Tropical/Sub-tropical Fruit Grower

Options: Pomegranate/ Mango/ Banana/ Citrus Fruits/ Guava/ Ber

QP Code: AGR/Q0310

Version: 1.0

NSQF Level: 4

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

Contents

Qualification Pack

AGR/Q0310: Tropical/Sub-tropical Fruit Grower

Brief Job Description

The individual is responsible for cultivating tropical/subtropical fruits as per the recommended practices in the given agro-climatic zone. The person is engaged in various activities such as preparation, planting, nurturing of crop, harvest and post-harvest management of the tropical/subtropical fruit crops and ensuring the sale of the same.

Personal Attributes

The individual must have good physical stamina and the ability to perform manual work for long duration. The person must be able to manage workers and possess good organizational skills.

Applicable National Occupational Standards (NOS)

Compulsory NOS:

1. AGR/N0347: Prepare for growing tropical/subtropical fruits

2. AGR/N0348: Plant a tropical/subtropical fruit in an orchard

3. AGR/N0349: Manage operations of a tropical/subtropical fruit orchard

4. AGR/N0309: Manage irrigation for fruit production

5. AGR/N0344: Carry out harvesting and post-harvesting tasks in orchard/plantations

6. AGR/N9908: Undertake basic entrepreneurial activities for small enterprise

7. AGR/N9903: Maintain health and safety at the workplace

8. DGT/VSQ/N0102: Employability Skills (60 Hours)

Options(Not mandatory):

Option 1: Pomegranate

Specializes in growing pomegranate in an orchard.

1. AGR/N0350: Grow pomegranate in an orchard

Option 2: Mango

Specializes in growing mango in an orchard.

1. AGR/N0353: Grow mango in an orchard

Option 3: Banana

Specializes in growing banana in an orchard.

1. AGR/N0354: Grow banana in an orchard

Option 4: Citrus Fruits

Specializes in growing citrus fruits in an orchard.

1. AGR/N0355: Grow citrus in an orchard

Option 5: Guava

Specializes in growing guava in an orchard.

1. AGR/N0351: Grow guava in an orchard

Option 6: Ber

Specializes in growing ber in an orchard.

1. AGR/N0352: Grow ber in an orchard

Qualification Pack (QP) Parameters

Sector	Agriculture
Sub-Sector	Agriculture Crop Production
Occupation	Fruit Crops Cultivation
Country	India
NSQF Level	4
Credits	19
Aligned to NCO/ISCO/ISIC Code	NCO-2015/ 6111.0800

Minimum Educational Qualification & Experience	12th grade Pass (or equivalent) with NA of experience OR 10th grade pass (2 year continuous education) with NA of experience OR 10th grade pass with 3 Years of experience relevant experience in Agriculture and allied sectors OR Previous relevant Qualification of NSQF Level (3.5) with 1.5 years of experience relevant experience in Agriculture and allied sectors OR Previous relevant Qualification of NSQF Level (3) with 3 Years of experience relevant experience in Agriculture and allied sectors
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	27/08/2027
NSQC Approval Date	27/08/2024
Version	1.0
Reference code on NQR	QG-04-AG-02925-2024-V1-ASCI
NQR Version	1

AGR/N0347: Prepare for growing tropical/subtropical fruits

Description

This unit is about selecting the tropical/subtropical fruit crop to be grown and preparing the site and appropriate planting materials.

Scope

The scope covers the following :

- Prepare the site and select the tropical/sub-tropical fruit crop to be grown
- Prepare the planting material

Elements and Performance Criteria

Prepare the site and select the tropical/sub-tropical fruit crop to be grown

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

PC1. select the site with suitable agro-climatic conditions for tropical/sub-tropical fruit growing

PC2. identify the risks associated with tropical/sub-tropical fruit growing and possible precautions that need to be taken

PC3. select the fruit variety to be cultivated based on the local biotic and abiotic situations, available resources and constraints, market need and prices, production costs and time of harvest

PC4. implement measures to make the site suitable for tropical/sub-tropical fruit growing

Prepare the planting material

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

PC5. identify suitable planting material such as seeds, seedling, rootstock, etc. as per the type of fruit and the agroclimatic conditions

PC6. procure quality planting material from the authorised vendor post comparing the prices prevailing in the market

PC7. prepare the planting material through practices suitable to the variety like grafting, budding, inarching, etc.

PC8. treat the planting material with appropriate pesticides and fungicide in dosage recommended by experts/manufacturer

PC9. 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 in work

KU2. relevant health and safety requirements applicable in the work environment

KU3. various tropical/subtropical fruits grown in India and their common varieties

KU4. location and site that is suitable for growing various tropical/subtropical fruits

KU5. climate, soil type, soil fertility, nature of subsoil and soil depth suited for growing various tropical/subtropical fruits

KU6. various agroclimatic zones in India where tropical/subtropical fruits are grown

KU7. selection of fruits and their varieties for cultivation based on the agroclimatic zone

KU8. primary and secondary sources of water and quality of water

KU9. how topography of the landscape affects water flow, rainfall pattern, irrigation and drainage

KU10. risks and hazards to tropical/subtropical fruit growing and precautions to be taken

KU11. suitable time to plant based on the precipitation, humidity, etc.

KU12. cultivation period of various varieties

KU13. yield of the various varieties

KU14. resistance and vulnerability to various pests and diseases

KU15. resistance to various abiotic stress

KU16. advantages and disadvantages of transplanting and direct sowing methods

KU17. quality criteria and indicators of seedling and other planting material

KU18. planting material treatment techniques

KU19. need and procedure for grafting, budding and inarching of planting materials

KU20. methods of propagation of tropical/sub-tropical fruit plants

KU21. sources of procuring quality planting material

KU22. appropriate storage methodology for the planting material

KU23. chemicals to be used in seed treatment, their properties and the quantities they should be applied in

KU24. importance of following environmental and ecological best 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 trees, fruits, orchard features in English and/or local language

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

GS4. receive preferences, priorities, instructions and seek advice from clients and managers

GS5. provide direction and instructions to other workers

GS6. evaluate adequacy of information available for sound decision making

GS7. prepare a workplan that meets the requirements of the clients and own targets 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)

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Prepare the site and select the tropical/sub-tropical fruit crop to be grown	10	10	-	15
PC1. select the site with suitable agro-climatic conditions for tropical/sub-tropical fruit growing	-	-	-	-
PC2. identify the risks associated with tropical/sub-tropical fruit growing and possible precautions that need to be taken	-	-	-	-
PC3. select the fruit variety to be cultivated based on the local biotic and abiotic situations, available resources and constraints, market need and prices, production costs and time of harvest	-	-	-	-
PC4. implement measures to make the site suitable for tropical/sub-tropical fruit growing	-	-	-	-
Prepare the planting material	20	30	-	15
PC5. identify suitable planting material such as seeds, seedling, rootstock, etc. as per the type of fruit and the agroclimatic conditions	-	-	-	-
PC6. procure quality planting material from the authorised vendor post comparing the prices prevailing in the market	-	-	-	-
PC7. prepare the planting material through practices suitable to the variety like grafting, budding, inarching, etc.	-	-	-	-
PC8. treat the planting material with appropriate pesticides and fungicide in dosage recommended by experts/manufacturer	-	-	-	-
PC9. store the planting material appropriately	-	-	-	-
NOS Total	**30**	**40**	**-**	**30**

National Occupational Standards (NOS) Parameters

NOS Code	AGR/N0347
NOS Name	Prepare for growing tropical/subtropical fruits
Sector	Agriculture
Sub-Sector	Agriculture Crop Production
Occupation	Fruit Crops Cultivation
NSQF Level	4
Credits	1
Version	1.0
Last Reviewed Date	27/08/2024
Next Review Date	27/08/2027
NSQC Clearance Date	27/08/2024

AGR/N0348: Plant a tropical/subtropical fruit in an orchard

Description

This unit is about planning, preparing the land and planting of tropical/sub-tropical fruits.

