that the cost of production, transportation, and marketing are considered while calculating the cost and setting the price for the produce
- PC19.** collect information related to various subsidies/funds offered by the government, authorised state units and other financial institutions involved with the promotion of the produce
- PC20.** select appropriate marketing channels for the produce, considering the relevant requirements and constraints
- PC21.** identify various risks to production and post-production processes and manage them appropriately
- PC22.** undertake outreach programs to promote agricultural products and services, and expand agri-business
- PC23.** prepare and execute a marketing plan considering the 4Ps i.e. product, price, promotion, and place and 4As i.e. acceptability, affordability, accessibility, and awareness
- PC24.** use the relevant digital services such as e-commerce, e-payments, electronic record-keeping, etc.
- PC25.** use efficient post-production logistics means to improve the supply quantity, reduce the cost to the consumer, and increase demand consequently
- PC26.** ensure all the relevant information such as quality and quantity of produce, date of manufacture, batch number, and sale is recorded electronically and/ or manually
- PC27.** coordinate with the various stakeholders for efficient and sustainable agri-business growth and development

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** how to analyse the demand and supply of the relevant agricultural produce in the market
- KU2.** the process of identifying the target customers and assess their needs and expectations with respect to the quality and price of the produce
- KU3.** how to identify various types of agricultural entrepreneurship/ business opportunities
- KU4.** how to prepare a basic business plan for the agricultural entrepreneurship/business activities
- KU5.** appropriate sources of funding for the agricultural entrepreneurship/ businesses
- KU6.** the relevant government schemes and programs
- KU7.** the importance of ensuring compliance with the government structural reforms and framework, along with the applicable rules and regulations
- KU8.** various resources required for agricultural production
- KU9.** the process of planning agricultural production and the use of relevant technologies to enhance production

Qualification Pack

- KU10.** the importance of ensuring no cause adverse impact on the environment and produce during production
- KU11.** the recommended practices to be followed for efficient input resource management
- KU12.** the process of optimising the production processes and output through the amalgamation of existing practices with smart technologies
- KU13.** the recommended sustainability practices to be followed during agricultural production to prevent and deal with deforestation, loss of biodiversity, soil degradation, etc.
- KU14.** how to collect information related to the wholesale and retail price of agricultural produce
- KU15.** how to calculate the economics of the produce viz. production cost, price of the produce, B:C Ratio etc.
- KU16.** relevant government schemes with the provision of subsidies/funds for the promotion of agricultural produce
- KU17.** the process of selecting appropriate marketing channels for marketing agricultural produce, and the applicable requirements and constraints
- KU18.** the relevant buyers of different types of agricultural produce such as co-operatives, retailers, local vendors, wholesalers, e-trading portals, marketing companies, exporters, etc.
- KU19.** how to identify and manage various risks to production and post-production processes
- KU20.** how to undertake outreach programs to promote agricultural products and services, and expand agri-business
- KU21.** the 4Ps i.e. product, price, promotion, and place and 4As i.e. acceptability, affordability, accessibility, and awareness considered while preparing and executing a marketing plan
- KU22.** use of the relevant digital services such as e-commerce, e-payments, electronic record-keeping, etc.
- KU23.** the importance of using efficient post-production logistics
- KU24.** the importance of maintaining various records accurately

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/ accident
- 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>Plan the agricultural enterprise/ business</i>	10	14	-	10
PC1. analyse the demand and supply of the relevant agricultural produce in the market	-	-	-	-
PC2. identify the target customers and assess their needs and expectations with respect to the quality and price of the produce	-	-	-	-
PC3. identify various types of agricultural entrepreneurship/ business opportunities	-	-	-	-
PC4. plan agricultural production with the use of relevant and efficient technologies for availing funds	-	-	-	-
PC5. identify appropriate and authentic advisory services/Government authority for skill upgradation to successfully plan and implement business activities	-	-	-	-
PC6. prepare a basic business plan for the agricultural entrepreneurship/business activities	-	-	-	-
PC7. identify appropriate sources of funding for the agricultural entrepreneurship/ business	-	-	-	-
PC8. coordinate with the relevant government authorities to subscribe to the relevant government schemes and programs to benefit from them	-	-	-	-
PC9. ensure compliance with the government structural reforms and framework along with the applicable rules and regulations while setting up the agricultural enterprise/ business	-	-	-	-
<i>Manage the agricultural production process</i>	8	10	-	8
PC10. select and arrange the necessary resources for the business operations	-	-	-	-
PC11. ensure the use of relevant and efficient production technologies as per planning and availability of funds	-	-	-	-

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC12. follow the recommended practices for efficient input resource management	-	-	-	-
PC13. optimise the production processes and output through the amalgamation of existing practices with smart technologies	-	-	-	-
PC14. follow the recommended sustainability practices during agricultural production to prevent adverse impacts on the environment and produce viz. deforestation, loss of biodiversity, soil degradation, etc.	-	-	-	-
<i>Manage the post-production and marketing processes</i>	12	16	-	12
PC15. ensure the availability of proper storage infrastructures and facilities post-production of the produce as per the industry quality standards	-	-	-	-
PC16. collect information related to the wholesale and retail price of produce	-	-	-	-
PC17. calculate the costs incurred and determine the price of the produce for profitability	-	-	-	-
PC18. ensure that the cost of production, transportation, and marketing are considered while calculating the cost and setting the price for the produce	-	-	-	-
PC19. collect information related to various subsidies/funds offered by the government, authorised state units and other financial institutions involved with the promotion of the produce	-	-	-	-
PC20. select appropriate marketing channels for the produce, considering the relevant requirements and constraints	-	-	-	-
PC21. identify various risks to production and post-production processes and manage them appropriately	-	-	-	-
PC22. undertake outreach programs to promote agricultural products and services, and expand agri-business	-	-	-	-

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC23. prepare and execute a marketing plan considering the 4Ps i.e. product, price, promotion, and place and 4As i.e. acceptability, affordability, accessibility, and awareness	-	-	-	-
PC24. use the relevant digital services such as e-commerce, e-payments, electronic record-keeping, etc.	-	-	-	-
PC25. use efficient post-production logistics means to improve the supply quantity, reduce the cost to the consumer, and increase demand consequently	-	-	-	-
PC26. ensure all the relevant information such as quality and quantity of produce, date of manufacture, batch number, and sale is recorded electronically and/ or manually	-	-	-	-
PC27. coordinate with the various stakeholders for efficient and sustainable agri-business growth and development	-	-	-	-
NOS Total	30	40	-	30

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	AGR/N9908
NOS Name	Undertake basic entrepreneurial activities for small enterprise
Sector	Agriculture
Sub-Sector	Generic
Occupation	Generic
NSQF Level	4
Credits	1
Version	3.0
Last Reviewed Date	NA
Next Review Date	25/02/2024
NSQC Clearance Date	25/02/2021

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>	10	5	-	10
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	-	-	-	-
<i>Maintain clean and safe workplace</i>	15	15	-	15
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	-	-	-	-

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
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	-	-	-	-
<i>Administer appropriate emergency procedures</i>	15	5	-	10
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	-	-	-	-
NOS Total	40	25	-	35

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	AGR/N9903
NOS Name	Maintain health and safety at the workplace
Sector	Agriculture
Sub-Sector	Generic
Occupation	Generic
NSQF Level	4
Credits	1
Version	4.0
Last Reviewed Date	NA
Next Review Date	29/03/2026
NSQC Clearance Date	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>	1	1	-	-
PC1. identify employability skills required for jobs in various industries	-	-	-	-
PC2. identify and explore learning and employability portals	-	-	-	-
<i>Constitutional values - Citizenship</i>	1	1	-	-
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	-	-	-	-
<i>Becoming a Professional in the 21st Century</i>	2	4	-	-
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	-	-	-	-
<i>Basic English Skills</i>	2	3	-	-
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	-	-	-	-
<i>Career Development & Goal Setting</i>	1	2	-	-

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC10. understand the difference between job and career	-	-	-	-
PC11. prepare a career development plan with short- and long-term goals, based on aptitude	-	-	-	-
<i>Communication Skills</i>	2	2	-	-
PC12. follow verbal and non-verbal communication etiquette and active listening techniques in various settings	-	-	-	-
PC13. work collaboratively with others in a team	-	-	-	-
<i>Diversity & Inclusion</i>	1	2	-	-
PC14. communicate and behave appropriately with all genders and PwD	-	-	-	-
PC15. escalate any issues related to sexual harassment at workplace according to POSH Act	-	-	-	-
<i>Financial and Legal Literacy</i>	2	3	-	-
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	-	-	-	-
<i>Essential Digital Skills</i>	3	4	-	-
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	-	-	-	-

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Entrepreneurship</i>	2	3	-	-
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	-	-	-	-
<i>Customer Service</i>	1	2	-	-
PC26. identify different types of customers	-	-	-	-
PC27. identify and respond to customer requests and needs in a professional manner.	-	-	-	-
PC28. follow appropriate hygiene and grooming standards	-	-	-	-
<i>Getting ready for apprenticeship & Jobs</i>	2	3	-	-
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	-	-	-	-
NOS Total	20	30	-	-

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	DGT/VSQ/N0102
NOS Name	Employability Skills (60 Hours)
Sector	Cross Sectoral
Sub-Sector	Professional Skills
Occupation	Employability
NSQF Level	4
Credits	2
Version	1.0
Last Reviewed Date	NA
Next Review Date	28/02/2026
NSQC Clearance Date	28/02/2023

Qualification Pack

AGR/N0416: Grow cole crops in a farm

Description

This unit is about growing cole crops such as cauliflower, cabbage, knol-khol, chinese cabbage, broccoli and brussels in a farm.

Scope

The scope covers the following :

- Prepare for cole crop cultivation
- Plant a cole crop
- Carry out various cultural and inter-cultural operations in a cole crop farm
- Carry out harvest and post-harvest management of a cole crop

Elements and Performance Criteria

Prepare for cole crop cultivation

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

- PC1.** select a site with cold and dry climatic condition with temperature between 15-25oC for cole crop
- PC2.** select a commercially viable cole crop and the recommended variety
- PC3.** select appropriate well drained loamy soil for the cole crop
- PC4.** remove weeds and pests from the soil
- PC5.** prepare the soil to ensure appropriate pH of 5.5-7.0, moisture, salinity and organic content as required for the cole crop
- PC6.** prepare the land with fine tilth and apply lime before plantation
- PC7.** select appropriate planting material such as seeds, seedling, etc. for the cole crop
- PC8.** prepare raised bed or ridges to prevent waterlogging

Plant a cole crop

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

- PC9.** apply appropriate seed treatment and transplantation method for the cole crop under poly tunnel or nursery
- PC10.** sow the seedlings in a line at the recommended depth and spacing

Carry out various cultural and inter-cultural operations in a cole crop farm

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

- PC11.** ensure adequate irrigation for shallow rooted cole crops
- PC12.** prepare and apply correct mixture of manure and fertilizer for the particular cole crop
- PC13.** identify signs of diseases and infestation to the cole crop like damping off, black leg and leaf spot and apply appropriate measures for prevention and treatment
- PC14.** ensure the crop is free from weeds
- PC15.** carry out inter-cropping of cole crop with other suitable crops

Carry out harvest and post-harvest management of a cole crop

Qualification Pack

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

- PC16.** select appropriate harvesting method such as handpicked or machine
- PC17.** harvest the cole crops at appropriate stage when the heads are well developed, firm and ready as per the market requirement
- PC18.** fill and store the produce temporarily, preferably in aerated gunny bag
- PC19.** use weighing machines accurately to weigh harvested produce
- PC20.** sort and grade the harvested produce based on quality, colour and size
- PC21.** pack, store and transport the marketable produce, ensuring that the produce remains fresh and damage free for a long time
- PC22.** optimize usage of resources/inputs including water and electricity in various tasks/activities/processes
- PC23.** segregate waste into different categories
- PC24.** dispose non-recyclable waste appropriately
- PC25.** deposit recyclable and reusable material at identified location

