

Qualification Pack



Sugarcane Cultivator

QP Code: AGR/Q0203

Version: 3.0

NSQF Level: 3

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

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AGR/Q0203: Sugarcane Cultivator

Brief Job Description

The sugarcane cultivator undertakes the cultivation of sugarcane crop at the farm level. The individual is also responsible for harvesting and marketing the sugarcane crop. The person undertakes integrated pest and disease management, along with weed management as part of the job role.

Personal Attributes

The individual must be physically fit to work for long durations. The person must have attention to detail with the abilities to take decisions independently and work in coordination with others. The individual must also know how to read and write.

Applicable National Occupational Standards (NOS)

Compulsory NOS:

1. [AGR/N0207: Prepare the sugarcane cultivation site and plant the setts](#)
2. [AGR/N0108: Carry out macro and micronutrient management of field crops](#)
3. [AGR/N0109: Manage weed growth in crop fields](#)
4. [AGR/N0208: Perform integrated pest and disease management for sugarcane crop](#)
5. [AGR/N0111: Perform irrigation management for field crops](#)
6. [AGR/N0209: Carry out harvesting, ratooning and marketing of sugarcane](#)
7. [AGR/N9922: Engage in collective farming/activity](#)
8. [AGR/N9903: Maintain health and safety at the workplace](#)
9. [DGT/VSQ/N0101: Employability Skills \(30 Hours\)](#)

Qualification Pack (QP) Parameters

| | |
|-------------------|--------------------------------------|
| Sector | Agriculture |
| Sub-Sector | Agriculture Crop Production |
| Occupation | Field Crops Cultivation (Cash Crops) |

Qualification Pack

| | |
|---|--|
| Country | India |
| NSQF Level | 3 |
| Credits | 9 |
| Aligned to NCO/ISCO/ISIC Code | NCO-2015/6111.0701 |
| Minimum Educational Qualification & Experience | 10th Class OR 8th Class (with two years of (NTC/ NAC) after 8th) OR 8th grade pass and pursuing continuous schooling in regular school with vocational subject OR 8th grade pass with 2 Years of experience relevant experience OR 5th grade pass with 5 Years of experience relevant experience OR Previous relevant Qualification of NSQF Level (Level 2) with 1 Year of experience relevant experience OR Previous relevant Qualification of NSQF Level (Level 2.5) with 6 Months of experience relevant experience |
| Minimum Level of Education for Training in School | |
| Pre-Requisite License or Training | NA |
| Minimum Job Entry Age | 16 Years |
| Last Reviewed On | NA |
| Next Review Date | 24/02/2025 |
| NSQC Approval Date | 24/02/2022 |
| Version | 3.0 |
| Reference code on NQR | QG-03-AG-00280-2023-V1.1-ASCI |
| NQR Version | 1.1 |

Qualification Pack

AGR/N0207: Prepare the sugarcane cultivation site and plant the setts

Description

This OS unit is about preparing for sugarcane cultivation that includes selection and preparation of the site along with the preparation and planting of setts.

Scope

The scope covers the following :

- Select and prepare the site for sugarcane cultivation
- Prepare the setts for planting
- Plant the setts

Elements and Performance Criteria

Select and prepare the site for sugarcane cultivation

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

- PC1.** check the site has conducive climatic conditions for sugarcane cultivation and is free from limiting factors such as flooding, drought, and extreme heat and cold
- PC2.** coordinate with an authorised lab to determine if the soil is suitable for sugarcane cultivation at the site
- PC3.** ensure the site is accessible and has availability of quality water, labour and other inputs required for sugarcane cultivation
- PC4.** create irrigation channels in the field, ensuring uniform levelling and grading of the field for effective drainage
- PC5.** prepare the field for sowing setts according to the terrain, location of planting and the system to be followed such as ridges and furrows, trench, flat system, etc.
- PC6.** apply compost, crop residue and mulch to the field in the recommended quantities
- PC7.** check the soil's pH level using a pH meter and apply lime or gypsum in an appropriate quantity to adjust the pH level