Scope

The scope covers the following :

- Plan the orchard plantation
- Layout the land as per the plan
- Prepare the soil to receive plants
- Plant orchard plants and trees as per plan

Elements and Performance Criteria

Plan the orchard plantation

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. assess the hazards, drainage requirements, aeration concerns of the land and their corrective measures

PC3. prepare a rough layout of the orchard and its facilities

PC4. prepare the crop calendar as per the plants selected and climatic conditions

Layout the land as per the plan

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

PC5. remove unwanted plants and other debris from the field

PC6. identify dimensions, shapes and positions to be marked on the land and features to be produced, using the scale plan

PC7. transfer various dimensions, curves and positions accurately from scale plans onto the land, using triangulation, running lines and offsets

PC8. set out and level rectangular areas

Prepare soil to receive plants

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

PC9. coordinate with an authorised lab to get the soil sample tested

PC10. determine the soil preparation techniques

PC11. carry out primary and secondary cultivation for preparing the land for planting

PC12. apply organic or other recommended nutrients to improve the nutrient levels in the soil

PC13. prepare pits according to the nature of the soil and the size of the fruit trees to be planted

Plant the orchard plants and trees as per the plan

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

PC14. identify the plants and trees to be planted as well as the details such as location, timing, spacing, etc. from the plan

PC15. select quality planting material for planting

PC16. plant a range of plants and trees as per the plan using appropriate techniques and systems

PC17. ensure that adequate depth and spacing between trees are maintained to obtain optimum plant density

PC18. provide the necessary immediate aftercare for the new plantings

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. type of plantation/orchard to be designed

KU4. classification of different types of trees, and their climatic and soil requirements

KU5. habits, features and characteristics of tropical/subtropical fruit plants and trees

KU6. growing requirements of plants in tropical/subtropical fruit orchard systems

KU7. planting schedules and timelines based on seasons and plant/tree types

KU8. site characteristics to be understood before planning

KU9. boundaries of sites drawn at an appropriate scale

KU10. area information such as prevailing winds, fire aspect, winter and summer sun angles, best locations for sun-loving and shade-tolerant species

KU11. microclimate information

KU12. importance of good drainage and aeration

KU13. soil structure, fertility, types and function, including soil tests for agricultural purposes

KU14. soil maintenance and improvement techniques

KU15. design principles for orchards including permaculture principles

KU16. how to read the layout/scale plan

KU17. methods of marking lines and curves onto the land

KU18. the uses, benefits and limitations of different types of levelling equipment for specified situations

KU19. how tilth, soil structure, depth of preparation and seasonality and timing of cultivations affect the establishment of plants

KU20. importance of preparation of land for planting

KU21. tools and techniques used for land preparation

KU22. appropriate planting conditions for various plants

KU23. planting techniques - using a planting board and stakes; transplanting

KU24. planting systems - vertical row planting pattern (square system, rectangular system); Alternate row planting pattern (Hexagonal system, diagonal system, triangular system, contour system); high density planting system

KU25. importance of planting depth and firming and immediate aftercare

Generic Skills (GS)

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

GS1. prepare crop calendar in local language in a clear manner so that all workers can understand

GS2. read names of plants and orchard features in English and/or local language

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

GS4. receive preferences, priorities, instructions and seek advice from clients and managers

GS5. provide direction and instructions to other workers

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 choose best possible solution(s)

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Plan the orchard plantation	**5**	**5**	**-**	**10**
PC1. select the appropriate planting system after considering the slope of the land	-	-	-	-
PC2. assess the hazards, drainage requirements, aeration concerns of the land and their corrective measures	-	-	-	-
PC3. prepare a rough layout of the orchard and its facilities	-	-	-	-
PC4. prepare the crop calendar as per the plants selected and climatic conditions	-	-	-	-
Layout the land as per the plan	**5**	**10**	**-**	**5**
PC5. remove unwanted plants and other debris from the field	-	-	-	-
PC6. identify dimensions, shapes and positions to be marked on the land and features to be produced, using the scale plan	-	-	-	-
PC7. transfer various dimensions, curves and positions accurately from scale plans onto the land, using triangulation, running lines and offsets	-	-	-	-
PC8. set out and level rectangular areas	-	-	-	-
Prepare soil to receive plants	**10**	**15**	**-**	**5**
PC9. coordinate with an authorised lab to get the soil sample tested	-	-	-	-
PC10. determine the soil preparation techniques	-	-	-	-
PC11. carry out primary and secondary cultivation for preparing the land for planting	-	-	-	-
PC12. apply organic or other recommended nutrients to improve the nutrient levels in the soil	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC13. prepare pits according to the nature of the soil and the size of the fruit trees to be planted	-	-	-	-
Plant the orchard plants and trees as per the plan	**10**	**10**	**-**	**10**
PC14. identify the plants and trees to be planted as well as the details such as location, timing, spacing, etc. from the plan	-	-	-	-
PC15. select quality planting material for planting	-	-	-	-
PC16. plant a range of plants and trees as per the plan using appropriate techniques and systems	-	-	-	-
PC17. ensure that adequate depth and spacing between trees are maintained to obtain optimum plant density	-	-	-	-
PC18. provide the necessary immediate aftercare for the new plantings	-	-	-	-
NOS Total	**30**	**40**	**-**	**30**

National Occupational Standards (NOS) Parameters

NOS Code	AGR/N0348
NOS Name	Plant a tropical/subtropical fruit in an orchard
Sector	Agriculture
Sub-Sector	Agriculture Crop Production
Occupation	Fruit Crops Cultivation
NSQF Level	4
Credits	1
Version	1.0
Last Reviewed Date	27/08/2024
Next Review Date	27/08/2027
NSQC Clearance Date	27/08/2024

AGR/N0349: Manage operations of a tropical/subtropical fruit orchard

Description

This OS is about managing various operations of a tropical/subtropical fruit orchard.

Scope

The scope covers the following :

- Control and prevent potential threats to the plants
- Manage the soil condition
- Perform the pruning and training operations
- Promote and maintain healthy growth
- Optimize resource utilization

Elements and Performance Criteria

Control and prevent potential threats to plants

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

PC1. inspect the plants and trees for any type of infestation of pests, disease or disorder

PC2. identify the potential threats to the health of tropical/sub-tropical fruit plants and trees

PC3. identify various types of weeds that inflict the crop

PC4. prepare a pest calendar for the fruit crop as against different stages of growth and seasons

PC5. identify the control and preventive solutions for infestation based on the type, extent, stage and size

PC6. implement the solutions for effective protection of trees from pests, disease and disorder

PC7. implement a suitable mix of mechanical, cultural, biological and chemical weed prevention and control strategies

PC8. take measures to protect the fruit plant/trees, environment including soil and groundwater while applying treatments

Manage soil condition

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

PC9. assess the soil pH value, fertility and density against acceptable levels for the chosen crop and take remedial action where necessary

PC10. identify different nutritional requirements of the plant during the growing cycle, using published data on species, historical records and own experience

PC11. work out an integrated nutrient management solution i.e. efficient utilization of chemical fertilizers, use of bio-fertilizers and addition of organic material

PC12. prepare and apply suitable fertilizer mix in the recommended quantity, taking necessary personal and environmental safety measures

PC13. maintain and improve soil organic matter by appropriate crop rotations, manure application, pasture management, tillage practices and other land use practices

PC14. take measures to minimize loss of soil, nutrients, and agrochemicals through erosion, runoff and leaching

PC15. record the details of the soil health and plant nutrition activities undertaken

Perform pruning and training operations

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

PC16. assess the pruning requirements of the trees and plants

PC17. prune and train the parts that need to be removed e.g. branch or co-dominant stem, etc., using appropriate tools and techniques according to species, time of year, stage of development

PC18. identify and apply suitable plant growth regulators and chemicals for improving the productivity of the crop

PC19. collect, dispose or recycle pruned material in a manner that causes minimal environmental damage

Promote and maintain healthy growth

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

PC20. maximize water infiltration and minimize unproductive outpouring of surface water

PC21. carry out regular inspection of the plants and trees to ensure their healthy growth

PC22. enhance the functioning of the water cycle by establishing permanent cover and retaining the soil moisture

PC23. schedule need-based irrigation using suitable irrigation systems like micro-irrigation and fertigation

PC24. maintain light, shade and temperature as per the requirement for the plants and trees

PC25. carry out rejuvenation of the old/unproductive orchards

Optimize resource utilization

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

PC26. optimize usage of resources/inputs including water and electricity in various tasks/activities/processes

PC27. segregate waste into different categories

PC28. dispose non-recyclable waste appropriately

PC29. 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. agro-climatic condition required for crop growth

KU4. basics of plant anatomy, morphology, physiology - photosynthesis, respiration, water relations, transpiration

KU5. plant nutrition, growth and development

KU6. pruning and training methods

KU7. impact of weather and soil conditions on plant growth and health

KU8. environmental threats such as frost, drought, water logging, humidity, heat, light/ shade, chemical spray drift

KU9. different types of mulch

KU10. support required for the establishment of the plants/trees

KU11. different methods of irrigation

KU12. different types of pests and diseases inflicting the crop

KU13. appropriate pH levels for soil

KU14. integrated nutrition management system

KU15. importance of maintaining organic matter in soil and various suitable techniques

KU16. basic principles of integrated pest management standards or industry Code of Practice

KU17. different types of pest, disease and disorder infecting the crop

KU18. how to recognize signs of threats to plant health

KU19. economic, aesthetic or environmental thresholds for a range of plant pests, diseases and disorders

KU20. mechanical, chemical, biological and cultural methods for treatment of weeds, pests and diseases

KU21. implications of choice of plant pest and disease control methods with site limitations, including environmental, production and quality implications

KU22. nutritional deficiency/ excess

KU23. methods used to maintain/ control plant growth

KU24. tools, equipment and machinery required for carrying out various cultural and inter-cultural practices

KU25. visual tree assessment

KU26. tree health, growth habit, structure, stability and growing environment

KU27. reasons for pruning, timing of pruning, types of parts to be removed-suckers, reverted shoots, dead heading, dead, damaged, weak or diseased plant parts

KU28. method of pruning, positioning of cuts, formative and routine pruning, regenerative pruning

KU29. season's growth, flowering on previous season's growth and those grown for winter stems and summer foliage

KU30. tree and branch anatomy and attachments: lateral branch collars, branch bark ridges, stem bark ridges

KU31. need and techniques of pruning cuts

KU32. tree's response to pruning

KU33. use of plant growth regulators and chemicals for improving productivity

KU34. various water management and irrigation techniques suitable for tropical/sub-tropical land