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.** common cole crops grown in commercial farming
- KU5.** agro-climatic conditions required for cole crop farming
- KU6.** the criteria for selecting the land for cole crop farming
- KU7.** soil requirement for cole crop
- KU8.** land preparation requirements for commercial cole crop farming
- KU9.** recommended crop density and spacing in a cole crop farm
- KU10.** benefits of intercropping and types of crops that can be inter-cropped with cole crops
- KU11.** benefits of crop rotation and types of crop to be rotated with cole crop
- KU12.** irrigation best practices for cole crop plants
- KU13.** application of manure and fertilizers in cole crop farming
- KU14.** cole crop related pests and diseases and methods to protect crops against them
- KU15.** harvesting schedule and process for cole crop
- KU16.** location of different markets for cole crops in the region
- KU17.** market requirement for cole crops in terms of stage of harvest (65-90 days), stem length, curd size, quality and quantity of produce, type of packaging, etc.
- KU18.** sorting and grading criteria for cole crop produce
- KU19.** appropriate packing material for the cole crops
- KU20.** storage and transportation requirements to prevent damage and spoilage
- KU21.** importance of following environmental and ecological best practices to minimise the impact on the environment

Qualification Pack

KU22. ways of efficiently managing inputs including water and electricity in the process

KU23. waste management and methods of waste disposal

Generic Skills (GS)

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

GS1. write in local language to make personal notes and notes for workers

GS2. read names of vegetables and farm features in English and/or local language

GS3. read dates, health and safety symbols in English and/or local language

GS4. provide direction and instructions to other workers

GS5. evaluate adequacy of information available for sound decision making

GS6. prepare a plan that meets the requirements of the customers

GS7. identify the objectives, concerns and priorities of the customers

GS8. identify array of solutions that address needs of the customers

GS9. think through the problem, evaluate the possible solution(s) and take up an optimum/ best possible solution(s)

Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Prepare for cole crop cultivation</i>	8	4	-	10
PC1. select a site with cold and dry climatic condition with temperature between 15-25oC for cole crop	-	-	-	-
PC2. select a commercially viable cole crop and the recommended variety	-	-	-	-
PC3. select appropriate well drained loamy soil for the cole crop	-	-	-	-
PC4. remove weeds and pests from the soil	-	-	-	-
PC5. prepare the soil to ensure appropriate pH of 5.5-7.0, moisture, salinity and organic content as required for the cole crop	-	-	-	-
PC6. prepare the land with fine tilth and apply lime before plantation	-	-	-	-
PC7. select appropriate planting material such as seeds, seedling, etc. for the cole crop	-	-	-	-
PC8. prepare raised bed or ridges to prevent waterlogging	-	-	-	-
<i>Plant a cole crop</i>	3	6	-	3
PC9. apply appropriate seed treatment and transplantation method for the cole crop under poly tunnel or nursery	-	-	-	-
PC10. sow the seedlings in a line at the recommended depth and spacing	-	-	-	-
<i>Carry out various cultural and inter-cultural operations in a cole crop farm</i>	4	10	-	2
PC11. ensure adequate irrigation for shallow rooted cole crops	-	-	-	-
PC12. prepare and apply correct mixture of manure and fertilizer for the particular cole crop	-	-	-	-

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC13. identify signs of diseases and infestation to the cole crop like damping off, black leg and leaf spot and apply appropriate measures for prevention and treatment	-	-	-	-
PC14. ensure the crop is free from weeds	-	-	-	-
PC15. carry out inter-cropping of cole crop with other suitable crops	-	-	-	-
<i>Carry out harvest and post-harvest management of a cole crop</i>	15	20	-	15
PC16. select appropriate harvesting method such as handpicked or machine	-	-	-	-
PC17. harvest the cole crops at appropriate stage when the heads are well developed, firm and ready as per the market requirement	-	-	-	-
PC18. fill and store the produce temporarily, preferably in aerated gunny bag	-	-	-	-
PC19. use weighing machines accurately to weigh harvested produce	-	-	-	-
PC20. sort and grade the harvested produce based on quality, colour and size	-	-	-	-
PC21. pack, store and transport the marketable produce, ensuring that the produce remains fresh and damage free for a long time	-	-	-	-
PC22. optimize usage of resources/inputs including water and electricity in various tasks/activities/processes	-	-	-	-
PC23. segregate waste into different categories	-	-	-	-
PC24. dispose non-recyclable waste appropriately	-	-	-	-
PC25. deposit recyclable and reusable material at identified location	-	-	-	-
NOS Total	30	40	-	30

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	AGR/N0416
NOS Name	Grow cole crops in a farm
Sector	Agriculture
Sub-Sector	Agriculture Crop Production
Occupation	Vegetable Crops Cultivation
NSQF Level	4
Credits	1
Version	1.0
Last Reviewed Date	NA
Next Review Date	25/02/2024
NSQC Clearance Date	25/02/2021

Qualification Pack

AGR/N0417: Grow leafy vegetables in a farm

Description

This unit is about growing leafy vegetables such as spinach, leaf beet, coriander, fenugreek, amaranth and swiss chard in a farm.

Scope

The scope covers the following :

- Prepare for cultivation of leafy vegetable
- Plant a leafy vegetable
- Carry out various cultural and inter-cultural operations in a leafy vegetable farm
- Carry out harvest and post-harvest management of a leafy vegetable

Elements and Performance Criteria

Prepare for cultivation of leafy vegetable

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

- PC1.** select a site with appropriate conditions for cultivation of leafy vegetable
- PC2.** select commercially viable leafy vegetable and the recommended variety which is suitable to the site
- PC3.** remove weeds and pests from the soil
- PC4.** prepare the soil to ensure appropriate pH, moisture, salinity and organic content as required for the leafy crop
- PC5.** procure appropriate seed for the leafy vegetable from authorized sources
- PC6.** treat the seeds with pesticides (chemical as well as biological) as per the dosage
- PC7.** apply organic manure on the farm prior to planting
- PC8.** carry out deep ploughing to remove any stones and clods of dirt
- PC9.** prepare the seedbed by tilling the farmland

Plant a leafy vegetable

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

- PC10.** apply appropriate seed treatment and transplantation method for the leafy vegetable
- PC11.** plant the leafy vegetable with appropriate spacing and technique

Carry out various cultural and inter-cultural operations in a leafy vegetable farm

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

- PC12.** irrigate the leafy vegetable using suitable method
- PC13.** prepare and apply the recommended mixture of manure and fertilizer to the leafy vegetable
- PC14.** identify signs of diseases and infestation in the leafy vegetable and apply appropriate measures for prevention and treatment
- PC15.** ensure the crop is free from weeds
- PC16.** carry out inter-cropping of leafy crop with suitable crops

Qualification Pack

Carry out harvest and post-harvest management of a leafy vegetable

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

- PC17.** identify the harvesting stage by observing the crop maturity indices
- PC18.** harvest the crop at the appropriate stage and time using the suitable harvesting method (manual or mechanical)
- PC19.** sort and grade the leafy vegetables
- PC20.** select well aerated packing material with the required capacity as per the harvested crop
- PC21.** use weighing machines accurately to weigh harvested produce
- PC22.** pack, store and transport the marketable produce, ensuring that the produce remains fresh and damage free for a long time
- PC23.** optimize usage of resources/inputs including water and electricity in various tasks/activities/processes
- PC24.** segregate waste into different categories
- PC25.** dispose non-recyclable waste appropriately
- PC26.** deposit recyclable and reusable material at identified location

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.** common leafy vegetables grown in commercial farming
- KU5.** agro-climatic conditions required for leafy vegetable farming
- KU6.** the criteria for selecting the land for leafy vegetable farming
- KU7.** soil requirement for leafy vegetable
- KU8.** criteria for healthy seed
- KU9.** seed rate of specific leafy vegetable required for a given unit of the land
- KU10.** land preparation requirements for commercial leafy vegetable farming
- KU11.** level of soil tillage including depth of plugging
- KU12.** seed bed preparation using recommended mixture of soil and manure
- KU13.** appropriate time for planting by taking into account the soil and climatic conditions
- KU14.** monoculture and intercropping practices
- KU15.** advantages and disadvantages of various planting methods
- KU16.** benefits of inter-cropping and crop rotation and types of crops to be inter-cropped with leafy vegetable
- KU17.** irrigation best practices for leafy vegetables
- KU18.** application of manure and fertilizers in leafy vegetable farming
- KU19.** pests and diseases pertaining to leafy vegetables and methods to protect against them
- KU20.** harvesting schedule and process of leafy vegetables
- KU21.** location of different markets for leafy vegetables in the region

Qualification Pack

- KU22.** market requirement for leafy vegetables
- KU23.** appropriate time of harvest based on top foliage and climatic conditions
- KU24.** advantages and disadvantages of various harvesting methods
- KU25.** curing mechanisms and days required for curing
- KU26.** storage condition and method to prevent rotting and spread of diseases (spreading on dry floor)
- KU27.** inhibitors to be used for controlling sprouts in leafy vegetables
- KU28.** sorting and grading criteria for leafy vegetables
- KU29.** appropriate packing material for the leafy vegetables
- KU30.** transportation requirements for leafy vegetables to prevent damage and spoilage
- KU31.** ways of efficiently managing inputs including water and electricity in the process
- KU32.** waste management and methods of waste disposal

Generic Skills (GS)

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

- GS1.** write in local language to make personal notes and notes for workers
- GS2.** read names of vegetables and farm features in English and/or local language
- GS3.** read dates, health and safety symbols in English and/or local language
- GS4.** provide direction and instructions to other workers
- GS5.** evaluate adequacy of information available for sound decision making
- GS6.** prepare a workplan that meets the requirements of the customers
- GS7.** identify the objectives, concerns and priorities of the customers
- GS8.** think through the problem, evaluate the possible solution(s) and take up an optimum/ best possible solution(s)

Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Prepare for cultivation of leafy vegetable</i>	9	6	-	10
PC1. select a site with appropriate conditions for cultivation of leafy vegetable	-	-	-	-
PC2. select commercially viable leafy vegetable and the recommended variety which is suitable to the site	-	-	-	-
PC3. remove weeds and pests from the soil	-	-	-	-
PC4. prepare the soil to ensure appropriate pH, moisture, salinity and organic content as required for the leafy crop	-	-	-	-
PC5. procure appropriate seed for the leafy vegetable from authorized sources	-	-	-	-
PC6. treat the seeds with pesticides (chemical as well as biological) as per the dosage	-	-	-	-
PC7. apply organic manure on the farm prior to planting	-	-	-	-
PC8. carry out deep ploughing to remove any stones and clods of dirt	-	-	-	-
PC9. prepare the seedbed by tilling the farmland	-	-	-	-
<i>Plant a leafy vegetable</i>	2	4	-	2
PC10. apply appropriate seed treatment and transplantation method for the leafy vegetable	-	-	-	-
PC11. plant the leafy vegetable with appropriate spacing and technique	-	-	-	-
<i>Carry out various cultural and inter-cultural operations in a leafy vegetable farm</i>	4	10	-	3
PC12. irrigate the leafy vegetable using suitable method	-	-	-	-
PC13. prepare and apply the recommended mixture of manure and fertilizer to the leafy vegetable	-	-	-	-

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC14. identify signs of diseases and infestation in the leafy vegetable and apply appropriate measures for prevention and treatment	-	-	-	-
PC15. ensure the crop is free from weeds	-	-	-	-
PC16. carry out inter-cropping of leafy crop with suitable crops	-	-	-	-
<i>Carry out harvest and post-harvest management of a leafy vegetable</i>	15	20	-	15
PC17. identify the harvesting stage by observing the crop maturity indices	-	-	-	-
PC18. harvest the crop at the appropriate stage and time using the suitable harvesting method (manual or mechanical)	-	-	-	-
PC19. sort and grade the leafy vegetables	-	-	-	-
PC20. select well aerated packing material with the required capacity as per the harvested crop	-	-	-	-
PC21. use weighing machines accurately to weigh harvested produce	-	-	-	-
PC22. pack, store and transport the marketable produce, ensuring that the produce remains fresh and damage free for a long time	-	-	-	-
PC23. optimize usage of resources/inputs including water and electricity in various tasks/activities/processes	-	-	-	-
PC24. segregate waste into different categories	-	-	-	-
PC25. dispose non-recyclable waste appropriately	-	-	-	-
PC26. deposit recyclable and reusable material at identified location	-	-	-	-
NOS Total	30	40	-	30

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	AGR/N0417
NOS Name	Grow leafy vegetables in a farm
Sector	Agriculture
Sub-Sector	Agriculture Crop Production
Occupation	Vegetable Crops Cultivation
NSQF Level	4
Credits	1
Version	1.0
Last Reviewed Date	NA
Next Review Date	25/02/2024
NSQC Clearance Date	25/02/2021

Qualification Pack

AGR/N0418: Grow salad vegetables in a farm

Description

This unit is about growing salad vegetables such as lettuce, celery, chicory and parsley in a farm.