Prepare the setts for planting

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

- PC8.** identify the appropriate variety of sugarcane for vegetative propagation depending on the time of sowing, area of cultivation, resistance to smut and red rot, drought tolerance, yield, sucrose or fibre content, etc.
- PC9.** extract the seed material from the recent sugarcane crop, ensuring the buds are not covered with too many dry scales and are free from pests and disease
- PC10.** arrange budded setts in the required number and prepare the setts for planting using the appropriate tools and equipment
- PC11.** treat the sugarcane setts with hot air or aerated steam at the recommended temperature for the prescribed duration to eliminate mosaic virus
- PC12.** prepare the sett treatment solution using the recommended organomercurial chemicals and soak the setts in the solution for the prescribed duration

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Plant the setts

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

- PC13.** ascertain the appropriate seeding rate for planting the setts as per the sugarcane varietal recommendations
- PC14.** plant setts in the field maintaining the recommended planting density, and apply appropriate fertilisers in the recommended dose
- PC15.** carry out propping of sugarcane at the recommended interval

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** the cultivation duration of different sugarcane varieties and their yield
- KU2.** the criteria for selecting a site for sugarcane cultivation
- KU3.** various agro-climatic zones in India suitable for sugarcane cultivation
- KU4.** the site, climate, soil type, soil fertility, nature of subsoil and soil depth suitable for growing sugarcane
- KU5.** relevant sugarcane varieties with adaptability to intercropping
- KU6.** the process of getting the soil sample tested through an authorised lab to determine the soil's suitability for sugarcane cultivation
- KU7.** various inputs required for sugarcane cultivation such as water, fertilisers, pesticides, labour, etc.
- KU8.** how to create irrigation channels in the field
- KU9.** the process of checking the soil's pH and adjusting it by applying lime or gypsum
- KU10.** the process of preparing the field for sowing the setts according to the terrain, location of planting and the planting system to be followed
- KU11.** the criteria for selecting a sugarcane variety or hybrids for vegetative propagation and resistance and vulnerability of different sugarcane varieties to abiotic stress and various pests and diseases
- KU12.** the cultivation period, appropriate time for sowing and yield of different sugarcane varieties
- KU13.** how to extract the seeds from sugarcane crop
- KU14.** the criteria and quality indicators for sett selection
- KU15.** how to treat sugarcane setts under hot air or aerated steam to eliminate mosaic virus
- KU16.** the process of preparing the setts for planting using the appropriate tools and equipment
- KU17.** the appropriate chemical and biological sett treatment methods
- KU18.** how to prepare the sett treatment solution and treat the setts in it
- KU19.** how to ascertain the seeding rate for planting the setts
- KU20.** the advantages and disadvantages of different types of sett planting methods depending on terrain
- KU21.** the suitable time for planting setts based on the moisture content in the soil, precipitation, humidity, etc.
- KU22.** the process of planting setts in the field and propping sugarcane

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Generic Skills (GS)

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

- GS1.** maintain work-related notes and records
- GS2.** read the relevant literature to get the latest updates about the field of work
- GS3.** perform basic calculations
- GS4.** listen attentively to understand the information/ instructions being shared
- GS5.** communicate clearly and politely
- GS6.** plan and prioritise tasks to ensure timely completion
- GS7.** evaluate all possible solutions to a problem to select the best one
- GS8.** co-ordinate with the co-workers to achieve the work objectives
- GS9.** identify possible disruptions to work and take appropriate preventive measures
- GS10.** take quick decisions to deal with workplace emergencies/ accidents

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Assessment Criteria

| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|---|--------------|-----------------|---------------|------------|
| <i>Select and prepare the site for sugarcane cultivation</i> | 16 | 20 | - | 12 |
| PC1. check the site has conducive climatic conditions for sugarcane cultivation and is free from limiting factors such as flooding, drought, and extreme heat and cold | - | - | - | - |
| PC2. coordinate with an authorised lab to determine if the soil is suitable for sugarcane cultivation at the site | - | - | - | - |
| PC3. ensure the site is accessible and has availability of quality water, labour and other inputs required for sugarcane cultivation | - | - | - | - |
| PC4. create irrigation channels in the field, ensuring uniform levelling and grading of the field for effective drainage | - | - | - | - |
| PC5. prepare the field for sowing setts according to the terrain, location of planting and the system to be followed such as ridges and furrows, trench, flat system, etc. | - | - | - | - |
| PC6. apply compost, crop residue and mulch to the field in the recommended quantities | - | - | - | - |
| PC7. check the soil's pH level using a pH meter and apply lime or gypsum in an appropriate quantity to adjust the pH level | - | - | - | - |
| <i>Prepare the setts for planting</i> | 8 | 12 | - | 8 |
| PC8. identify the appropriate variety of sugarcane for vegetative propagation depending on the time of sowing, area of cultivation, resistance to smut and red rot, drought tolerance, yield, sucrose or fibre content, etc. | - | - | - | - |
| PC9. extract the seed material from the recent sugarcane crop, ensuring the buds are not covered with too many dry scales and are free from pests and disease | - | - | - | - |