KU35. disposal of plant debris in environmentally friendly manner

KU36. work health and safety procedures for pruning operations

KU37. need for rejuvenation and methods of rejuvenation of senile orchards

KU38. management practices to be followed after rejuvenation

KU39. importance of following environmental and ecological best practices to minimise the impact on the environment

KU40. ways of efficiently managing inputs including water and electricity in the process

KU41. waste management and methods of waste disposal

Generic Skills (GS)

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

GS1. prepare orchard/ plantation calendar in local language in a clear manner so that all workers can understand

GS2. read names of plants and orchard features in English and/or local language

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

GS4. receive preferences, priorities, instructions and seek advice from clients and managers

GS5. provide direction and instructions to other workers

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. think through the problem, evaluate the possible solution(s) and choose best possible solution(s)

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Control and prevent potential threats to plants	**8**	**14**	**-**	**3**
PC1. inspect the plants and trees for any type of infestation of pests, disease or disorder	-	-	-	-
PC2. identify the potential threats to the health of tropical/sub-tropical fruit plants and trees	-	-	-	-
PC3. identify various types of weeds that inflict the crop	-	-	-	-
PC4. prepare a pest calendar for the fruit crop as against different stages of growth and seasons	-	-	-	-
PC5. identify the control and preventive solutions for infestation based on the type, extent, stage and size	-	-	-	-
PC6. implement the solutions for effective protection of trees from pests, disease and disorder	-	-	-	-
PC7. implement a suitable mix of mechanical, cultural, biological and chemical weed prevention and control strategies	-	-	-	-
PC8. take measures to protect the fruit plant/trees, environment including soil and groundwater while applying treatments	-	-	-	-
Manage soil condition	**8**	**10**	**-**	**7**
PC9. assess the soil pH value, fertility and density against acceptable levels for the chosen crop and take remedial action where necessary	-	-	-	-
PC10. identify different nutritional requirements of the plant during the growing cycle, using published data on species, historical records and own experience	-	-	-	-
PC11. work out an integrated nutrient management solution i.e. efficient utilization of chemical fertilizers, use of bio-fertilizers and addition of organic material	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC12. prepare and apply suitable fertilizer mix in the recommended quantity, taking necessary personal and environmental safety measures	-	-	-	-
PC13. maintain and improve soil organic matter by appropriate crop rotations, manure application, pasture management, tillage practices and other land use practices	-	-	-	-
PC14. take measures to minimize loss of soil, nutrients, and agrochemicals through erosion, runoff and leaching	-	-	-	-
PC15. record the details of the soil health and plant nutrition activities undertaken	-	-	-	-
Perform pruning and training operations	**6**	**9**	**-**	**5**
PC16. assess the pruning requirements of the trees and plants	-	-	-	-
PC17. prune and train the parts that need to be removed e.g. branch or co-dominant stem, etc., using appropriate tools and techniques according to species, time of year, stage of development	-	-	-	-
PC18. identify and apply suitable plant growth regulators and chemicals for improving the productivity of the crop	-	-	-	-
PC19. collect, dispose or recycle pruned material in a manner that causes minimal environmental damage	-	-	-	-
Promote and maintain healthy growth	**5**	**5**	**-**	**10**
PC20. maximize water infiltration and minimize unproductive outpouring of surface water	-	-	-	-
PC21. carry out regular inspection of the plants and trees to ensure their healthy growth	-	-	-	-
PC22. enhance the functioning of the water cycle by establishing permanent cover and retaining the soil moisture	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC23. schedule need-based irrigation using suitable irrigation systems like micro-irrigation and fertigation	-	-	-	-
PC24. maintain light, shade and temperature as per the requirement for the plants and trees	-	-	-	-
PC25. carry out rejuvenation of the old/unproductive orchards	-	-	-	-
Optimize resource utilization	**3**	**2**	**-**	**5**
PC26. optimize usage of resources/inputs including water and electricity in various tasks/activities/processes	-	-	-	-
PC27. segregate waste into different categories	-	-	-	-
PC28. dispose non-recyclable waste appropriately	-	-	-	-
PC29. deposit recyclable and reusable material at identified location	-	-	-	-
NOS Total	**30**	**40**	**-**	**30**

National Occupational Standards (NOS) Parameters

NOS Code	AGR/N0349
NOS Name	Manage operations of a tropical/subtropical fruit orchard
Sector	Agriculture
Sub-Sector	Agriculture Crop Production
Occupation	Fruit Crops Cultivation
NSQF Level	4
Credits	3
Version	1.0
Last Reviewed Date	27/08/2024
Next Review Date	27/08/2027
NSQC Clearance Date	27/08/2024

AGR/N0309: Manage irrigation for fruit production

Description

This OS deals with irrigation management in fruit crops.

Scope

The scope covers the following :

- Select suitable irrigation method
- Irrigate the fruit crop

Elements and Performance Criteria

Select suitable irrigation method

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

PC1. coordinate with an authorized water testing lab for testing the quality of irrigation water

PC2. implement measures to manage poor quality water as per the recommendation

PC3. determine the amount of water required in different growth stages of fruit crops, especially in the critical periods of water need

PC4. calculate the number of days of irrigation required for the fruit crop

PC5. select suitable irrigation method for minimizing irrigation water requirement in consultation with the expert

Irrigate the fruit crop

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

PC6. prepare irrigation schedule by following scientific principles

PC7. provide adequate water to the crop at various growth stages

PC8. ensure the required depth and spread of water in the root zone

PC9. carry out fertigation, if required

PC10. plug spills/leakages to avoid wastage of water

PC11. ensure proper water drainage at all stages

PC12. implement measures to improve water use for maximum profit of garden/orchard ecosystem

PC13. ensure measures to prevent diseases occurring due to increase in moisture/water content

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. impact of not following the health, hygiene, safety and quality standards on consumers and the business

KU4. role of water in plant growth-optimum, excess and shortfall in water availability

KU5.   characteristics of good irrigation system

KU6.   factors affecting the suitability of an irrigation method

KU7.   critical stages of crop growth sensitive to water stress and methods to overcome the same

KU8.   depth of irrigation required for fruit crops

KU9.   method of estimation of water and irrigation requirement for fruit crops

KU10. criteria for scheduling irrigation

KU11. frequency and interval of irrigation required at various stages of plant growth

KU12. method of irrigation appropriate for a given soil type and climatic conditions

KU13. amount of water holding capacity in root zone of the plant

KU14. amount of water required for the plant and its effect on the yield

KU15. various type of micro irrigation equipments to be used (misters, drippers, sprinklers, foggers, etc)

KU16. layout and planting for drip irrigation

KU17. importance of moisture measurement tool

KU18. relative advantages and disadvantages of different irrigation methods

KU19. effects of water logging and excess soil water on crops and soils

KU20. methods of drainage

KU21. ways to improve the Water Use Efficiency (WUE)

KU22. basic concept of fertigation, fertilizers and instruments, time of application and advantages

KU23. common practices of conserving water and electricity

Generic Skills (GS)

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

GS1. track latest development in irrigation management of fruit crops 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. plan and organize timely irrigation

GS7. organize meeting of farmers and experts, if necessary

GS8. think through the problem, evaluate the possible solution(s) and adopt an optimum /best possible solution(s)

GS9. apply, analyze, and evaluate the information gathered from observation, experience, reasoning, or communication, as a guide to thought and action

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Select suitable irrigation method	**10**	**10**	**-**	**10**
PC1. coordinate with an authorized water testing lab for testing the quality of irrigation water	-	-	-	-
PC2. implement measures to manage poor quality water as per the recommendation	-	-	-	-
PC3. determine the amount of water required in different growth stages of fruit crops, especially in the critical periods of water need	-	-	-	-
PC4. calculate the number of days of irrigation required for the fruit crop	-	-	-	-
PC5. select suitable irrigation method for minimizing irrigation water requirement in consultation with the expert	-	-	-	-
Irrigate the fruit crop	**15**	**35**	**-**	**20**
PC6. prepare irrigation schedule by following scientific principles	-	-	-	-
PC7. provide adequate water to the crop at various growth stages	-	-	-	-
PC8. ensure the required depth and spread of water in the root zone	-	-	-	-
PC9. carry out fertigation, if required	-	-	-	-
PC10. plug spills/leakages to avoid wastage of water	-	-	-	-
PC11. ensure proper water drainage at all stages	-	-	-	-
PC12. implement measures to improve water use for maximum profit of garden/orchard ecosystem	-	-	-	-
PC13. ensure measures to prevent diseases occurring due to increase in moisture/water content	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
NOS Total	**25**	**45**	**-**	**30**

National Occupational Standards (NOS) Parameters

NOS Code	AGR/N0309
NOS Name	Manage irrigation for fruit production
Sector	Agriculture
Sub-Sector	Agriculture Crop Production
Occupation	Fruit Crops Cultivation
NSQF Level	4
Credits	1
Version	2.0
Last Reviewed Date	27/08/2024
Next Review Date	27/08/2027
NSQC Clearance Date	27/08/2024

AGR/N0344: Carry out harvesting and post-harvesting tasks in orchard/plantations

Description

This OS unit is about carrying out harvesting and post-harvesting tasks in orchard/plantations.