Scope

The scope covers the following :

- Prepare for salad crop cultivation
- Plant a salad crop
- Carry out various cultural and inter-cultural operations in a salad crop farm
- Carry out harvest and post-harvest management of a salad crop

Elements and Performance Criteria

Prepare for salad crop cultivation

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

- PC1.** select a site with cold and dry climatic condition with temperature between 12-30oC for salad crop
- PC2.** select a commercially viable salad crop and the recommended variety suitable to the site
- PC3.** select well drained sandy loam and silt loam soils for the salad crop
- PC4.** remove weeds and pests from the soil
- PC5.** prepare the soil to ensure appropriate pH of 5.5-6.8 , moisture, salinity and organic content as required for the salad crop
- PC6.** plough land to bring the soil to fine tilth
- PC7.** select appropriate planting material such as seedling for the salad crop
- PC8.** prepare raised bed or ridges to escape from waterlogging

Plant a salad crop

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

- PC9.** apply appropriate seed treatment and transplantation method for the salad crop under poly tunnel or nursery
- PC10.** sow the seedlings in a line maintaining the right spacing, depth and density

Carry out various cultural and inter-cultural operations in a salad crop farm

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

- PC11.** ensure adequate irrigation for shallow rooted salad crop
- PC12.** prepare and apply correct mixture of manure and fertilizer for the particular salad crop
- PC13.** monitor disease and pest infestation in the salad crop and apply appropriate measures for prevention and treatment
- PC14.** ensure the crop is free from weeds
- PC15.** carry out inter-cropping of salad crop with suitable crops

Carry out harvest and post-harvest management of a salad crop

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

Qualification Pack

- PC16.** select appropriate harvesting method such as handpicked or machine
- PC17.** harvest the salad crops at the appropriate stage, when the leaves are well developed and ready as per the market requirement
- PC18.** fill and store the produce temporarily, preferably in aerated gunny bag
- PC19.** use weighing machines accurately to weigh harvested produce
- PC20.** sort and grade the harvested produce based on quality, colour and size
- PC21.** pack, store and transport the marketable produce, ensuring that the produce remains fresh and damage free for a long time
- PC22.** optimize usage of resources/inputs including water and electricity in various tasks/activities/processes
- PC23.** segregate waste into different categories
- PC24.** dispose non-recyclable waste appropriately
- PC25.** deposit recyclable and reusable material at identified location

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.** common salad crops grown in commercial farming
- KU5.** agro-climatic conditions required for salad crop farming
- KU6.** the criteria for selecting the land for salad crop farming
- KU7.** soil requirement for salad crop
- KU8.** land preparation requirements for commercial salad crop farming
- KU9.** recommended density and spacing for salad crop farming
- KU10.** benefits of crop rotation and types of crop to be rotated with salad crop
- KU11.** irrigation best practices for salad crops
- KU12.** application of manure and fertilizers in salad crop farming
- KU13.** pests and diseases pertaining to salad crop
- KU14.** various methods to protect salad crop plants from pests and diseases
- KU15.** harvesting schedule and process for salad crop
- KU16.** location of different markets for salad crops in the region
- KU17.** market requirement for salad crops in terms of stage of harvest, stem length, curd size, quality and quantity of produce, type of packaging, etc.
- KU18.** sorting and grading criteria for salad crop
- KU19.** appropriate packing material for the salad crops
- KU20.** storage and transportation requirements for salad crops to prevent damage and spoilage
- KU21.** importance of following environmental and ecological best farming practices to minimise the impact on the environment
- KU22.** ways of efficiently managing inputs including water and electricity in the process

Qualification Pack

KU23. waste management and methods of waste disposal

Generic Skills (GS)

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

- GS1.** write in local language to make personal notes and notes for workers
- GS2.** read names of vegetables and farm features in English and /or local language
- GS3.** read dates, health and safety symbols in English and/or local language
- GS4.** provide direction and instructions to other workers
- GS5.** evaluate adequacy of information available for sound decision making
- GS6.** prepare a workplan that meets the requirements of the customers
- GS7.** identify the objectives, concerns and priorities of the customers
- GS8.** think through the problem, evaluate the possible solution(s) and take up an optimum/ best possible solution(s)

Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Prepare for salad crop cultivation</i>	7	8	-	7
PC1. select a site with cold and dry climatic condition with temperature between 12-30oC for salad crop	-	-	-	-
PC2. select a commercially viable salad crop and the recommended variety suitable to the site	-	-	-	-
PC3. select well drained sandy loam and silt loam soils for the salad crop	-	-	-	-
PC4. remove weeds and pests from the soil	-	-	-	-
PC5. prepare the soil to ensure appropriate pH of 5.5-6.8 , moisture, salinity and organic content as required for the salad crop	-	-	-	-
PC6. plough land to bring the soil to fine tilth	-	-	-	-
PC7. select appropriate planting material such as seedling for the salad crop	-	-	-	-
PC8. prepare raised bed or ridges to escape from waterlogging	-	-	-	-
<i>Plant a salad crop</i>	3	4	-	2
PC9. apply appropriate seed treatment and transplantation method for the salad crop under poly tunnel or nursery	-	-	-	-
PC10. sow the seedlings in a line maintaining the right spacing, depth and density	-	-	-	-
<i>Carry out various cultural and inter-cultural operations in a salad crop farm</i>	5	8	-	6
PC11. ensure adequate irrigation for shallow rooted salad crop	-	-	-	-
PC12. prepare and apply correct mixture of manure and fertilizer for the particular salad crop	-	-	-	-

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC13. monitor disease and pest infestation in the salad crop and apply appropriate measures for prevention and treatment	-	-	-	-
PC14. ensure the crop is free from weeds	-	-	-	-
PC15. carry out inter-cropping of salad crop with suitable crops	-	-	-	-
<i>Carry out harvest and post-harvest management of a salad crop</i>	15	20	-	15
PC16. select appropriate harvesting method such as handpicked or machine	-	-	-	-
PC17. harvest the salad crops at the appropriate stage, when the leaves are well developed and ready as per the market requirement	-	-	-	-
PC18. fill and store the produce temporarily, preferably in aerated gunny bag	-	-	-	-
PC19. use weighing machines accurately to weigh harvested produce	-	-	-	-
PC20. sort and grade the harvested produce based on quality, colour and size	-	-	-	-
PC21. pack, store and transport the marketable produce, ensuring that the produce remains fresh and damage free for a long time	-	-	-	-
PC22. optimize usage of resources/inputs including water and electricity in various tasks/activities/processes	-	-	-	-
PC23. segregate waste into different categories	-	-	-	-
PC24. dispose non-recyclable waste appropriately	-	-	-	-
PC25. deposit recyclable and reusable material at identified location	-	-	-	-
NOS Total	30	40	-	30

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	AGR/N0418
NOS Name	Grow salad vegetables in a farm
Sector	Agriculture
Sub-Sector	Agriculture Crop Production
Occupation	Vegetable Crops Cultivation
NSQF Level	4
Credits	1
Version	1.0
Last Reviewed Date	NA
Next Review Date	25/02/2024
NSQC Clearance Date	25/02/2021

Qualification Pack

AGR/N0419: Grow root vegetables in a farm

Description

This unit is about growing root vegetables such as radish, carrot, turnip, beetroot, parsnip and rutabaga in a farm.

Scope

The scope covers the following :

- Prepare for root crop cultivation
- Plant a root crop
- Carry out various cultural and inter-cultural operations in a root crop farm
- Carry out harvest and post-harvest management of a root crop

Elements and Performance Criteria

Prepare for root crop cultivation

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

- PC1.** select a site with appropriate conditions for the cultivation of root crop
- PC2.** select a commercially viable root crop and the recommended variety, suitable to the site
- PC3.** remove weeds and pests from the soil
- PC4.** prepare the soil to ensure appropriate pH, moisture, salinity and organic content as required for the root crop
- PC5.** procure appropriate seed or roots for the root crop from authorized sources
- PC6.** treat the seeds with insecticides (chemical as well as biological) as per the dosage
- PC7.** carry out soil tillage and seed bed preparation

Plant a root crop

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

- PC8.** plant the root crop using appropriate method and ensuring recommended depth and spacing
- PC9.** raise and transplant seedlings

Carry out various cultural and inter-cultural operations in a root crop farm

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

- PC10.** provide adequate irrigation to root crop
- PC11.** prepare and apply the recommended mixture of manure and fertilizer for the particular root crop
- PC12.** monitor disease and pest infestation in the root crop and apply appropriate measures for prevention and treatment
- PC13.** ensure the crop is free from weeds
- PC14.** carry out inter-cropping of root crop with suitable crops

Carry out harvest and post-harvest management of a root crop

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

Qualification Pack

- PC15.** harvest the crop at appropriate stage by observing the harvesting indices such as appropriate foliage, when the leaves are half dry
- PC16.** harvest the crop at the right time using the suitable harvesting method (by hand, digger or under cutter)
- PC17.** carry out curing of root crops
- PC18.** sort and grade root crops
- PC19.** fill and temporarily store the produce, preferably in aerated gunny bag
- PC20.** use weighing machines accurately to weigh harvested produce
- PC21.** pack, store and transport the marketable produce, ensuring that the produce remains fresh and damage free for a long time
- PC22.** take measures for sprout control in storage
- PC23.** optimize usage of resources/inputs including water and electricity in various tasks/activities/processes
- PC24.** segregate waste into different categories
- PC25.** dispose non-recyclable waste appropriately
- PC26.** deposit recyclable and reusable material at identified location

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.** common root crops grown in commercial farming
- KU5.** agro-climatic conditions required for root crop farming
- KU6.** the criteria for selecting the land for root crop farming
- KU7.** soil requirement for root crop
- KU8.** criteria for healthy seed
- KU9.** seed rate of specific root crop (example: onion seed) required for a given unit of the land
- KU10.** land preparation requirements for commercial root crop farming
- KU11.** soil tillage requirements
- KU12.** seed bed preparation using recommended mixture of soil and manure
- KU13.** appropriate time for planting by taking into account of soil and climatic conditions
- KU14.** monoculture and intercropping practices
- KU15.** advantages and disadvantages of various planting methods
- KU16.** benefits of inter-cropping and crop rotation and types of crops to be inter-cropped with root crop
- KU17.** irrigation methods for root crop plants
- KU18.** application of manure and fertilizers in root crop farming
- KU19.** pests and diseases pertaining to root crops
- KU20.** various methods to protect root crop plants from pests and diseases

Qualification Pack

- KU21.** harvesting schedule and process for root crops
- KU22.** location of different markets for root crops in the region
- KU23.** market requirement for root crops
- KU24.** appropriate time of harvest based on top foliage and climatic conditions
- KU25.** advantages and disadvantages of various harvesting methods
- KU26.** curing mechanisms and days required for curing
- KU27.** storage condition and method to prevent rotting and spread of diseases (spreading on dry floor)
- KU28.** inhibitors to be used for controlling sprouts in roots
- KU29.** sorting and grading criteria for root crops
- KU30.** appropriate packing material for the root crops
- KU31.** storage and transportation requirements for root crops to prevent damage and spoilage
- KU32.** importance of following environmental and ecological best farming practices to minimise the impact on the environment
- KU33.** ways of efficiently managing inputs including water and electricity in the process
- KU34.** waste management and methods of waste disposal