Elements and Performance Criteria

Carry out harvesting activities

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

PC1. identify the area, produce to be harvested and its quality specifications

PC2. plan harvesting activities so as to efficiently achieve harvest targets

PC3. identify the harvesting tools and effective use of picking kit

PC4. obtain, organise and use the tools, kit and personal protective equipment ensuring cleanliness and safety

PC5. follow the personal safety and hygiene procedures as per the recommendations

PC6. select the produce for harvesting based on various relevant criteria, instructions and targets

PC7. harvest the produce in an efficient manner as per organisational standards

PC8. use sorting and segregation techniques during and after harvesting as required

Carry out post-harvest activities

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

PC9. use weighing machines accurately to weigh harvested produce

PC10. sort the harvested produce based on quality, colour, size and appearance

PC11. check biological infestation on produce and segregate infested produce

PC12. assess physical injuries on harvested produce

PC13. perform filling and temporary storage of produce

PC14. complete the records required on standard data sheets for harvest and post-harvest process responsibilities

PC15. process the segregated produce which are not meeting the quality standards as per organisational standard procedures or instructions

Carry out packing, loading and unloading activities

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

PC16. identify the types and use of farm packing materials

PC17. determine the capacity of packaging material

PC18. use packing methods and processes as per organisation standards, or instructions

PC19. perform stacking of packed baskets/bags/crates as per recommendations

PC20. maintain personal hygiene and safety in accordance with guidelines

PC21. perform the loading and unloading, and stacking of bags/crates in and out of the transport vehicle as per organisational standards, in a safe manner

PC22. confirm the loading capacity of transport vehicle in accordance with standards and load accordingly

PC23. record the materials loaded and unloaded on or from the transport, respectively

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. own roles and responsibilities, terms of employment and related documentation
KU2. team and reporting relationships, division of responsibilities
KU3. organisational communication protocols, including formal and informal
KU4. safety and security processes and its importance
KU5. importance of following health, hygiene, safety and quality standards and the impact of not following the standards on consumers and the business
KU6. documentation and related procedures applicable in the context of work
KU7. area, produce to be harvested and its quality specification
KU8. importance of planning harvesting activities
KU9. harvesting tools and picking kit, their usage and care
KU10. personal safety and hygiene procedures and its importance
KU11. relevant personal protection equipment
KU12. various relevant harvesting criteria for specified produce
KU13. harvesting techniques for various types of orchard/plantation produce
KU14. sorting and segregation techniques and criteria used during and after harvesting
KU15. importance of weighing harvested produce, methods and precautions to be taken
KU16. symptoms, risks and precautions related to biological infestation
KU17. types and impact of various injuries on harvested fruit and related processing
KU18. precautions and methods of filling and temporary storage of produce
KU19. records required for harvest and post-harvest processing
KU20. types and methods of processing of produce not meeting quality standards
KU21. types and use of farm packing materials
KU22. how to determine the capacity of packaging material
KU23. packing methods and processes
KU24. precautions for stacking of packed baskets/bags/crates
KU25. safe and efficient methods for loading and unloading, and stacking of bags/crates in and off the transport
KU26. loading capacity of transport vehicle and importance of adhering to it

Generic Skills (GS)

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

GS1. write names and labels in English or local language
GS2. write numbers from 1 to 100
GS3. fill in basic personal details on forms including name, gender, age and address

GS4. write short messages in local language

GS5. read and extract relevant information from safety signages and stickers

GS6. read and extract relevant information from name boards and labels

GS7. read basic numbers

GS8. effectively communicate with seniors following professional protocols

GS9. attentively listen and comprehend the information

GS10. ask clarifying questions to confirm information

GS11. identify sources of information and support for sound decision making

GS12. plan own schedule and work route as per priorities and efficiency

GS13. organise tools, equipment, supplies and PPE in time for carrying out tasks efficiently

GS14. relate own work to final product quality and consumer experience through identifying cause effects on intermediate tasks

GS15. identify internal and external customers and factors impacting customer satisfaction

GS16. relate customer satisfaction to organisational growth and success, including workers

GS17. identify measures that can be taken to resolve the problem of malfunctioning tools and equipment

GS18. identify sources of information for own work-related problem solving

GS19. identify the need for defined processes

GS20. identify different elements, steps or stages of a simple work process that one follows

GS21. observe and evaluate suitability of own work quality in relation to the purpose of the task

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Carry out harvesting activities	**15**	**20**	**-**	**-**
PC1. identify the area, produce to be harvested and its quality specifications	1	2	-	-
PC2. plan harvesting activities so as to efficiently achieve harvest targets	2	2	-	-
PC3. identify the harvesting tools and effective use of picking kit	1	2	-	-
PC4. obtain, organise and use the tools, kit and personal protective equipment ensuring cleanliness and safety	2	2	-	-
PC5. follow the personal safety and hygiene procedures as per the recommendations	2	2	-	-
PC6. select the produce for harvesting based on various relevant criteria, instructions and targets	3	3	-	-
PC7. harvest the produce in an efficient manner as per organisational standards	2	4	-	-
PC8. use sorting and segregation techniques during and after harvesting as required	2	3	-	-
Carry out post-harvest activities	**13**	**22**	**-**	**-**
PC9. use weighing machines accurately to weigh harvested produce	2	3	-	-
PC10. sort the harvested produce based on quality, colour, size and appearance	2	4	-	-
PC11. check biological infestation on produce and segregate infested produce	3	3	-	-
PC12. assess physical injuries on harvested produce	1	2	-	-
PC13. perform filling and temporary storage of produce	2	4	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC14. complete the records required on standard data sheets for harvest and post-harvest process responsibilities	1	2	-	-
PC15. process the segregated produce which are not meeting the quality standards as per organisational standard procedures or instructions	2	4	-	-
Carry out packing, loading and unloading activities	**12**	**18**	**-**	**-**
PC16. identify the types and use of farm packing materials	2	2	-	-
PC17. determine the capacity of packaging material	2	2	-	-
PC18. use packing methods and processes as per organisation standards, or instructions	2	3	-	-
PC19. perform stacking of packed baskets/bags/crates as per recommendations	2	3	-	-
PC20. maintain personal hygiene and safety in accordance with guidelines	1	2	-	-
PC21. perform the loading and unloading, and stacking of bags/crates in and out of the transport vehicle as per organisational standards, in a safe manner	1	2	-	-
PC22. confirm the loading capacity of transport vehicle in accordance with standards and load accordingly	1	2	-	-
PC23. record the materials loaded and unloaded on or from the transport, respectively	1	2	-	-
NOS Total	**40**	**60**	**-**	**-**

National Occupational Standards (NOS) Parameters

NOS Code	AGR/N0344
NOS Name	Carry out harvesting and post-harvesting tasks in orchard/plantations
Sector	Agriculture
Sub-Sector	Agriculture Crop Production
Occupation	Fruit Crop Cultivation
NSQF Level	3
Credits	1
Version	1.0
Last Reviewed Date	27/08/2024
Next Review Date	27/08/2027
NSQC Clearance Date	27/08/2024

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.

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

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

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Plan the agricultural enterprise/ business	**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	-	-	-	-
Manage the agricultural production process	**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	-	-	-	-

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.	-	-	-	-
Manage the post-production and marketing processes	**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	-	-	-	-

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	2.0
Last Reviewed Date	27/08/2024
Next Review Date	27/08/2027
NSQC Clearance Date	27/08/2024

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:

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

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

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Maintain personal hygiene	**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	-	-	-	-
Maintain clean and safe workplace	**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	-	-	-	-

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	-	-	-	-
Administer appropriate emergency procedures	**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**

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	22/10/2024
Next Review Date	22/10/2027
NSQC Clearance Date	22/10/2024

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:

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.

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

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

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Introduction to Employability Skills	1	1	-	-
PC1. identify employability skills required for jobs in various industries	-	-	-	-
PC2. identify and explore learning and employability portals	-	-	-	-
Constitutional values – Citizenship	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	-	-	-	-
Becoming a Professional in the 21st Century	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	-	-	-	-
Basic English Skills	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	-	-	-	-
Career Development & Goal Setting	1	2	-	-

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	-	-	-	-
Communication Skills	**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	-	-	-	-
Diversity & Inclusion	**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	-	-	-	-
Financial and Legal Literacy	**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	-	-	-	-
Essential Digital Skills	**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	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Entrepreneurship	**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	-	-	-	-
Customer Service	**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	-	-	-	-
Getting ready for apprenticeship & Jobs	**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**	**-**	**-**

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	18/02/2025
Next Review Date	17/02/2028
NSQC Clearance Date	18/02/2025

AGR/N0350: Grow pomegranate in an orchard

Description

This unit is about growing pomegranate in an orchard.

Scope

The scope covers the following :

- Set up a pomegranate orchard
- Maintain a pomegranate orchard
- Carry out harvest and post-harvest activities in a pomegranate orchard

Elements and Performance Criteria

Set up a pomegranate orchard

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

PC1. identify the suitable location for planting the pomegranate fruit

PC2. select the disease-resistant and high-yielding varieties of pomegranate that can be grown profitably in the agro-climatic conditions of the selected area

PC3. determine the suitability of the soil for growing pomegranate

PC4. carry out land preparation for cultivation of pomegranate

PC5. carry out propagation of pomegranate plants/ trees through air-layering, hardwood cuttings and micro-propagation

PC6. plant the pomegranate plants/ trees as per the square system

PC7. ensure the recommended spacing between the plants while planting

Maintain a pomegranate orchard

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

PC8. apply fertilizer timely in the recommended quantity

PC9. carry out drip irrigation as per the irrigation schedule recommended for the pomegranate crop

PC10. apply suitable pesticide, foliage spray or organic methods to protect the crops from various pests such as trichogramma spp.; tetrastichus spp.; telenomus spp.; etc.