Generic Skills (GS)

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

- GS1.** write in local language to make personal notes and notes for workers
- GS2.** read names of vegetables and farm features in English and/or local language
- GS3.** read dates, health and safety symbols in English and/or local language
- GS4.** provide direction and instructions to other workers
- GS5.** evaluate adequacy of information available for sound decision making
- GS6.** prepare a workplan that meets the requirements of the customers
- GS7.** identify the objectives, concerns and priorities of the customers
- GS8.** think through the problem, evaluate the possible solution(s) and take up an optimum/ best possible solution(s)

Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Prepare for root crop cultivation</i>	8	6	-	8
PC1. select a site with appropriate conditions for the cultivation of root crop	-	-	-	-
PC2. select a commercially viable root crop and the recommended variety, suitable to the site	-	-	-	-
PC3. remove weeds and pests from the soil	-	-	-	-
PC4. prepare the soil to ensure appropriate pH, moisture, salinity and organic content as required for the root crop	-	-	-	-
PC5. procure appropriate seed or roots for the root crop from authorized sources	-	-	-	-
PC6. treat the seeds with insecticides (chemical as well as biological) as per the dosage	-	-	-	-
PC7. carry out soil tillage and seed bed preparation	-	-	-	-
<i>Plant a root crop</i>	2	4	-	2
PC8. plant the root crop using appropriate method and ensuring recommended depth and spacing	-	-	-	-
PC9. raise and transplant seedlings	-	-	-	-
<i>Carry out various cultural and inter-cultural operations in a root crop farm</i>	5	10	-	5
PC10. provide adequate irrigation to root crop	-	-	-	-
PC11. prepare and apply the recommended mixture of manure and fertilizer for the particular root crop	-	-	-	-
PC12. monitor disease and pest infestation in the root crop and apply appropriate measures for prevention and treatment	-	-	-	-
PC13. ensure the crop is free from weeds	-	-	-	-
PC14. carry out inter-cropping of root crop with suitable crops	-	-	-	-

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Carry out harvest and post-harvest management of a root crop</i>	15	20	-	15
PC15. harvest the crop at appropriate stage by observing the harvesting indices such as appropriate foliage, when the leaves are half dry	-	-	-	-
PC16. harvest the crop at the right time using the suitable harvesting method (by hand, digger or under cutter)	-	-	-	-
PC17. carry out curing of root crops	-	-	-	-
PC18. sort and grade root crops	-	-	-	-
PC19. fill and temporarily store the produce, preferably in aerated gunny bag	-	-	-	-
PC20. use weighing machines accurately to weigh harvested produce	-	-	-	-
PC21. pack, store and transport the marketable produce, ensuring that the produce remains fresh and damage free for a long time	-	-	-	-
PC22. take measures for sprout control in storage	-	-	-	-
PC23. optimize usage of resources/inputs including water and electricity in various tasks/activities/processes	-	-	-	-
PC24. segregate waste into different categories	-	-	-	-
PC25. dispose non-recyclable waste appropriately	-	-	-	-
PC26. deposit recyclable and reusable material at identified location	-	-	-	-
NOS Total	30	40	-	30

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	AGR/N0419
NOS Name	Grow root vegetables in a farm
Sector	Agriculture
Sub-Sector	Agriculture Crop Production
Occupation	Vegetable Crops Cultivation
NSQF Level	4
Credits	1
Version	1.0
Last Reviewed Date	NA
Next Review Date	25/02/2024
NSQC Clearance Date	25/02/2021

Qualification Pack

AGR/N0420: Grow cucurbit crops in a farm

Description

This unit is about growing cucurbit crops such as cucumber, gourds, pumpkin, melons, and summer squash in a farm.

Scope

The scope covers the following :

- Prepare for cucurbit crop cultivation
- Plant a cucurbit crop
- Carry out various cultural and inter-cultural operations in a cucurbit crop farm
- Carry out harvest and post-harvest management of a cucurbit crop

Elements and Performance Criteria

Prepare for cucurbit crop cultivation

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

- PC1.** select a site with suitable agro-climatic conditions for the cultivation of cucurbit crop
- PC2.** select a commercially viable cucurbit crop and the recommended variety
- PC3.** remove weeds and pests from the soil
- PC4.** prepare the soil to ensure appropriate pH, moisture, salinity and organic content as required for the cucurbit crop
- PC5.** procure appropriate seed for the cucurbit crop from authorized sources
- PC6.** treat the seeds with insecticides (chemical as well as biological) as per the dosage
- PC7.** carry out deep ploughing to remove any stones and clods of dirt
- PC8.** prepare the seedbed by tilling the farmland

Plant a cucurbit crop

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

- PC9.** carry out seed treatment before sowing
- PC10.** plant the cucurbit crop using appropriate method

Carry out various cultural and inter-cultural operations in a cucurbit crop farm

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

- PC11.** provide adequate irrigation to the cucurbit crop
- PC12.** prepare and apply the recommended mixture of manure and fertilizer to the particular cucurbit crop
- PC13.** monitor pest and disease infestation in the cucurbit crop and apply appropriate measures for prevention and treatment
- PC14.** ensure the crop is free from weeds
- PC15.** carry out inter-cropping of cucurbit crop with suitable crops

Carry out harvest and post-harvest management of a cucurbit crop

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

Qualification Pack

- PC16.** identify the appropriate stage of harvesting by observing the crop maturity indices
- PC17.** harvest the crop at right time using the suitable harvesting method (manual or mechanical)
- PC18.** sort and grade cucurbit crops
- PC19.** select well aerated packing material with the required capacity as per the harvested crop
- PC20.** use weighing machines accurately to weigh harvested produce
- PC21.** pack, store and transport the marketable produce, ensuring that the produce remains fresh and damage free for a long time
- PC22.** optimize usage of resources/inputs including water and electricity in various tasks/activities/processes
- PC23.** segregate waste into different categories
- PC24.** dispose non-recyclable waste appropriately
- PC25.** deposit recyclable and reusable material at identified location

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.** common cucurbit crops grown in commercial farming
- KU5.** agro-climatic conditions required for cucurbit crop farming
- KU6.** the criteria for selecting the land for cucurbit crop farming
- KU7.** soil requirement for cucurbit crop
- KU8.** criteria for healthy seed
- KU9.** seed rate of specific cucurbit crop required for a given unit of the land
- KU10.** land preparation requirements for commercial cucurbit crop farming
- KU11.** soil tillage and seed bed preparation methods
- KU12.** monoculture and intercropping practices
- KU13.** advantages and disadvantages of various planting methods
- KU14.** benefits of inter-cropping and crop rotation and types of crops to be inter-cropped with cucurbit crop
- KU15.** irrigation best practices for cucurbit crops
- KU16.** application of manure and fertilizers in cucurbit crop farming
- KU17.** various cucurbit crop pests and diseases and methods to protect and treat them
- KU18.** cucurbit crop harvesting schedule and process
- KU19.** location of different markets for cucurbit crops in the region
- KU20.** market requirement for cucurbit crops
- KU21.** ideal time of harvest (climatic conditions)
- KU22.** advantages and disadvantages of various harvesting methods
- KU23.** curing mechanisms and days required for curing

Qualification Pack

- KU24.** storage condition and method to prevent rotting and spread of diseases
- KU25.** cucurbit crop sorting and grading criteria
- KU26.** appropriate packing material for the cucurbit crops
- KU27.** cucurbit crop transportation requirements to prevent damage and spoilage
- KU28.** importance of following environmental and ecological best farming practices to minimise the impact on the environment
- KU29.** ways of efficiently managing inputs including water and electricity in the process
- KU30.** waste management and methods of waste disposal

Generic Skills (GS)

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

- GS1.** write in local language to make personal notes and notes for workers
- GS2.** read dates, health and safety symbols in English and/or local language
- GS3.** receive preferences, priorities, instructions and seek advice from clients and managers
- GS4.** provide direction and instructions to other workers
- GS5.** seek information about best practices and solutions to problems from experts
- GS6.** evaluate adequacy of information available for sound decision making
- GS7.** plan the farming calendar aligned to the overall farm design, climate and availability of plants
- GS8.** identify the objectives, concerns and priorities of the client
- GS9.** think through the problem, evaluate the possible solution(s) and take up an optimum /best possible solution(s)

Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Prepare for cucurbit crop cultivation</i>	8	7	-	10
PC1. select a site with suitable agro-climatic conditions for the cultivation of cucurbit crop	-	-	-	-
PC2. select a commercially viable cucurbit crop and the recommended variety	-	-	-	-
PC3. remove weeds and pests from the soil	-	-	-	-
PC4. prepare the soil to ensure appropriate pH, moisture, salinity and organic content as required for the cucurbit crop	-	-	-	-
PC5. procure appropriate seed for the cucurbit crop from authorized sources	-	-	-	-
PC6. treat the seeds with insecticides (chemical as well as biological) as per the dosage	-	-	-	-
PC7. carry out deep ploughing to remove any stones and clods of dirt	-	-	-	-
PC8. prepare the seedbed by tilling the farmland	-	-	-	-
<i>Plant a cucurbit crop</i>	1	3	-	1
PC9. carry out seed treatment before sowing	-	-	-	-
PC10. plant the cucurbit crop using appropriate method	-	-	-	-
<i>Carry out various cultural and inter-cultural operations in a cucurbit crop farm</i>	6	10	-	4
PC11. provide adequate irrigation to the cucurbit crop	-	-	-	-
PC12. prepare and apply the recommended mixture of manure and fertilizer to the particular cucurbit crop	-	-	-	-
PC13. monitor pest and disease infestation in the cucurbit crop and apply appropriate measures for prevention and treatment	-	-	-	-

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC14. ensure the crop is free from weeds	-	-	-	-
PC15. carry out inter-cropping of cucurbit crop with suitable crops	-	-	-	-
<i>Carry out harvest and post-harvest management of a cucurbit crop</i>	15	20	-	15
PC16. identify the appropriate stage of harvesting by observing the crop maturity indices	-	-	-	-
PC17. harvest the crop at right time using the suitable harvesting method (manual or mechanical)	-	-	-	-
PC18. sort and grade cucurbit crops	-	-	-	-
PC19. select well aerated packing material with the required capacity as per the harvested crop	-	-	-	-
PC20. use weighing machines accurately to weigh harvested produce	-	-	-	-
PC21. pack, store and transport the marketable produce, ensuring that the produce remains fresh and damage free for a long time	-	-	-	-
PC22. optimize usage of resources/inputs including water and electricity in various tasks/activities/processes	-	-	-	-
PC23. segregate waste into different categories	-	-	-	-
PC24. dispose non-recyclable waste appropriately	-	-	-	-
PC25. deposit recyclable and reusable material at identified location	-	-	-	-
NOS Total	30	40	-	30

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	AGR/N0420
NOS Name	Grow cucurbit crops in a farm
Sector	Agriculture
Sub-Sector	Agriculture Crop Production
Occupation	Vegetable Crops Cultivation
NSQF Level	4
Credits	1
Version	1.0
Last Reviewed Date	NA
Next Review Date	25/02/2024
NSQC Clearance Date	25/02/2021

Qualification Pack

AGR/N0421: Grow solanaceous crops in a farm

Description

This unit is about growing solanaceous crops such as tomato, chilli, bell pepper and eggplant in a farm.