PC11. apply appropriate weedicide or fungicide to protect the pomegranate crop from common diseases and disorders such as bacterial leaf and fruit spot, leaf and fruit spot, anthracnose, fruit rot & scab, fusarium wilt etc.

PC12. prune the trees as per the structural pruning system

PC13. train the pomegranate trees as per the single-stem or multi-stem system

PC14. carry out inter-cropping with low-growing vegetables, pulses or green manure crops during the initial 4-5 years of pomegranate planting

PC15. carry out rejuvenation of old and unproductive pomegranate orchards

Carry out harvest and post-harvest activities in a pomegranate orchard

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

PC16. inspect the pomegranate on trees to ensure they are mature and ready for harvesting

PC17. harvest pomegranate at proper ripening stage

PC18. cut the stem close to the base using clippers to harvest the crop

PC19. collect the harvested pomegranate in bags

PC20. sort, clean and pre-cool the pomegranate fruits

PC21. grade the harvested pomegranate based on its weight, size and colour, as per the commonly used grading systems

PC22. store the pomegranate in a cool and hygienic place

PC23. ensure the produce is not damaged while packing, storing and transporting

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. pomegranate cultivar or varieties that are grown in commercial farming

KU5. agro-climatic conditions required for pomegranate farming

KU6. the criteria for selecting the land for pomegranate farming

KU7. land preparation requirements for commercial pomegranate farming

KU8. propagation methods for pomegranate planting

KU9. pomegranate planting systems

KU10. importance of following the irrigation schedule

KU11. benefits of planting pollinator between the main plantation

KU12. recommended spacing in a pomegranate orchard

KU13. high density (HD), moderate density, low-density method of pomegranate plantation

KU14. irrigation requirement of pomegranate trees

KU15. method of application of manure and fertilizers in pomegranate farming

KU16. various pests affecting the pomegranate tree

KU17. various diseases affecting the pomegranate tree

KU18. various methods to protect pomegranate trees from diseases

KU19. pest-control methods recommended for pomegranate trees

KU20. method of rejuvenation of pomegranate orchard

KU21. harvesting methods and schedule adopted in pomegranate

KU22. sorting and grading methods of pomegranate fruits

KU23. storage and packaging requirements for pomegranate fruits

Generic Skills (GS)

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

GS1. prepare crop 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. receive preferences, priorities, instructions and seek advice from clients and managers

GS5. provide direction and instructions to other workers

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 orchard 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)

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Set up a pomegranate orchard	**10**	**15**	**-**	**10**
PC1. identify the suitable location for planting the pomegranate fruit	-	-	-	-
PC2. select the disease-resistant and high-yielding varieties of pomegranate that can be grown profitably in the agro-climatic conditions of the selected area	-	-	-	-
PC3. determine the suitability of the soil for growing pomegranate	-	-	-	-
PC4. carry out land preparation for cultivation of pomegranate	-	-	-	-
PC5. carry out propagation of pomegranate plants/ trees through air-layering, hardwood cuttings and micro-propagation	-	-	-	-
PC6. plant the pomegranate plants/ trees as per the square system	-	-	-	-
PC7. ensure the recommended spacing between the plants while planting	-	-	-	-
Maintain a pomegranate orchard	**10**	**20**	**-**	**5**
PC8. apply fertilizer timely in the recommended quantity	-	-	-	-
PC9. carry out drip irrigation as per the irrigation schedule recommended for the pomegranate crop	-	-	-	-
PC10. apply suitable pesticide, foliage spray or organic methods to protect the crops from various pests such as trichogramma spp.; tetrastichus spp.; telenomus spp.; etc.	-	-	-	-
PC11. apply appropriate weedicide or fungicide to protect the pomegranate crop from common diseases and disorders such as bacterial leaf and fruit spot, leaf and fruit spot, anthracnose, fruit rot & scab, fusarium wilt etc.	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC12. prune the trees as per the structural pruning system	-	-	-	-
PC13. train the pomegranate trees as per the single-stem or multi-stem system	-	-	-	-
PC14. carry out inter-cropping with low-growing vegetables, pulses or green manure crops during the initial 4-5 years of pomegranate planting	-	-	-	-
PC15. carry out rejuvenation of old and unproductive pomegranate orchards	-	-	-	-
Carry out harvest and post-harvest activities in a pomegranate orchard	**10**	**10**	**-**	**10**
PC16. inspect the pomegranate on trees to ensure they are mature and ready for harvesting	-	-	-	-
PC17. harvest pomegranate at proper ripening stage	-	-	-	-
PC18. cut the stem close to the base using clippers to harvest the crop	-	-	-	-
PC19. collect the harvested pomegranate in bags	-	-	-	-
PC20. sort, clean and pre-cool the pomegranate fruits	-	-	-	-
PC21. grade the harvested pomegranate based on its weight, size and colour, as per the commonly used grading systems	-	-	-	-
PC22. store the pomegranate in a cool and hygienic place	-	-	-	-
PC23. ensure the produce is not damaged while packing, storing and transporting	-	-	-	-
NOS Total	**30**	**45**	**-**	**25**

National Occupational Standards (NOS) Parameters

NOS Code	AGR/N0350
NOS Name	Grow pomegranate in an orchard
Sector	Agriculture
Sub-Sector	Agriculture Crop Production
Occupation	Fruit Crops Cultivation
NSQF Level	4
Credits	1
Version	1.0
Last Reviewed Date	27/08/2024
Next Review Date	27/08/2027
NSQC Clearance Date	27/08/2024

AGR/N0353: Grow mango in an orchard

Description

This unit is about growing mango in an orchard.

Scope

The scope covers the following :

- Set up a mango orchard
- Maintain a mango orchard
- Carry out harvest and post-harvest activities in a mango orchard

Elements and Performance Criteria

Set up a mango orchard

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

PC1. determine the planting location suitable for mango crop

PC2. identify the suitable agro-climatic conditions required for the planting of mango plants/trees

PC3. select the disease-resistant and high-yielding varieties of mango that can be grown profitably in the agro-climatic conditions of the selected area

PC4. prepare the land by ploughing, harrowing, levelling and removing the weeds

PC5. perform vegetative propagation of mango using several techniques such as veneer grafting, inarching and epicotyl grafting etc.

PC6. plant the mango plants/ trees as per the square system

PC7. apply the recommended spacing between the plants as per the dry and moist zones

Maintain a mango orchard

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

PC8. apply fertilizer in the recommended quantity and at the right time

PC9. train the mango trees in the initial stages of their growth to give them a proper shape

PC10. prune the mango trees to maximise the number of new healthy shoots

PC11. irrigate at suitable intervals using drip irrigation systems

PC12. carry out inter-cultural operations on a regular basis to remove weeds

PC13. carry out inter-cropping with leguminous crops viz. mungbean, moth bean and cow pea, gram, chilli and other suitable crops

PC14. protect the mango crop from pests that usually infect the crop such as mealy bug, fruit fly, scale insects, etc

PC15. protect the mango crop from diseases that usually infect the crop such as powdery mildew, anthracnose, die back, blight, etc.

PC16. manage special problems occuring in mango, viz. fruit drop, biennial bearing, mango malformation, leaf scorch, etc

PC17. pollinate the flowers of the mango trees artificially or by placing numerous honey-bee hives in the orchard temporarily

PC18. carry out rejuvenation of old and senile mango orchard

Carry out harvest and post-harvest activities in a mango orchard

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

PC19. harvest mango when it is mature

PC20. carry out desapping treatment immediately after harvest

PC21. grade the harvested mango on the basis of its size, colour and maturity

PC22. store the harvested mango in a cool and dry place at the recommended temperature

PC23. pack the mango in wooden or cardboard boxes as per the grade

PC24. load and transport the mango safely, while protecting them from damage

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. mango cultivar or varieties that are grown for commercial mango farming

KU5. agro-climatic conditions required for mango farming and its importance

KU6. land selection and its preparation for mango farming

KU7. propagation methods for mango planting

KU8. mango planting season

KU9. mango planting systems

KU10. high density planting method

KU11. spacing recommended in a mango orchard

KU12. irrigation requirements

KU13. method of application of manure and fertilizers in mango farming

KU14. training process for mango trees

KU15. pollination method for mango trees

KU16. mango pests and disease and their control methods

KU17. method of rejuvenation of old and senile mango orchards

KU18. mango harvesting schedule and process

KU19. mango orchard rejuvenation methods

KU20. post-harvest handling of mango

KU21. storage and packaging requirements to prevent damage and spoilage

Generic Skills (GS)

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

GS1. prepare orchard calendar in local language in a clear manner so that all workers can understand

Qualification Pack

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. receive preferences, priorities, instructions and seek advice from clients and managers

GS5. provide direction and instructions to other workers

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 orchard 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)