Scope

The scope covers the following :

- Prepare for solanaceous crop cultivation
- Plant a solanaceous crop
- Carry out various cultural and inter-cultural operations in a solanaceous crop farm
- Carry out harvest and post-harvest management of a solanaceous crop

Elements and Performance Criteria

Prepare for solanaceous crop cultivation

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

- PC1.** select a site with suitable agro-climatic conditions for solanaceous crop farming
- PC2.** select a commercially viable solanaceous crop and the recommended variety, including hybrid, which is suitable to the site
- PC3.** select appropriate soil for solanaceous crop
- PC4.** remove weeds and pests from the soil
- PC5.** prepare the soil to ensure appropriate pH, moisture, salinity and organic content as required for the solanaceous crop
- PC6.** carry out deep ploughing and levelling of land
- PC7.** procure quality seed of the solanaceous crop from authorized sources
- PC8.** apply nursery and tray method for growing the seedlings, as appropriate
- PC9.** prepare the land with ridges and furrows

Plant a solanaceous crop

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

- PC10.** apply appropriate seeding method for the solanaceous crop such as line or broadcast
- PC11.** transplant seedling at appropriate time, stage and with recommended spacing

Carry out various cultural and inter-cultural operations in a solanaceous crop farm

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

- PC12.** provide adequate irrigation to the solanaceous crop
- PC13.** prepare and apply the recommended mixture of manure and fertilizer for the particular solanaceous crop
- PC14.** monitor pest and disease infestation in the solanaceous crop and apply appropriate measures for prevention and treatment
- PC15.** ensure the crop is free from weeds

Carry out harvest and post-harvest management of a solanaceous crop

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

Qualification Pack

- PC16.** select appropriate harvesting method such as handpicked or machine
- PC17.** harvest the solanaceous crops when the fruits are well developed and ready as per the market requirement
- PC18.** fill and store the produce temporarily, preferably in aerated gunny bag
- PC19.** use weighing machines accurately to weigh the harvested produce
- PC20.** sort and grade the harvested produce based on quality, colour and size
- PC21.** pack, store and transport the marketable produce, ensuring that the produce remains fresh and damage free for a long time
- PC22.** optimize usage of resources/inputs including water and electricity in various tasks/activities/processes
- PC23.** segregate waste into different categories
- PC24.** dispose non-recyclable waste appropriately
- PC25.** deposit recyclable and reusable material at identified location

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.** common solanaceous crops grown in commercial farming
- KU5.** agro-climatic conditions required for solanaceous crop farming
- KU6.** the criteria for selecting the land for solanaceous crop farming
- KU7.** soil requirement for solanaceous crop
- KU8.** land preparation requirements for commercial solanaceous crop farming
- KU9.** the appropriate season and conditions for solanaceous crop planting
- KU10.** advantages and disadvantages of soil nursery or tray method
- KU11.** depth and spacing of planting seedlings in case of soil nursery and tray
- KU12.** characteristics of appropriate tray (hole size, depth, rate, etc.)
- KU13.** level of soil tillage including depth of plugging and appropriate equipment for plugging
- KU14.** distance between ridges and furrows
- KU15.** ideal temperature, moisture and water content for seedlings to sprout
- KU16.** benefits of crop rotation and types of crop to be rotated with solanaceous crop
- KU17.** common solanaceous crops grown in commercial farming
- KU18.** application of manure and fertilizers in solanaceous crop farming
- KU19.** various solanaceous crop pests and diseases
- KU20.** various methods to protect solanaceous crop plants from pests and diseases
- KU21.** solanaceous crop harvesting schedule and process
- KU22.** location of different markets for solanaceous crops in the region
- KU23.** market requirement for solanaceous crops

Qualification Pack

- KU24.** solanaceous crop sorting and grading criteria
- KU25.** appropriate packing material for the solanaceous crops
- KU26.** solanaceous crop storage and transportation requirements to prevent damage and spoilage
- KU27.** ways of efficiently managing inputs including water and electricity in the process
- KU28.** waste management and methods of waste disposal

Generic Skills (GS)

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

- GS1.** write in local language to make personal notes and notes for workers
- GS2.** read dates, health and safety symbols in English and/or local language
- GS3.** receive preferences, priorities, instructions and seek advice from clients and managers
- GS4.** provide direction and instructions to other workers
- GS5.** seek information about best practices and solutions to problems from experts
- GS6.** evaluate adequacy of information available for sound decision making
- GS7.** prepare a workplan that meets the requirements of the clients and own management within the resources, constraints and local conditions
- GS8.** plan the farming calendar aligned to the overall farm design, climate and availability of plants
- GS9.** think through the problem, evaluate the possible solution(s) and take up an optimum /best possible solution(s)

Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Prepare for solanaceous crop cultivation</i>	8	6	-	8
PC1. select a site with suitable agro-climatic conditions for solanaceous crop farming	-	-	-	-
PC2. select a commercially viable solanaceous crop and the recommended variety, including hybrid, which is suitable to the site	-	-	-	-
PC3. select appropriate soil for solanaceous crop	-	-	-	-
PC4. remove weeds and pests from the soil	-	-	-	-
PC5. prepare the soil to ensure appropriate pH, moisture, salinity and organic content as required for the solanaceous crop	-	-	-	-
PC6. carry out deep ploughing and levelling of land	-	-	-	-
PC7. procure quality seed of the solanaceous crop from authorized sources	-	-	-	-
PC8. apply nursery and tray method for growing the seedlings, as appropriate	-	-	-	-
PC9. prepare the land with ridges and furrows	-	-	-	-
<i>Plant a solanaceous crop</i>	2	4	-	2
PC10. apply appropriate seeding method for the solanaceous crop such as line or broadcast	-	-	-	-
PC11. transplant seedling at appropriate time, stage and with recommended spacing	-	-	-	-
<i>Carry out various cultural and inter-cultural operations in a solanaceous crop farm</i>	5	10	-	5
PC12. provide adequate irrigation to the solanaceous crop	-	-	-	-
PC13. prepare and apply the recommended mixture of manure and fertilizer for the particular solanaceous crop	-	-	-	-

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC14. monitor pest and disease infestation in the solanaceous crop and apply appropriate measures for prevention and treatment	-	-	-	-
PC15. ensure the crop is free from weeds	-	-	-	-
<i>Carry out harvest and post-harvest management of a solanaceous crop</i>	15	20	-	15
PC16. select appropriate harvesting method such as handpicked or machine	-	-	-	-
PC17. harvest the solanaceous crops when the fruits are well developed and ready as per the market requirement	-	-	-	-
PC18. fill and store the produce temporarily, preferably in aerated gunny bag	-	-	-	-
PC19. use weighing machines accurately to weigh the harvested produce	-	-	-	-
PC20. sort and grade the harvested produce based on quality, colour and size	-	-	-	-
PC21. pack, store and transport the marketable produce, ensuring that the produce remains fresh and damage free for a long time	-	-	-	-
PC22. optimize usage of resources/inputs including water and electricity in various tasks/activities/processes	-	-	-	-
PC23. segregate waste into different categories	-	-	-	-
PC24. dispose non-recyclable waste appropriately	-	-	-	-
PC25. deposit recyclable and reusable material at identified location	-	-	-	-
NOS Total	30	40	-	30

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	AGR/N0421
NOS Name	Grow solanaceous crops in a farm
Sector	Agriculture
Sub-Sector	Agriculture Crop Production
Occupation	Vegetable Crops Cultivation
NSQF Level	4
Credits	1
Version	1.0
Last Reviewed Date	NA
Next Review Date	25/02/2024
NSQC Clearance Date	25/02/2021

Qualification Pack

AGR/N0422: Grow pod vegetables in a farm

Description

This unit is about growing pod crops, which are legume vegetables and belong to the Fabaceae or the pea family such as pea, french bean, dolichos bean, broad bean, cluster bean, lima bean, winged bean and cowpea.

Scope

The scope covers the following :

- Prepare for pod crop cultivation
- Plant a pod crop
- Carry out various cultural and inter-cultural operations in a pod crop farm
- Carry out harvest and post-harvest management of a pod crop

Elements and Performance Criteria

Prepare for pod crop cultivation

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

- PC1.** select a site with suitable agro-climatic conditions for the pod crop
- PC2.** select commercially viable pod crop and the recommended variety which is suitable to the site
- PC3.** remove weeds and pests from the soil
- PC4.** prepare the soil to ensure appropriate pH, moisture, salinity and organic content as required for the pod crop
- PC5.** procure appropriate seed for the pod crop from authorized sources
- PC6.** treat the seeds with pesticides (chemical as well as biological) as per the dosage
- PC7.** apply organic manure on the farm a week prior to planting
- PC8.** carry out deep ploughing to remove any stones and clods of dirt
- PC9.** prepare the seedbed by tilling the farmland

Plant a pod crop

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

- PC10.** plant the pod crop using appropriate method such as raising seedling in beds and transplanting, planting pods directly and broadcasting of seeds directly
- PC11.** carry out inter-cropping of pod crop with suitable crops

Carry out various cultural and inter-cultural operations in a pod crop farm

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

- PC12.** provide adequate and timely irrigation to the pod crop
- PC13.** prepare and apply the recommended mixture of manure and fertilizer to the pod crop
- PC14.** monitor pest and disease infestation in the pod crop and apply appropriate measures for prevention and treatment

Carry out harvest and post-harvest management of a pod crop

Qualification Pack

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

- PC15.** harvest the crop at appropriate stage by observing the crop maturity indices
- PC16.** harvest the crop at right time using suitable harvesting method (manual or mechanical)
- PC17.** sort and grade pod crops
- PC18.** select well aerated packing material with the required capacity as per the harvested crop
- PC19.** use weighing machines accurately to weigh harvested produce
- PC20.** pack, store and transport the marketable produce, ensuring that the produce remains fresh and damage free for a long time
- PC21.** optimize usage of resources/inputs including water and electricity in various tasks/activities/processes
- PC22.** segregate waste into different categories
- PC23.** dispose non-recyclable waste appropriately
- PC24.** deposit recyclable and reusable material at identified location

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.** common pod crops grown in commercial farming
- KU5.** agro-climatic conditions required for pod crop farming
- KU6.** the criteria for selecting the land for pod crop farming
- KU7.** soil requirement for pod crop
- KU8.** criteria for healthy seed
- KU9.** seed rate of specific pod crop required for a given unit of the land
- KU10.** land preparation requirements for commercial pod crop farming
- KU11.** soil tillage and seed bed preparation methods
- KU12.** monoculture and intercropping practices
- KU13.** advantages and disadvantages of various planting methods
- KU14.** benefits of inter-cropping and crop rotation and types of crops to be inter-cropped with pod crop
- KU15.** irrigation best practices for pod crop plants
- KU16.** application of manure and fertilizers in pod crop farming
- KU17.** various pod crop pests and diseases and methods to protect and treat them
- KU18.** pod crop harvesting schedule and process
- KU19.** location of different markets for pod crops in the region
- KU20.** market requirement for pod crops
- KU21.** ideal time of harvest (climatic conditions)
- KU22.** advantages and disadvantages of various harvesting methods

Qualification Pack

- KU23.** curing mechanisms and days required for curing
- KU24.** storage condition and method to prevent rotting and spread of diseases
- KU25.** pod crop sorting and grading criteria
- KU26.** appropriate packing material for the pod crops
- KU27.** pod crop storage and transportation requirements to prevent damage and spoilage
- KU28.** importance of following environmental and ecological best farming practices to minimise the impact on the environment
- KU29.** ways of efficiently managing inputs including water and electricity in the process
- KU30.** waste management and methods of waste disposal

Generic Skills (GS)

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

- GS1.** write in local language to make personal notes and notes for workers
- GS2.** read dates, health and safety symbols in English and/or local language
- GS3.** receive preferences, priorities, instructions and seek advice from clients and managers
- GS4.** provide direction and instructions to other workers
- GS5.** seek information about best practices and solutions to problems from experts
- GS6.** evaluate adequacy of information available for sound decision making
- GS7.** prepare a workplan that meets the requirements of the clients and own management within the resources, constraints and local conditions
- GS8.** identify the objectives, concerns and priorities of the client
- GS9.** think through the problem, evaluate the possible solution(s) and take up an optimum /best possible solution(s)

Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Prepare for pod crop cultivation</i>	10	10	-	8
PC1. select a site with suitable agro-climatic conditions for the pod crop	-	-	-	-
PC2. select commercially viable pod crop and the recommended variety which is suitable to the site	-	-	-	-
PC3. remove weeds and pests from the soil	-	-	-	-
PC4. prepare the soil to ensure appropriate pH, moisture, salinity and organic content as required for the pod crop	-	-	-	-
PC5. procure appropriate seed for the pod crop from authorized sources	-	-	-	-
PC6. treat the seeds with pesticides (chemical as well as biological) as per the dosage	-	-	-	-
PC7. apply organic manure on the farm a week prior to planting	-	-	-	-
PC8. carry out deep ploughing to remove any stones and clods of dirt	-	-	-	-
PC9. prepare the seedbed by tilling the farmland	-	-	-	-
<i>Plant a pod crop</i>	2	4	-	-
PC10. plant the pod crop using appropriate method such as raising seedling in beds and transplanting, planting pods directly and broadcasting of seeds directly	-	-	-	-
PC11. carry out inter-cropping of pod crop with suitable crops	-	-	-	-
<i>Carry out various cultural and inter-cultural operations in a pod crop farm</i>	3	6	-	7
PC12. provide adequate and timely irrigation to the pod crop	-	-	-	-
PC13. prepare and apply the recommended mixture of manure and fertilizer to the pod crop	-	-	-	-

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC14. monitor pest and disease infestation in the pod crop and apply appropriate measures for prevention and treatment	-	-	-	-
<i>Carry out harvest and post-harvest management of a pod crop</i>	15	20	-	15
PC15. harvest the crop at appropriate stage by observing the crop maturity indices	-	-	-	-
PC16. harvest the crop at right time using suitable harvesting method (manual or mechanical)	-	-	-	-
PC17. sort and grade pod crops	-	-	-	-
PC18. select well aerated packing material with the required capacity as per the harvested crop	-	-	-	-
PC19. use weighing machines accurately to weigh harvested produce	-	-	-	-
PC20. pack, store and transport the marketable produce, ensuring that the produce remains fresh and damage free for a long time	-	-	-	-
PC21. optimize usage of resources/inputs including water and electricity in various tasks/activities/processes	-	-	-	-
PC22. segregate waste into different categories	-	-	-	-
PC23. dispose non-recyclable waste appropriately	-	-	-	-
PC24. deposit recyclable and reusable material at identified location	-	-	-	-
NOS Total	30	40	-	30

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	AGR/N0422
NOS Name	Grow pod vegetables in a farm
Sector	Agriculture
Sub-Sector	Agriculture Crop Production
Occupation	Vegetable Crops Cultivation
NSQF Level	4
Credits	1
Version	1.0
Last Reviewed Date	NA
Next Review Date	25/02/2024
NSQC Clearance Date	25/02/2021

Qualification Pack

AGR/N0423: Grow bulb vegetables in a farm

Description

This unit is about growing bulb crops such as onion, leek and garlic in a farm.

Scope

The scope covers the following :

- Prepare for bulb crop cultivation
- Plant a bulb crop
- Carry out various cultural and inter-cultural operations in a bulb crop farm
- Carry out harvest and post-harvest management of a bulb crop

Elements and Performance Criteria

Prepare for bulb crop cultivation

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

- PC1.** select a site with suitable agro-climatic conditions for the bulb crop
- PC2.** select commercially viable bulb crop and the recommended variety which is suitable to the site
- PC3.** remove weeds and pests from the soil
- PC4.** prepare the soil to ensure appropriate pH, moisture, salinity and organic content as required for the bulb crop
- PC5.** procure quality seed or bulbs for planting from authorized sources
- PC6.** treat the seeds with pesticides (chemical as well as biological) as per the dosage
- PC7.** carry out soil tillage and seed bed preparation

Plant a bulb crop

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

- PC8.** plant the bulb crop using the appropriate method such as raising seedling in beds and transplanting, planting bulbs directly and broadcasting of seeds directly
- PC9.** carry out inter-cropping of bulb crop with suitable crops

Carry out various cultural and inter-cultural operations in a bulb crop farm

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

- PC10.** provide adequate and timely irrigation to the crop
- PC11.** prepare and apply the recommended mixture of manure and fertilizer for the bulb crop
- PC12.** monitor pest and disease infestation in the bulb crop and apply appropriate measures for prevention and treatment

Carry out harvest and post-harvest management of a bulb crop

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

- PC13.** harvest the crop at appropriate stage by observing harvesting indices
- PC14.** harvest the crop at right time using suitable harvesting method (by hand, digger or under cutter, etc)

Qualification Pack

- PC15.** carry out curing of bulb crops
- PC16.** sort and grade bulb crops
- PC17.** fill and store the produce temporarily, preferably in aerated gunny bag
- PC18.** use weighing machines accurately to weigh harvested produce
- PC19.** pack, store and transport the marketable produce, ensuring that the produce remains fresh and damage free for a long time
- PC20.** take measures for sprout control in storage
- PC21.** optimize usage of resources/inputs including water and electricity in various tasks/activities/processes
- PC22.** segregate waste into different categories
- PC23.** dispose non-recyclable waste appropriately
- PC24.** deposit recyclable and reusable material at identified location

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.** common bulb crops grown in commercial farming
- KU5.** agro-climatic conditions required for bulb crop farming
- KU6.** the criteria for selecting the land for bulb crop farming
- KU7.** soil requirement for bulb crop
- KU8.** criteria for healthy seed
- KU9.** seed rate of specific bulb crop required for a given unit of the land
- KU10.** land preparation requirements for commercial bulb crop farming
- KU11.** level of soil tillage include depth of plugging
- KU12.** seed bed preparation using recommended mixture of soil and manure
- KU13.** monoculture and intercropping practices
- KU14.** advantages and disadvantages of various planting methods
- KU15.** benefits of inter-cropping and crop rotation and types of crops to be inter-cropped with bulb crop
- KU16.** irrigation best practices for bulb crop plants
- KU17.** application of manure and fertilizers in bulb crop farming
- KU18.** various bulb crop pests and diseases
- KU19.** various methods to protect bulb crop plants from pests and diseases
- KU20.** bulb crop harvesting schedule and process
- KU21.** location of different markets for bulb crops in the region
- KU22.** market requirement for bulb crops
- KU23.** appropriate time of harvest based on top foliage and climatic conditions

Qualification Pack

- KU24.** advantages and disadvantages of various harvesting methods
- KU25.** curing mechanisms and days required for curing
- KU26.** storage condition and method to prevent rotting and spread of diseases (spreading on dry floor)
- KU27.** inhibitors to be used for controlling sprouts in bulbs
- KU28.** bulb crop sorting and grading criteria
- KU29.** appropriate packing material for the bulb crops
- KU30.** bulb crop storage and transportation requirements to prevent damage and spoilage
- KU31.** importance of following environmental and ecological best farming practices to minimise the impact on the environment
- KU32.** ways of efficiently managing inputs including water and electricity in the process
- KU33.** waste management and methods of waste disposal

Generic Skills (GS)

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

- GS1.** write in local language to make personal notes and notes for workers
- GS2.** read dates, health and safety symbols in English and/or local language
- GS3.** receive preferences, priorities, instructions and seek advice from clients and managers
- GS4.** provide direction and instructions to other workers
- GS5.** seek information about best practices and solutions to problems from experts
- GS6.** evaluate adequacy of information available for sound decision making
- GS7.** prepare a workplan that meets the requirements of the clients and own management within the resources, constraints and local conditions
- GS8.** identify the objectives, concerns and priorities of the client
- GS9.** think through the problem, evaluate the possible solution(s) and take up an optimum /best possible solution(s)

Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Prepare for bulb crop cultivation</i>	8	6	-	8
PC1. select a site with suitable agro-climatic conditions for the bulb crop	-	-	-	-
PC2. select commercially viable bulb crop and the recommended variety which is suitable to the site	-	-	-	-
PC3. remove weeds and pests from the soil	-	-	-	-
PC4. prepare the soil to ensure appropriate pH, moisture, salinity and organic content as required for the bulb crop	-	-	-	-
PC5. procure quality seed or bulbs for planting from authorized sources	-	-	-	-
PC6. treat the seeds with pesticides (chemical as well as biological) as per the dosage	-	-	-	-
PC7. carry out soil tillage and seed bed preparation	-	-	-	-
<i>Plant a bulb crop</i>	2	4	-	2
PC8. plant the bulb crop using the appropriate method such as raising seedling in beds and transplanting, planting bulbs directly and broadcasting of seeds directly	-	-	-	-
PC9. carry out inter-cropping of bulb crop with suitable crops	-	-	-	-
<i>Carry out various cultural and inter-cultural operations in a bulb crop farm</i>	5	10	-	5
PC10. provide adequate and timely irrigation to the crop	-	-	-	-
PC11. prepare and apply the recommended mixture of manure and fertilizer for the bulb crop	-	-	-	-
PC12. monitor pest and disease infestation in the bulb crop and apply appropriate measures for prevention and treatment	-	-	-	-

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Carry out harvest and post-harvest management of a bulb crop</i>	15	20	-	15
PC13. harvest the crop at appropriate stage by observing harvesting indices	-	-	-	-
PC14. harvest the crop at right time using suitable harvesting method (by hand, digger or under cutter, etc)	-	-	-	-
PC15. carry out curing of bulb crops	-	-	-	-
PC16. sort and grade bulb crops	-	-	-	-
PC17. fill and store the produce temporarily, preferably in aerated gunny bag	-	-	-	-
PC18. use weighing machines accurately to weigh harvested produce	-	-	-	-
PC19. pack, store and transport the marketable produce, ensuring that the produce remains fresh and damage free for a long time	-	-	-	-
PC20. take measures for sprout control in storage	-	-	-	-
PC21. optimize usage of resources/inputs including water and electricity in various tasks/activities/processes	-	-	-	-
PC22. segregate waste into different categories	-	-	-	-
PC23. dispose non-recyclable waste appropriately	-	-	-	-
PC24. deposit recyclable and reusable material at identified location	-	-	-	-
NOS Total	30	40	-	30

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	AGR/N0423
NOS Name	Grow bulb vegetables in a farm
Sector	Agriculture
Sub-Sector	Agriculture Crop Production
Occupation	Vegetable Crops Cultivation
NSQF Level	4
Credits	1
Version	1.0
Last Reviewed Date	NA
Next Review Date	25/02/2024
NSQC Clearance Date	25/02/2021

Qualification Pack

AGR/N0424: Grow perennial vegetables in a farm

Description

This unit is about growing perennial vegetables such as asparagus, artichoke, ivy gourd and pointed gourd in a farm.

Scope

The scope covers the following :

- Prepare for perennial crop cultivation
- Plant a perennial crop
- Carry out various cultural and inter-cultural operations in a perennial crop farm
- Carry out harvest and post-harvest management of a perennial crop

Elements and Performance Criteria

Prepare for perennial crop cultivation

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

- PC1.** select a site with suitable agro-climatic conditions for the perennial crop
- PC2.** select commercially viable perennial crop and the recommended variety which is suitable to the site
- PC3.** remove weeds and pests from the soil
- PC4.** prepare the soil to ensure appropriate pH, moisture, salinity and organic content as required for the perennial crop
- PC5.** procure quality seed of the perennial crop from authorized sources
- PC6.** treat the seeds with pesticides (chemical as well as biological) as per the dosage
- PC7.** apply organic manure on the farm a week prior to planting
- PC8.** carry out deep ploughing to remove any stones and clods of dirt
- PC9.** prepare the seedbed by tilling the farmland

Plant a perennial crop

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

- PC10.** plant the perennial crop using appropriate method
- PC11.** carry out inter-cropping of perennial crop with suitable crops

Carry out various cultural and inter-cultural operations in a perennial crop farm

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

- PC12.** provide timely and adequate irrigation to the perennial crop
- PC13.** prepare and apply the recommended mixture of manure and fertilizer to the perennial crop
- PC14.** monitor pest and disease infestation in the perennial crop and apply appropriate measures for prevention and treatment

Carry out harvest and post-harvest management of a perennial crop

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

- PC15.** harvest the crop at appropriate stage by observing the crop maturity indices

Qualification Pack

- PC16.** harvest the crop at right time applying the suitable harvesting method (manual or mechanical)
- PC17.** sort and grade perennial crops
- PC18.** select well aerated packing material with the required capacity as per the harvested crop
- PC19.** use weighing machines accurately to weigh harvested produce
- PC20.** pack, store and transport the marketable produce, ensuring that the produce remains fresh and damage free for a long time
- PC21.** optimize usage of resources/inputs including water and electricity in various tasks/activities/processes
- PC22.** segregate waste into different categories
- PC23.** dispose non-recyclable waste appropriately
- PC24.** deposit recyclable and reusable material at identified location