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Set up a mango orchard	**10**	**15**	**-**	**10**
PC1. determine the planting location suitable for mango crop	-	-	-	-
PC2. identify the suitable agro-climatic conditions required for the planting of mango plants/trees	-	-	-	-
PC3. select the disease-resistant and high-yielding varieties of mango that can be grown profitably in the agro-climatic conditions of the selected area	-	-	-	-
PC4. prepare the land by ploughing, harrowing, levelling and removing the weeds	-	-	-	-
PC5. perform vegetative propagation of mango using several techniques such as veneer grafting, inarching and epicotyl grafting etc.	-	-	-	-
PC6. plant the mango plants/ trees as per the square system	-	-	-	-
PC7. apply the recommended spacing between the plants as per the dry and moist zones	-	-	-	-
Maintain a mango orchard	**10**	**20**	**-**	**5**
PC8. apply fertilizer in the recommended quantity and at the right time	-	-	-	-
PC9. train the mango trees in the initial stages of their growth to give them a proper shape	-	-	-	-
PC10. prune the mango trees to maximise the number of new healthy shoots	-	-	-	-
PC11. irrigate at suitable intervals using drip irrigation systems	-	-	-	-
PC12. carry out inter-cultural operations on a regular basis to remove weeds	-	-	-	-
PC13. carry out inter-cropping with leguminous crops viz. mungbean, moth bean and cow pea, gram, chilli and other suitable crops	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC14. protect the mango crop from pests that usually infect the crop such as mealy bug, fruit fly, scale insects, etc	-	-	-	-
PC15. protect the mango crop from diseases that usually infect the crop such as powdery mildew, anthracnose, die back, blight, etc.	-	-	-	-
PC16. manage special problems occuring in mango, viz. fruit drop, biennial bearing, mango malformation, leaf scorch, etc	-	-	-	-
PC17. pollinate the flowers of the mango trees artificially or by placing numerous honey-bee hives in the orchard temporarily	-	-	-	-
PC18. carry out rejuvenation of old and senile mango orchard	-	-	-	-
Carry out harvest and post-harvest activities in a mango orchard	**10**	**10**	-	**10**
PC19. harvest mango when it is mature	-	-	-	-
PC20. carry out desapping treatment immediately after harvest	-	-	-	-
PC21. grade the harvested mango on the basis of its size, colour and maturity	-	-	-	-
PC22. store the harvested mango in a cool and dry place at the recommended temperature	-	-	-	-
PC23. pack the mango in wooden or cardboard boxes as per the grade	-	-	-	-
PC24. load and transport the mango safely, while protecting them from damage	-	-	-	-
NOS Total	**30**	**45**	-	**25**

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	AGR/N0353
NOS Name	Grow mango in an orchard
Sector	Agriculture
Sub-Sector	Agriculture Crop Production
Occupation	Fruit Crops Cultivation
NSQF Level	4
Credits	1
Version	1.0
Last Reviewed Date	27/08/2024
Next Review Date	27/08/2027
NSQC Clearance Date	27/08/2024

AGR/N0354: Grow banana in an orchard

Description

This unit is about growing banana in an orchard.

Scope

The scope covers the following :

- Set up a banana orchard
- Maintain a banana orchard
- Carry out harvest and post-harvest activities in a banana orchard

Elements and Performance Criteria

Set up a banana orchard

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

PC1. determine the planting location suitable for banana crop

PC2. select the disease-resistant and high-yielding varieties of banana that can be grown profitably in the agro-climatic conditions of the selected area

PC3. plough the land 2-4 times and level it

PC4. prepare the land by using rotavator or harrow to break the clod and to create a fine tilth in the soil

PC5. carry out the propagation of banana plants using suckers

PC6. procure tissue culture seedlings for planting from the authorized vendors

PC7. plant the banana suckers/tissue culture seedlings as per the pit or furrow method

PC8. apply the recommended spacing to ensure all the plants get good exposure to sunlight

PC9. install props to support the uniform development of the plants

Maintain a banana orchard

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

PC10. apply fertilizer timely in the recommended quantity

PC11. prune the sucker regularly

PC12. remove the dead leaves and unwanted suckers from the banana trees regularly

PC13. irrigate the banana trees using drip irrigation system at the recommended interval

PC14. carry out inter-cultural operations on a regular basis to remove weeds

PC15. carry out inter-cropping with short duration crops like mung, cowpea, daincha and other suitable crops

PC16. protect the banana crop from pests that usually infect the crop such as root stock/rhizome weevil, stem borer, thrips, banana beetle, banana aphid, nematodes etc.

PC17. protect the banana crop from diseases that usually infect the crop such as panama wilt, anthracnose, leaf spot, shoot rot, viral diseases, etc.

Carry out harvest and post-harvest activities in a banana orchard

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

PC18. harvest the banana crop when the fruit is slightly or fully mature depending on the market preferences and transportation distance

PC19. grade the harvested banana on the basis of their length, girth, colour and maturity

PC20. store the banana in a cool and dry place at the recommended temperature, away from light

PC21. pack the banana in wooden, cardboard boxes or bamboo baskets as per the grade

PC22. load and transport the bananas safely, while protecting them from damage

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. banana cultivar or varieties that are grown in commercial banana farming

KU5. agro-climatic conditions required for banana farming and its importance

KU6. land selection and its preparation for banana farming

KU7. propagation methods for banana planting

KU8. benefits of using tissue culture seedling for planting

KU9. banana planting season

KU10. banana planting systems

KU11. high density planting methods

KU12. recommended spacing in a banana orchard

KU13. irrigation requirement of banana trees

KU14. application of manure and fertilizers in banana farming

KU15. growth regulators used in banana farming

KU16. different types of mulch used in banana farming

KU17. training process for banana trees

KU18. banana pests and diseases

KU19. banana pests and disease control methods

KU20. banana harvesting schedule and process

KU21. sorting and grading of banana

KU22. banana storage requirements to prevent damage and spoilage

Generic Skills (GS)

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

GS1. prepare orchard 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. receive preferences, priorities, instructions and seek advice from clients and managers

GS5. provide direction and instructions to other workers

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 orchard 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)

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Set up a banana orchard	10	15	-	10
PC1. determine the planting location suitable for banana crop	-	-	-	-
PC2. select the disease-resistant and high-yielding varieties of banana that can be grown profitably in the agro-climatic conditions of the selected area	-	-	-	-
PC3. plough the land 2-4 times and level it	-	-	-	-
PC4. prepare the land by using rotavator or harrow to break the clod and to create a fine tilth in the soil	-	-	-	-
PC5. carry out the propagation of banana plants using suckers	-	-	-	-
PC6. procure tissue culture seedlings for planting from the authorized vendors	-	-	-	-
PC7. plant the banana suckers/tissue culture seedlings as per the pit or furrow method	-	-	-	-
PC8. apply the recommended spacing to ensure all the plants get good exposure to sunlight	-	-	-	-
PC9. install props to support the uniform development of the plants	-	-	-	-
Maintain a banana orchard	10	20	-	5
PC10. apply fertilizer timely in the recommended quantity	-	-	-	-
PC11. prune the sucker regularly	-	-	-	-
PC12. remove the dead leaves and unwanted suckers from the banana trees regularly	-	-	-	-
PC13. irrigate the banana trees using drip irrigation system at the recommended interval	-	-	-	-
PC14. carry out inter-cultural operations on a regular basis to remove weeds	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC15. carry out inter-cropping with short duration crops like mung, cowpea, daincha and other suitable crops	-	-	-	-
PC16. protect the banana crop from pests that usually infect the crop such as root stock/rhizome weevil, stem borer, thrips, banana beetle, banana aphid, nematodes etc.	-	-	-	-
PC17. protect the banana crop from diseases that usually infect the crop such as panama wilt, anthracnose, leaf spot, shoot rot, viral diseases, etc.	-	-	-	-
Carry out harvest and post-harvest activities in a banana orchard	**10**	**10**	**-**	**10**
PC18. harvest the banana crop when the fruit is slightly or fully mature depending on the market preferences and transportation distance	-	-	-	-
PC19. grade the harvested banana on the basis of their length, girth, colour and maturity	-	-	-	-
PC20. store the banana in a cool and dry place at the recommended temperature, away from light	-	-	-	-
PC21. pack the banana in wooden, cardboard boxes or bamboo baskets as per the grade	-	-	-	-
PC22. load and transport the bananas safely, while protecting them from damage	-	-	-	-
NOS Total	**30**	**45**	**-**	**25**

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	AGR/N0354
NOS Name	Grow banana in an orchard
Sector	Agriculture
Sub-Sector	Agriculture Crop Production
Occupation	Fruit Crops Cultivation
NSQF Level	4
Credits	1
Version	1.0
Last Reviewed Date	27/08/2024
Next Review Date	27/08/2027
NSQC Clearance Date	27/08/2024

AGR/N0355: Grow citrus in an orchard

Description

This unit is about growing citrus in an orchard.

Scope

The scope covers the following :

- Set up a citrus orchard
- Maintain a citrus orchard
- Carry out harvest and post-harvest activities in a citrus orchard

Elements and Performance Criteria

Set up a citrus orchard

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

PC1. determine the planting location suitable for citrus crop

PC2. select the disease-resistant and high-yielding varieties of citrus fruit that can be grown profitably in the agro-climatic conditions of the selected area

PC3. prepare the land by ploughing, levelling and removing weeds

PC4. carry out vegetative propagation of citrus plants by T-budding or using the seeds

PC5. transplant the citrus seedlings, maintaining the recommended spacing

Maintain a citrus orchard

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

PC6. apply fertilizer timely and in the recommended quantity

PC7. prune the trees to maintain the framework and secure higher yields

PC8. train the citrus trees as per the recommended training system

PC9. irrigate the citrus trees using drip irrigation system at a suitable interval depending on the season

PC10. carry out inter-cultural operations on a regular basis to remove weeds

PC11. carry out inter-cropping with pea, cowpea, gram and other suitable crops

PC12. protect the citrus crops from the pests that usually infect the crop such as citrus black fly, citrus psylla, citrus leaf miner, citrus aphids, thrips, etc.

PC13. protect the citrus crops from diseases that usually infect the crop such as twig blight, gummosis, damping off, root and collar rot, etc.

PC14. carry out rejuvenation of old and unproductive citrus orchard

Carry out harvest and post-harvest activities in a citrus orchard

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

PC15. harvest the citrus crop when the fruit attains full size and develops attractive colour

PC16. sort and grade the harvested citrus fruit on the basis of its size and colour

PC17. discard the immature, puffy, blemished and deformed fruit

PC18. store the harvested citrus fruits at the recommended temperature

PC19. pack the citrus fruits in wooden boxes or baskets of split bamboo as per the grade

PC20. load and transport citrus fruits safely, while protecting it from damage

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. citrus cultivar or varieties that are grown in commercial citrus farming

KU5. agro-climatic conditions required for citrus farming and its importance

KU6. land selection and its preparation for citrus farming

KU7. propagation methods for citrus planting

KU8. different planting methods, viz-high density planting method

KU9. recommended planting density for citrus fruits

KU10. citrus planting season

KU11. citrus planting systems

KU12. recommended spacing in a citrus orchard

KU13. irrigation requirements of citrus trees

KU14. method of application of manure and fertilizers in citrus farming

KU15. training process for citrus trees

KU16. citrus pests and diseases

KU17. citrus pests and disease control methods

KU18. citrus harvesting schedule and process

KU19. rejuvenation of declined citrus orchard

KU20. sorting and grading of citrus fruits

KU21. storage and packaging requirements to prevent damage and spoilage

Generic Skills (GS)

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

GS1. prepare orchard 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. receive preferences, priorities, instructions and seek advice from clients and managers

GS5. provide direction and instructions to other workers

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 orchard 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)

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Set up a citrus orchard	**10**	**15**	**-**	**10**
PC1. determine the planting location suitable for citrus crop	-	-	-	-
PC2. select the disease-resistant and high-yielding varieties of citrus fruit that can be grown profitably in the agro-climatic conditions of the selected area	-	-	-	-
PC3. prepare the land by ploughing, levelling and removing weeds	-	-	-	-
PC4. carry out vegetative propagation of citrus plants by T-budding or using the seeds	-	-	-	-
PC5. transplant the citrus seedlings, maintaining the recommended spacing	-	-	-	-
Maintain a citrus orchard	**10**	**20**	**-**	**5**
PC6. apply fertilizer timely and in the recommended quantity	-	-	-	-
PC7. prune the trees to maintain the framework and secure higher yields	-	-	-	-
PC8. train the citrus trees as per the recommended training system	-	-	-	-
PC9. irrigate the citrus trees using drip irrigation system at a suitable interval depending on the season	-	-	-	-
PC10. carry out inter-cultural operations on a regular basis to remove weeds	-	-	-	-
PC11. carry out inter-cropping with pea, cowpea, gram and other suitable crops	-	-	-	-
PC12. protect the citrus crops from the pests that usually infect the crop such as citrus black fly, citrus psylla, citrus leaf miner, citrus aphids, thrips, etc.	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC13. protect the citrus crops from diseases that usually infect the crop such as twig blight, gummosis, damping off, root and collar rot, etc.	-	-	-	-
PC14. carry out rejuvenation of old and unproductive citrus orchard	-	-	-	-
Carry out harvest and post-harvest activities in a citrus orchard	**10**	**10**	**-**	**10**
PC15. harvest the citrus crop when the fruit attains full size and develops attractive colour	-	-	-	-
PC16. sort and grade the harvested citrus fruit on the basis of its size and colour	-	-	-	-
PC17. discard the immature, puffy, blemished and deformed fruit	-	-	-	-
PC18. store the harvested citrus fruits at the recommended temperature	-	-	-	-
PC19. pack the citrus fruits in wooden boxes or baskets of split bamboo as per the grade	-	-	-	-
PC20. load and transport citrus fruits safely, while protecting it from damage	-	-	-	-
NOS Total	**30**	**45**	**-**	**25**

National Occupational Standards (NOS) Parameters

NOS Code	AGR/N0355
NOS Name	Grow citrus in an orchard
Sector	Agriculture
Sub-Sector	Agriculture Crop Production
Occupation	Fruit Crops Cultivation
NSQF Level	4
Credits	1
Version	1.0
Last Reviewed Date	27/08/2024
Next Review Date	27/08/2027
NSQC Clearance Date	27/08/2024

AGR/N0351: Grow guava in an orchard

Description

This unit is about growing guava in an orchard.

Scope

The scope covers the following :

- Set up a guava orchard
- Maintain a guava orchard
- Carry out harvest and post-harvest activities in a guava orchard

Elements and Performance Criteria

Set up a guava orchard

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

PC1. identify suitable location for the planting of guava plants/trees

PC2. select the disease-resistant and high-yielding varieties of guava that can be grown profitably in the agro-climatic conditions of the selected area

PC3. prepare the land by ploughing, harrowing, levelling and removing the weeds

PC4. perform propagation of guava plants/ tress by budding, stooling, inarching or air layering

PC5. plant the guava plants/ trees as per the square system

PC6. apply 5-8 m spacing between the plants as per the variety, soil fertility and availability of irrigation facilities

Maintain a guava orchard

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

PC7. apply fertilizer timely in the recommended quantity

PC8. follow the recommended irrigation schedule in different seasons

PC9. apply suitable pesticide, foliage spray or organic methods to protect the crop from various pests such as fruit fly, stem borer, mealy bug, etc.

PC10. apply the appropriate weedicide or fungicide to protect the guava crop from common diseases and disorders such as wilt, fruit canker, fruit rot, anthrachose and grey leaf spot etc.

PC11. prune the guava trees as per the structural pruning system

PC12. train the guava trees as per the single-stem or multi-stem system

PC13. carry out inter-cropping with leguminous or other suitable crops

PC14. carry out rejuvenation of old and senile guava orchard

Carry out harvest and post-harvest activities in a guava orchard

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

PC15. harvest guava when they are mature but still hard

PC16. store guava at the recommended temperature

PC17. sort and grade the harvested guava as per the market requirements

PC18. load and transport guava safely, while protecting them from damage

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. guava varieties that are grown in commercial farming
KU5. agro-climatic conditions required for guava farming and its importance
KU6. land selection and its preparation in guava farming
KU7. propagation methods for guava planting
KU8. transplantation methods for guava planting
KU9. growing guava from seeds
KU10. guava planting season
KU11. guava planting systems such as square planting system
KU12. importance of maintaining the irrigation intervals for guava crop
KU13. spacing requirements in a guava orchard
KU14. various planting methods used in guava cultivation
KU15. irrigation requirements of guava trees/plants
KU16. application of manure and fertilizers in guava farming
KU17. various guava pests and their control methods
KU18. various guava disease and their control methods
KU19. method of rejuvenation of old and senile guava orchards
KU20. harvesting method and schedule for guava fruit
KU21. sorting and grading methods
KU22. storage and packaging requirements for guava

Generic Skills (GS)

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

GS1. prepare crop 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. receive preferences, priorities, instructions and seek advice from clients and managers
GS5. provide direction and instructions to other workers
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 orchard 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)

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Set up a guava orchard	**10**	**15**	**-**	**10**
PC1. identify suitable location for the planting of guava plants/trees	-	-	-	-
PC2. select the disease-resistant and high-yielding varieties of guava that can be grown profitably in the agro-climatic conditions of the selected area	-	-	-	-
PC3. prepare the land by ploughing, harrowing, levelling and removing the weeds	-	-	-	-
PC4. perform propagation of guava plants/ tress by budding, stooling, inarching or air layering	-	-	-	-
PC5. plant the guava plants/ trees as per the square system	-	-	-	-
PC6. apply 5-8 m spacing between the plants as per the variety, soil fertility and availability of irrigation facilities	-	-	-	-
Maintain a guava orchard	**10**	**20**	**-**	**5**
PC7. apply fertilizer timely in the recommended quantity	-	-	-	-
PC8. follow the recommended irrigation schedule in different seasons	-	-	-	-
PC9. apply suitable pesticide, foliage spray or organic methods to protect the crop from various pests such as fruit fly, stem borer, mealy bug, etc.	-	-	-	-
PC10. apply the appropriate weedicide or fungicide to protect the guava crop from common diseases and disorders such as wilt, fruit canker, fruit rot, anthrachose and grey leaf spot etc.	-	-	-	-
PC11. prune the guava trees as per the structural pruning system	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC12. train the guava trees as per the single-stem or multi-stem system	-	-	-	-
PC13. carry out inter-cropping with leguminous or other suitable crops	-	-	-	-
PC14. carry out rejuvenation of old and senile guava orchard	-	-	-	-
Carry out harvest and post-harvest activities in a guava orchard	**10**	**10**	**-**	**10**
PC15. harvest guava when they are mature but still hard	-	-	-	-
PC16. store guava at the recommended temperature	-	-	-	-
PC17. sort and grade the harvested guava as per the market requirements	-	-	-	-
PC18. load and transport guava safely, while protecting them from damage	-	-	-	-
NOS Total	**30**	**45**	**-**	**25**

National Occupational Standards (NOS) Parameters

NOS Code	AGR/N0351
NOS Name	Grow guava in an orchard
Sector	Agriculture
Sub-Sector	Agriculture Crop Production
Occupation	Fruit Crops Cultivation
NSQF Level	4
Credits	1
Version	1.0
Last Reviewed Date	27/08/2024
Next Review Date	27/08/2027
NSQC Clearance Date	27/08/2024

AGR/N0352: Grow ber in an orchard

Description

This unit is about growing ber in an orchard.