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.** common perennial crops grown in commercial farming
- KU5.** agro-climatic conditions required for perennial crop farming
- KU6.** the criteria for selecting the land for perennial crop farming
- KU7.** soil requirement for perennial crop
- KU8.** criteria for healthy seed
- KU9.** seed rate of specific perennial crop required for a given unit of the land
- KU10.** land preparation requirements for commercial perennial crop farming
- KU11.** soil tillage and seed bed preparation methods
- KU12.** monoculture and intercropping practices
- KU13.** advantages and disadvantages of various planting methods
- KU14.** benefits of inter-cropping and crop rotation and types of crops to be inter-cropped with perennial crop
- KU15.** irrigation best practices for perennial crop plants
- KU16.** application of manure and fertilizers in perennial crop farming
- KU17.** various perennial crop pests and diseases and methods to protect and treat them
- KU18.** perennial crop harvesting schedule and process
- KU19.** location of different markets for perennial crops in the region
- KU20.** market requirement for perennial crops
- KU21.** ideal stage and time of harvest
- KU22.** advantages and disadvantages of various harvesting methods
- KU23.** curing mechanisms and days required for curing
- KU24.** storage condition and method to prevent rotting and spread of diseases

Qualification Pack

- KU25.** perennial crop sorting and grading criteria
- KU26.** appropriate packing material for the perennial crops
- KU27.** perennial crop storage and transportation requirements to prevent damage and spoilage
- KU28.** importance of following environmental and ecological best farming practices to minimise the impact on the environment
- KU29.** ways of efficiently managing inputs including water and electricity in the process
- KU30.** waste management and methods of waste disposal

Generic Skills (GS)

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

- GS1.** write in local language to make personal notes and notes for workers
- GS2.** read dates, health and safety symbols in English and/or local language
- GS3.** receive preferences, priorities, instructions and seek advice from clients and managers
- GS4.** provide direction and instructions to other workers
- GS5.** seek information about best practices and solutions to problems from experts
- GS6.** evaluate adequacy of information available for sound decision making
- GS7.** prepare a workplan that meets the requirements of the clients and own management within the resources, constraints and local conditions
- GS8.** identify the objectives, concerns and priorities of the client
- GS9.** think through the problem, evaluate the possible solution(s) and take up an optimum /best possible solution(s)

Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Prepare for perennial crop cultivation</i>	10	8	-	8
PC1. select a site with suitable agro-climatic conditions for the perennial crop	-	-	-	-
PC2. select commercially viable perennial crop and the recommended variety which is suitable to the site	-	-	-	-
PC3. remove weeds and pests from the soil	-	-	-	-
PC4. prepare the soil to ensure appropriate pH, moisture, salinity and organic content as required for the perennial crop	-	-	-	-
PC5. procure quality seed of the perennial crop from authorized sources	-	-	-	-
PC6. treat the seeds with pesticides (chemical as well as biological) as per the dosage	-	-	-	-
PC7. apply organic manure on the farm a week prior to planting	-	-	-	-
PC8. carry out deep ploughing to remove any stones and clods of dirt	-	-	-	-
PC9. prepare the seedbed by tilling the farmland	-	-	-	-
<i>Plant a perennial crop</i>	2	4	-	2
PC10. plant the perennial crop using appropriate method	-	-	-	-
PC11. carry out inter-cropping of perennial crop with suitable crops	-	-	-	-
<i>Carry out various cultural and inter-cultural operations in a perennial crop farm</i>	3	8	-	5
PC12. provide timely and adequate irrigation to the perennial crop	-	-	-	-
PC13. prepare and apply the recommended mixture of manure and fertilizer to the perennial crop	-	-	-	-

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC14. monitor pest and disease infestation in the perennial crop and apply appropriate measures for prevention and treatment	-	-	-	-
<i>Carry out harvest and post-harvest management of a perennial crop</i>	15	20	-	15
PC15. harvest the crop at appropriate stage by observing the crop maturity indices	-	-	-	-
PC16. harvest the crop at right time applying the suitable harvesting method (manual or mechanical)	-	-	-	-
PC17. sort and grade perennial crops	-	-	-	-
PC18. select well aerated packing material with the required capacity as per the harvested crop	-	-	-	-
PC19. use weighing machines accurately to weigh harvested produce	-	-	-	-
PC20. pack, store and transport the marketable produce, ensuring that the produce remains fresh and damage free for a long time	-	-	-	-
PC21. optimize usage of resources/inputs including water and electricity in various tasks/activities/processes	-	-	-	-
PC22. segregate waste into different categories	-	-	-	-
PC23. dispose non-recyclable waste appropriately	-	-	-	-
PC24. deposit recyclable and reusable material at identified location	-	-	-	-
NOS Total	30	40	-	30

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	AGR/N0424
NOS Name	Grow perennial vegetables in a farm
Sector	Agriculture
Sub-Sector	Agriculture Crop Production
Occupation	Vegetable Crops Cultivation
NSQF Level	4
Credits	1
Version	1.0
Last Reviewed Date	NA
Next Review Date	25/02/2024
NSQC Clearance Date	25/02/2021

Qualification Pack

AGR/N0425: Grow tuber vegetables in a farm

Description

This unit is about growing tuber crops such as potato, sweet potato, taro, cassava/ tapioca and yams in a farm.

Scope

The scope covers the following :

- Prepare for tuber crop cultivation
- Plant a tuber crop
- Carry out various cultural and inter-cultural operations in a tuber crop farm
- Carry out harvest and post-harvest management of a tuber crop

Elements and Performance Criteria

Prepare for tuber crop cultivation

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

- PC1.** select a site with suitable agro-climatic conditions for tuber crop
- PC2.** select commercially viable tuber crop and the recommended variety which is suitable to the site
- PC3.** remove weeds and pests from the soil
- PC4.** prepare the soil to ensure appropriate pH, moisture, salinity and organic content as required for the tuber crop
- PC5.** procure quality seed tubers or true seed for the crop from authorized sources
- PC6.** ensure the tubers are free from soil particles and infection
- PC7.** treat the seeds with pesticides(chemical as well as biological) as per the dosage
- PC8.** carry out soil tillage and seed bed preparation activities

Plant a tuber crop

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

- PC9.** plant the tuber crop using appropriate method
- PC10.** carry out inter-cropping of tuber crop with suitable crops

Carry out various cultural and inter-cultural operations in a tuber crop farm

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

- PC11.** provide timely and adequate irrigation to the tuber crop
- PC12.** prepare and apply the recommended mixture of manure and fertilizer for the particular tuber crop
- PC13.** monitor pest and disease infestation in the tuber crop and apply appropriate measures for prevention and treatment

Carry out harvest and post-harvest management of a tuber crop

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

- PC14.** prune plants before harvesting (for seed production)

Qualification Pack

- PC15.** select appropriate harvesting method such as handpicked or with a hoe
- PC16.** harvest the tuber crops when the tubers are well developed and ready as per the market requirement
- PC17.** fill and store the produce temporarily, preferably in aerated gunny bag
- PC18.** use weighing machines accurately to weigh harvested produce
- PC19.** sort and grade the harvested produce based on quality, colour and size
- PC20.** pack, store and transport the marketable produce, ensuring that the produce remains fresh and damage free for a long time
- PC21.** take measures for sprout control in storage
- PC22.** optimize usage of resources/inputs including water and electricity in various tasks/activities/processes
- PC23.** segregate waste into different categories
- PC24.** dispose non-recyclable waste appropriately
- PC25.** deposit recyclable and reusable material at identified location

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.** common tuber crops grown in commercial farming
- KU5.** agro-climatic conditions required for tuber crop farming
- KU6.** the criteria for selecting the land for tuber crop farming
- KU7.** soil requirement for tuber crop
- KU8.** advantages of tuber crop cultivation from seed tubers and true potato seed
- KU9.** criteria for healthy seed
- KU10.** certified tuber crop seed categories
- KU11.** the appropriate storage condition for seeds and tubers
- KU12.** land preparation requirements for commercial tuber crop farming
- KU13.** level of soil tillage include depth of plugging
- KU14.** seed bed preparation using recommended mixture of soil and manure
- KU15.** monoculture and intercropping practices
- KU16.** benefits of inter-cropping and crop rotation and types of crops to be inter-cropped with tuber crop
- KU17.** irrigation best practices for tuber crop plants
- KU18.** application of manure and fertilizers in tuber crop farming
- KU19.** various tuber crop pests and diseases
- KU20.** various methods to protect tuber crop plants from pests and diseases
- KU21.** tuber crop harvesting schedule and process
- KU22.** location of different markets for tuber crops in the region

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- KU23.** market requirement for tuber crops
- KU24.** advantages of pruning of the crop
- KU25.** storage condition and method to prevent rotting and spread of diseases (spreading on dry floor)
- KU26.** inhibitors to be used for controlling sprouts in tubers during storage
- KU27.** tuber crop sorting and grading criteria
- KU28.** appropriate packing material for the tuber crops
- KU29.** transportation requirements to prevent damage and spoilage of tuber crops
- KU30.** importance of following environmental and ecological best farming practices to minimise the impact on the environment
- KU31.** ways of efficiently managing inputs including water and electricity in the process
- KU32.** waste management and methods of waste disposal

Generic Skills (GS)

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

- GS1.** write in local language to make personal notes and notes for workers
- GS2.** read dates, health and safety symbols in English and/or local language
- GS3.** receive preferences, priorities, instructions and seek advice from clients and managers
- GS4.** provide direction and instructions to other workers
- GS5.** seek information about best practices and solutions to problems from experts
- GS6.** evaluate adequacy of information available for sound decision making
- GS7.** prepare a workplan that meets the requirements of the clients and own management within the resources, constraints and local conditions
- GS8.** identify the objectives, concerns and priorities of the client
- GS9.** think through the problem, evaluate the possible solution(s) and take up an optimum /best possible solution(s)

Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Prepare for tuber crop cultivation</i>	8	10	-	7
PC1. select a site with suitable agro-climatic conditions for tuber crop	-	-	-	-
PC2. select commercially viable tuber crop and the recommended variety which is suitable to the site	-	-	-	-
PC3. remove weeds and pests from the soil	-	-	-	-
PC4. prepare the soil to ensure appropriate pH, moisture, salinity and organic content as required for the tuber crop	-	-	-	-
PC5. procure quality seed tubers or true seed for the crop from authorized sources	-	-	-	-
PC6. ensure the tubers are free from soil particles and infection	-	-	-	-
PC7. treat the seeds with pesticides(chemical as well as biological) as per the dosage	-	-	-	-
PC8. carry out soil tillage and seed bed preparation activities	-	-	-	-
<i>Plant a tuber crop</i>	2	4	-	2
PC9. plant the tuber crop using appropriate method	-	-	-	-
PC10. carry out inter-cropping of tuber crop with suitable crops	-	-	-	-
<i>Carry out various cultural and inter-cultural operations in a tuber crop farm</i>	5	6	-	6
PC11. provide timely and adequate irrigation to the tuber crop	-	-	-	-
PC12. prepare and apply the recommended mixture of manure and fertilizer for the particular tuber crop	-	-	-	-

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC13. monitor pest and disease infestation in the tuber crop and apply appropriate measures for prevention and treatment	-	-	-	-
<i>Carry out harvest and post-harvest management of a tuber crop</i>	15	20	-	15
PC14. prune plants before harvesting (for seed production)	-	-	-	-
PC15. select appropriate harvesting method such as handpicked or with a hoe	-	-	-	-
PC16. harvest the tuber crops when the tubers are well developed and ready as per the market requirement	-	-	-	-
PC17. fill and store the produce temporarily, preferably in aerated gunny bag	-	-	-	-
PC18. use weighing machines accurately to weigh harvested produce	-	-	-	-
PC19. sort and grade the harvested produce based on quality, colour and size	-	-	-	-
PC20. pack, store and transport the marketable produce, ensuring that the produce remains fresh and damage free for a long time	-	-	-	-
PC21. take measures for sprout control in storage	-	-	-	-
PC22. optimize usage of resources/inputs including water and electricity in various tasks/activities/processes	-	-	-	-
PC23. segregate waste into different categories	-	-	-	-
PC24. dispose non-recyclable waste appropriately	-	-	-	-
PC25. deposit recyclable and reusable material at identified location	-	-	-	-
NOS Total	30	40	-	30

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	AGR/N0425
NOS Name	Grow tuber vegetables in a farm
Sector	Agriculture
Sub-Sector	Agriculture Crop Production
Occupation	Vegetable Crops Cultivation
NSQF Level	4
Credits	1
Version	1.0
Last Reviewed Date	NA
Next Review Date	25/02/2024
NSQC Clearance Date	25/02/2021

Qualification Pack

AGR/N0426: Grow okra in a farm

Description

This unit is about growing okra in a farm.