Scope

The scope covers the following :

- Set up a ber orchard
- Maintain a ber orchard
- Carry out harvest and post-harvest activities in a ber orchard

Elements and Performance Criteria

Set up a ber orchard

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

PC1.   determine the planting location suitable for ber crop

PC2.   identify the suitable agro-climatic conditions for the planting of ber plants/trees

PC3.   select the disease-resistant and high-yielding varieties of ber that can be grown profitably in the agro-climatic conditions of the selected area

PC4.   prepare the land by ploughing, harrowing, levelling and removing the weeds

PC5.   perform vegetative propagation of ber plants/ tress as per 'I' or 'T' (shield) budding method

PC6.   plant the ber plants/ trees as per the square system

PC7.   ensure the recommended spacing between the plants to obtain the optimum planting density

Maintain a ber orchard

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

PC8.   apply fertilizer timely in the recommended quantity

PC9.   train the ber trees to develop a strong framework

PC10.   construct supporting fences to train as per T-bar or overhead trellis/ telephone system which can support 3-5 wires on iron poles

PC11.   prune the ber trees (annually) to maximise the number of new healthy shoots

PC12.   irrigate at suitable intervals (3-4 weeks) using drip irrigation systems

PC13.   carry out inter-cultural operations on a regular basis to remove weeds

PC14.   carry out inter-cropping with leguminous crop, chilli and other suitable vegetables

PC15.   protect the ber crop from pests and diseases that usually infect the crop such as fruit fly, fruit borer, powdery mildew, leaf spot, etc.

PC16.   pollinate the flowers of the ber artificially or by natural methods such as placing honey-bee hives in the orchards temporarily

PC17.   carry out rejuvenation of old and unproductive ber orchard

Carry out harvest and post-harvest activities in a ber orchard

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

PC18. harvest bers when they are mature

PC19. grade the ber fruit on the basis of its size into large, medium and small-sized

PC20. store the harvested ber in a cool place away from the sun

PC21. pack the ber in cloth sheets, gunny bags or perforated cardboard cartons as per the grade

PC22. load and transport ber safely, while protecting them from damage

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. ber cultivar or varieties that are grown for commercial ber farming

KU5. agro-climatic conditions required for ber farming and its importance

KU6. land selection and its preparation for ber farming

KU7. propagation methods for ber planting

KU8. ber planting season

KU9. ber planting systems

KU10. spacing recommended in a ber orchard

KU11. irrigation methods used in ber farming

KU12. application of manure and fertilizers in ber farming

KU13. training processes for ber trees

KU14. pollination requirement for ber trees

KU15. pests and diseases infecting ber trees and their control methods

KU16. method of rejuvenation of old and unproductive ber orchard

KU17. harvesting method and schedule

KU18. sorting and grading parameters for ber fruits

KU19. storage and packaging requirements to prevent damage and spoilage

Generic Skills (GS)

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

GS1. prepare orchard 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 clients and own management within the resources, constraints and local conditions

GS7. plan the farming calendar aligned to the overall orchard design, climate and availability of plants

GS8. think through the problem, evaluate the possible solution(s) and take up an optimum /best possible solution(s)

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Set up a ber orchard	**10**	**15**	**-**	**10**
PC1. determine the planting location suitable for ber crop	-	-	-	-
PC2. identify the suitable agro-climatic conditions for the planting of ber plants/trees	-	-	-	-
PC3. select the disease-resistant and high-yielding varieties of ber that can be grown profitably in the agro-climatic conditions of the selected area	-	-	-	-
PC4. prepare the land by ploughing, harrowing, levelling and removing the weeds	-	-	-	-
PC5. perform vegetative propagation of ber plants/ tress as per 'I' or 'T' (shield) budding method	-	-	-	-
PC6. plant the ber plants/ trees as per the square system	-	-	-	-
PC7. ensure the recommended spacing between the plants to obtain the optimum planting density	-	-	-	-
Maintain a ber orchard	**10**	**20**	**-**	**5**
PC8. apply fertilizer timely in the recommended quantity	-	-	-	-
PC9. train the ber trees to develop a strong framework	-	-	-	-
PC10. construct supporting fences to train as per T-bar or overhead trellis/ telephone system which can support 3-5 wires on iron poles	-	-	-	-
PC11. prune the ber trees (annually) to maximise the number of new healthy shoots	-	-	-	-
PC12. irrigate at suitable intervals (3-4 weeks) using drip irrigation systems	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC13. carry out inter-cultural operations on a regular basis to remove weeds	-	-	-	-
PC14. carry out inter-cropping with leguminous crop, chilli and other suitable vegetables	-	-	-	-
PC15. protect the ber crop from pests and diseases that usually infect the crop such as fruit fly, fruit borer, powdery mildew, leaf spot, etc.	-	-	-	-
PC16. pollinate the flowers of the ber artificially or by natural methods such as placing honey-bee hives in the orchards temporarily	-	-	-	-
PC17. carry out rejuvenation of old and unproductive ber orchard	-	-	-	-
Carry out harvest and post-harvest activities in a ber orchard	**10**	**10**	**-**	**10**
PC18. harvest bers when they are mature	-	-	-	-
PC19. grade the ber fruit on the basis of its size into large, medium and small-sized	-	-	-	-
PC20. store the harvested ber in a cool place away from the sun	-	-	-	-
PC21. pack the ber in cloth sheets, gunny bags or perforated cardboard cartons as per the grade	-	-	-	-
PC22. load and transport ber safely, while protecting them from damage	-	-	-	-
NOS Total	**30**	**45**	**-**	**25**

National Occupational Standards (NOS) Parameters

NOS Code	AGR/N0352
NOS Name	Grow ber in an orchard
Sector	Agriculture
Sub-Sector	Agriculture Crop Production
Occupation	Fruit Crops Cultivation
NSQF Level	4
Credits	1
Version	1.0
Last Reviewed Date	27/08/2024
Next Review Date	27/08/2027
NSQC Clearance Date	27/08/2024

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 the proportion of marks for Theory and Skills Practical for each PC.

2. The assessment for the theory part will be based on the knowledge bank of questions created by the SSC.

3. Assessment will be conducted for all compulsory NOS, and where applicable, on the selected Elective/Optional set of NOS.

4. Individual assessment agencies will create unique question papers for the 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 these criteria.

6. To pass the Qualification Pack assessment, 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.

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/N0347.Prepare for growing tropical/subtropical fruits	30	40	-	30	100	15
AGR/N0348.Plant a tropical/subtropical fruit in an orchard	30	40	-	30	100	10
AGR/N0349.Manage operations of a tropical/subtropical fruit orchard	30	40	-	30	100	25
AGR/N0309.Manage irrigation for fruit production	25	45	-	30	100	10
AGR/N0344.Carry out harvesting and post-harvesting tasks in orchard/plantations	40	60	-	-	100	20
AGR/N9908.Undertake basic entrepreneurial activities for small enterprise	30	40	-	30	100	10
AGR/N9903.Maintain health and safety at the workplace	40	25	-	35	100	5
DGT/VSQ/N0102.Employability Skills (60 Hours)	20	30	-	-	50	5
Total	**245**	**320**	**-**	**185**	**750**	**100**

Optional: 1 Pomegranate

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
AGR/N0350.Grow pomegranate in an orchard	30	45	-	25	100	60
Total	**30**	**45**	**-**	**25**	**100**	**60**

Optional: 2 Mango

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
AGR/N0353.Grow mango in an orchard	30	45	-	25	100	60
Total	**30**	**45**	**-**	**25**	**100**	**60**

Optional: 3 Banana

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
AGR/N0354.Grow banana in an orchard	30	45	-	25	100	60
Total	**30**	**45**	**-**	**25**	**100**	**60**

Optional: 4 Citrus Fruits

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
AGR/N0355.Grow citrus in an orchard	30	45	-	25	100	60

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
Total	**30**	**45**	**-**	**25**	**100**	**60**

Optional: 5 Guava

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
AGR/N0351.Grow guava in an orchard	30	45	-	25	100	60
Total	**30**	**45**	**-**	**25**	**100**	**60**

Optional: 6 Ber

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
AGR/N0352.Grow ber in an orchard	30	45	-	25	100	60
Total	**30**	**45**	**-**	**25**	**100**	**60**

Acronyms

NOS	National Occupational Standard(s)
NSQF	National Skills Qualifications Framework
QP	Qualifications Pack
TVET	Technical and Vocational Education and Training
PPE	Personal Protective Equipment

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.

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.