Scope

The scope covers the following :

- Prepare for okra cultivation
- Carry out sowing of okra
- Carry out various cultural and inter-cultural operations in an okra farm
- Carry out harvest and post-harvest management of okra

Elements and Performance Criteria

Prepare for okra cultivation

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

- PC1.** select a site with suitable agro-climatic condition for the okra crop
- PC2.** select commercially viable okra variety suitable to the site
- PC3.** remove weeds and pests from the soil
- PC4.** prepare the soil to ensure appropriate pH, moisture, salinity and organic content as required for the okra crop
- PC5.** prepare soil by deep ploughing and levelling by two or three planking
- PC6.** procure quality seed of okra crop from authorized sources
- PC7.** carry out seed treatment prior to planting for proper germination
- PC8.** prepare raised bed or ridges to prevent waterlogging

Carry out sowing of okra

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

- PC9.** sow the seeds using appropriate method in the right season
- PC10.** ensure the recommended depth and spacing between plants for optimum planting density

Carry out various cultural and inter-cultural operations in a okra crop farm

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

- PC11.** provide timely and adequate irrigation to the okra crop
- PC12.** ensure timely weeding for the control of weeds
- PC13.** prepare and apply the recommended mixture of manure and fertilizer to the okra crop
- PC14.** monitor pest and disease infestation in the okra crop and apply appropriate measures for prevention and treatment

Carry out harvest and post-harvest management of a okra crop

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

- PC15.** select appropriate harvesting method such as handpicked or machine

Qualification Pack

- PC16.** harvest the okra vegetables when the fruits are well developed and ready as per the market requirement
- PC17.** fill and store the produce temporarily, preferably in aerated gunny bag
- PC18.** use weighing machines accurately to weigh harvested produce
- PC19.** sort and grade the harvested produce based on quality, colour and size
- PC20.** pack, store and transport the marketable produce, ensuring that the produce remains fresh and damage free for a long time
- PC21.** optimize usage of resources/inputs including water and electricity in various tasks/activities/processes
- PC22.** segregate waste into different categories
- PC23.** dispose non-recyclable waste appropriately
- PC24.** deposit recyclable and reusable material at identified location

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.** common okra varieties grown in commercial farming
- KU5.** agro-climatic conditions required for okra crop farming
- KU6.** the criteria for selecting the land for okra crop farming
- KU7.** soil requirement for okra crop
- KU8.** land preparation requirements for commercial okra crop farming
- KU9.** recommended density and spacing in okra farming
- KU10.** benefits of crop rotation and types of crop to be rotated with okra crop
- KU11.** Irrigation best practices for okra crops
- KU12.** application of manure and fertilizers in okra farming
- KU13.** various okra crop pests and diseases
- KU14.** various methods to protect okra crop from pests and diseases
- KU15.** okra crop harvesting schedule and process
- KU16.** location of different markets for okra vegetables in the region
- KU17.** market requirement for okra in terms of stage of harvest, stem length, pod size, quality and quantity of produce, type of packaging, etc.
- KU18.** okra crop sorting and grading criteria
- KU19.** appropriate packing material for the okra crops
- KU20.** okra crop storage and transportation requirements to prevent damage and spoilage
- KU21.** importance of following environmental and ecological best farming practices to minimise the impact on the environment
- KU22.** ways of efficiently managing inputs including water and electricity in the process
- KU23.** waste management and methods of waste disposal

Qualification Pack

Generic Skills (GS)

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

- GS1.** write in local language to make personal notes and notes for workers
- GS2.** read dates, health and safety symbols in English and/or local language
- GS3.** receive preferences, priorities, instructions and seek advice from clients and managers
- GS4.** provide direction and instructions to other workers
- GS5.** seek information about best practices and solutions to problems from experts
- GS6.** evaluate adequacy of information available for sound decision making
- GS7.** prepare a workplan that meets the requirements of the clients and own management within the resources, constraints and local conditions
- GS8.** identify the objectives, concerns and priorities of the client
- GS9.** think through the problem, evaluate the possible solution(s) and take up an optimum /best possible solution(s)

Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Prepare for okra cultivation</i>	8	8	-	10
PC1. select a site with suitable agro-climatic condition for the okra crop	-	-	-	-
PC2. select commercially viable okra variety suitable to the site	-	-	-	-
PC3. remove weeds and pests from the soil	-	-	-	-
PC4. prepare the soil to ensure appropriate pH, moisture, salinity and organic content as required for the okra crop	-	-	-	-
PC5. prepare soil by deep ploughing and levelling by two or three planking	-	-	-	-
PC6. procure quality seed of okra crop from authorized sources	-	-	-	-
PC7. carry out seed treatment prior to planting for proper germination	-	-	-	-
PC8. prepare raised bed or ridges to prevent waterlogging	-	-	-	-
<i>Carry out sowing of okra</i>	3	4	-	-
PC9. sow the seeds using appropriate method in the right season	-	-	-	-
PC10. ensure the recommended depth and spacing between plants for optimum planting density	-	-	-	-
<i>Carry out various cultural and inter-cultural operations in a okra crop farm</i>	4	8	-	5
PC11. provide timely and adequate irrigation to the okra crop	-	-	-	-
PC12. ensure timely weeding for the control of weeds	-	-	-	-
PC13. prepare and apply the recommended mixture of manure and fertilizer to the okra crop	-	-	-	-

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC14. monitor pest and disease infestation in the okra crop and apply appropriate measures for prevention and treatment	-	-	-	-
<i>Carry out harvest and post-harvest management of a okra crop</i>	15	20	-	15
PC15. select appropriate harvesting method such as handpicked or machine	-	-	-	-
PC16. harvest the okra vegetables when the fruits are well developed and ready as per the market requirement	-	-	-	-
PC17. fill and store the produce temporarily, preferably in aerated gunny bag	-	-	-	-
PC18. use weighing machines accurately to weigh harvested produce	-	-	-	-
PC19. sort and grade the harvested produce based on quality, colour and size	-	-	-	-
PC20. pack, store and transport the marketable produce, ensuring that the produce remains fresh and damage free for a long time	-	-	-	-
PC21. optimize usage of resources/inputs including water and electricity in various tasks/activities/processes	-	-	-	-
PC22. segregate waste into different categories	-	-	-	-
PC23. dispose non-recyclable waste appropriately	-	-	-	-
PC24. deposit recyclable and reusable material at identified location	-	-	-	-
NOS Total	30	40	-	30

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	AGR/N0426
NOS Name	Grow okra in a farm
Sector	Agriculture
Sub-Sector	Agriculture Crop Production
Occupation	Vegetable Crops Cultivation
NSQF Level	4
Credits	1
Version	1.0
Last Reviewed Date	NA
Next Review Date	25/02/2024
NSQC Clearance Date	25/02/2021

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) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each PC.
2. The assessment for the theory part will be based on knowledge bank of questions created by the SSC.
3. Assessment will be conducted for all compulsory NOS, and where applicable, on the selected elective/option NOS/set of NOS.
4. Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training center (as per assessment criteria below).
5. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training center based on this criterion.
6. To pass the Qualification Pack, every trainee should score a minimum of 70% of aggregate marks to successfully clear the assessment.
7. In case of 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/N0414.Prepare for vegetable cultivation	30	40	-	30	100	5
AGR/N0415.Carry out sowing/planting of vegetables	30	40	-	30	100	5
AGR/N0401.Soil nutrient management in vegetable crops	25	50	-	25	100	15
AGR/N0402.Weed control and management in vegetable crops	25	45	-	30	100	5
AGR/N0403.Integrated pest and disease management in vegetable crops	30	40	-	30	100	15
AGR/N0404.Irrigation management in vegetable crops	25	45	-	30	100	10
AGR/N9908.Undertake basic entrepreneurial activities for small enterprise	30	40	-	30	100	5
AGR/N9903.Maintain health and safety at the workplace	40	25	-	35	100	5
DGT/VSQ/N0102.Employability Skills (60 Hours)	20	30	-	-	50	5
Total	255	355	-	240	850	70

Qualification Pack

Elective: 1 Cole Crops

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
AGR/N0416.Grow cole crops in a farm	30	40	-	30	100	30
Total	30	40	-	30	100	30

Elective: 2 Leafy Vegetables

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
AGR/N0417.Grow leafy vegetables in a farm	30	40	-	30	100	30
Total	30	40	-	30	100	30

Elective: 3 Salad Vegetables

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
AGR/N0418.Grow salad vegetables in a farm	30	40	-	30	100	30
Total	30	40	-	30	100	30

Elective: 4 Root Vegetables

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
AGR/N0419.Grow root vegetables in a farm	30	40	-	30	100	30

Qualification Pack

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
Total	30	40	-	30	100	30

Elective: 5 Cucurbit Crops

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
AGR/N0420.Grow cucurbit crops in a farm	30	40	-	30	100	30
Total	30	40	-	30	100	30

Elective: 6 Solanaceous Crops

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
AGR/N0421.Grow solanaceous crops in a farm	30	40	-	30	100	30
Total	30	40	-	30	100	30

Elective: 7 Pod Vegetables

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
AGR/N0422.Grow pod vegetables in a farm	30	40	-	30	100	30
Total	30	40	-	30	100	30

Qualification Pack

Elective: 8 Bulb Vegetables

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
AGR/N0423.Grow bulb vegetables in a farm	30	40	-	30	100	30
Total	30	40	-	30	100	30

Elective: 9 Perennial Vegetables

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
AGR/N0424.Grow perennial vegetables in a farm	30	40	-	30	100	30
Total	30	40	-	30	100	30

Elective: 10 Tuber Vegetables

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
AGR/N0425.Grow tuber vegetables in a farm	30	40	-	30	100	30
Total	30	40	-	30	100	30

Elective: 11 Okra

Qualification Pack

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
AGR/N0426.Grow okra in a farm	30	40	-	30	100	30
Total	30	40	-	30	100	30

Qualification Pack

Acronyms

NOS	National Occupational Standard(s)
NSQF	National Skills Qualifications Framework
QP	Qualifications Pack
TVET	Technical and Vocational Education and Training
FYM	Farm Yard Manure
IPM	Integrated Pest Management
PPE	Personal Protective Equipment
PPE	Personal Protective Equipment
FYM	Farm Yard Manure
IPM	Integrated Pest Management
PPE	Personal Protective Equipment

Qualification Pack

Glossary

Sector	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.
Sub-sector	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.
Occupation	Occupation is a set of job roles, which perform similar/ related set of functions in an industry.
Job role	Job role defines a unique set of functions that together form a unique employment opportunity in an organisation.
Occupational Standards (OS)	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.
Performance Criteria (PC)	Performance Criteria (PC) are statements that together specify the standard of performance required when carrying out a task.
National Occupational Standards (NOS)	NOS are occupational standards which apply uniquely in the Indian context.
Qualifications Pack (QP)	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.
Unit Code	Unit code is a unique identifier for an Occupational Standard, which is denoted by an 'N'
Unit Title	Unit title gives a clear overall statement about what the incumbent should be able to do.
Description	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.
Scope	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

Knowledge and Understanding (KU)	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.
Organisational Context	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.
Technical Knowledge	Technical knowledge is the specific knowledge needed to accomplish specific designated responsibilities.
Core Skills/ Generic Skills (GS)	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.
Electives	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.
Options	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.