Qualification Pack

| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|---|--------------|-----------------|---------------|------------|
| PC10. arrange budded setts in the required number and prepare the setts for planting using the appropriate tools and equipment | - | - | - | - |
| PC11. treat the sugarcane setts with hot air or aerated steam at the recommended temperature for the prescribed duration to eliminate mosaic virus | - | - | - | - |
| PC12. prepare the sett treatment solution using the recommended organomercurial chemicals and soak the setts in the solution for the prescribed duration | - | - | - | - |
| <i>Plant the setts</i> | 6 | 8 | - | 10 |
| PC13. ascertain the appropriate seeding rate for planting the setts as per the sugarcane varietal recommendations | - | - | - | - |
| PC14. plant setts in the field maintaining the recommended planting density, and apply appropriate fertilisers in the recommended dose | - | - | - | - |
| PC15. carry out propping of sugarcane at the recommended interval | - | - | - | - |
| NOS Total | 30 | 40 | - | 30 |

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National Occupational Standards (NOS) Parameters

| | |
|----------------------------|--|
| NOS Code | AGR/N0207 |
| NOS Name | Prepare the sugarcane cultivation site and plant the setts |
| Sector | Agriculture |
| Sub-Sector | Agriculture Crop Production |
| Occupation | Field Crop Cultivation (Cash crop) |
| NSQF Level | 3 |
| Credits | 1 |
| Version | 2.0 |
| Last Reviewed Date | 24/02/2022 |
| Next Review Date | 24/02/2025 |
| NSQC Clearance Date | 24/02/2022 |

Qualification Pack

AGR/N0108: Carry out macro and micronutrient management of field crops

Description

This OS unit is about managing the macro and micronutrient needs of field crops to ensure their optimum growth.

Scope

The scope covers the following :

- Determine the macro and micronutrients requirements
- Apply fertilisers to the soil
- Perform soil conservation

Elements and Performance Criteria

Determine the macro and micronutrients requirements

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

- PC1.** coordinate with an authorised lab to get the soil sample tested, ensuring the sample is collected from the field, packed and labelled as per the applicable procedure
- PC2.** interpret the soil analysis report to determine the micro and macronutrients requirements of the soil based on the planned crop variety or coordinate with an expert for the purpose
- PC3.** select the appropriate organic and inorganic fertilisers, ensuring they contain the required nutrients in the recommended quantity
- PC4.** prepare organic fertilisers such as farmyard manure, vermicompost and inorganic fertiliser solutions, ensuring personal safety

Apply fertilisers to the soil

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

- PC5.** prepare the mixture of liquid fertilisers for application in the field, using them in the recommended quantity
- PC6.** prepare the field for the application of fertilisers
- PC7.** apply organic and inorganic fertilisers containing the required macro and micronutrients to the soil in the recommended dose
- PC8.** regulate the dose of fertiliser according to the crop cycle
- PC9.** maintain the record of fertilisers used in the field

Perform soil conservation

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

- PC10.** prepare a soil nutrition supplementation calendar based on the stages of the crop's growth
- PC11.** follow the recommended practices for soil conservation, such as mulching to conserve soil moisture and application of organic fertilisers

Knowledge and Understanding (KU)

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The individual on the job needs to know and understand:

- KU1.** the basic concepts of plant nutrition and soil fertility
- KU2.** different types of macro and micronutrients, their properties and functions
- KU3.** common symptoms of nutrient deficiency in plants
- KU4.** the use of different types of green manure and nitrogen-fixing crops
- KU5.** the process of soil sampling and testing
- KU6.** how to interpret the soil analysis report to determine the macro and micronutrient requirements of the soil
- KU7.** different soil types, their advantages and disadvantages with reference to the presence of various nutrients
- KU8.** how to prepare the mixture of liquid fertilisers, using them in the recommended quantity
- KU9.** how to prepare the field for the application of fertilisers
- KU10.** the appropriate time, methods and dose for the application of different types of fertilisers for a variety of crops
- KU11.** the importance of regulating the dose of fertiliser according to the crop cycle
- KU12.** importance of soil conservation and various soil conservation practices
- KU13.** the importance of getting the soil tested through a government-approved soil-testing laboratory to determine the macro and micronutrients present in it, and the requirement of adding the nutrients manually
- KU14.** varieties of organic and inorganic fertilisers to be applied to the soil to improve its fertility, and the nutrient content in them
- KU15.** the process of preparing organic fertilisers such as farmyard manure, vermicompost and inorganic fertiliser solutions
- KU16.** how to apply organic and inorganic fertilisers to the soil and the recommended dose to be used
- KU17.** the harmful effects of over-dosage of fertilisers
- KU18.** applicable documentation requirements
- KU19.** the process of preparing a soil nutrition supplementation calendar based on the stages of the crop's growth

Generic Skills (GS)

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

- GS1.** maintain work-related notes and records
- GS2.** communicate politely and professionally
- GS3.** read the relevant literature to learn about the latest developments in the field of work
- GS4.** listen attentively to understand the information/ instructions being shared
- GS5.** plan and prioritise tasks to ensure timely completion
- GS6.** co-ordinate with the co-workers to achieve the work objectives
- GS7.** evaluate all possible solutions to a problem to select the best one
- GS8.** identify possible disruptions to work and take appropriate preventive measures



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GS9. take quick decisions to deal with workplace emergencies/ accidents

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Assessment Criteria

| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|--|--------------|-----------------|---------------|------------|
| <i>Determine the macro and micronutrients requirements</i> | 12 | 10 | - | 8 |
| PC1. coordinate with an authorised lab to get the soil sample tested, ensuring the sample is collected from the field, packed and labelled as per the applicable procedure | - | - | - | - |
| PC2. interpret the soil analysis report to determine the micro and macronutrients requirements of the soil based on the planned crop variety or coordinate with an expert for the purpose | - | - | - | - |
| PC3. select the appropriate organic and inorganic fertilisers, ensuring they contain the required nutrients in the recommended quantity | - | - | - | - |
| PC4. prepare organic fertilisers such as farmyard manure, vermicompost and inorganic fertiliser solutions, ensuring personal safety | - | - | - | - |
| <i>Apply fertilisers to the soil</i> | 10 | 16 | - | 10 |
| PC5. prepare the mixture of liquid fertilisers for application in the field, using them in the recommended quantity | - | - | - | - |
| PC6. prepare the field for the application of fertilisers | - | - | - | - |
| PC7. apply organic and inorganic fertilisers containing the required macro and micronutrients to the soil in the recommended dose | - | - | - | - |
| PC8. regulate the dose of fertiliser according to the crop cycle | - | - | - | - |
| PC9. maintain the record of fertilisers used in the field | - | - | - | - |
| <i>Perform soil conservation</i> | 8 | 14 | - | 12 |
| PC10. prepare a soil nutrition supplementation calendar based on the stages of the crop's growth | - | - | - | - |

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| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|--|--------------|-----------------|---------------|------------|
| PC11. follow the recommended practices for soil conservation, such as mulching to conserve soil moisture and application of organic fertilisers | - | - | - | - |
| NOS Total | 30 | 40 | - | 30 |

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National Occupational Standards (NOS) Parameters

| | |
|----------------------------|---|
| NOS Code | AGR/N0108 |
| NOS Name | Carry out macro and micronutrient management of field crops |
| Sector | Agriculture |
| Sub-Sector | Agriculture Crop Production |
| Occupation | Field Crops Cultivation(Food Crops) |
| NSQF Level | 4 |
| Credits | 1 |
| Version | 2.0 |
| Last Reviewed Date | 24/02/2022 |
| Next Review Date | 27/01/2025 |
| NSQC Clearance Date | 27/01/2022 |

Qualification Pack

AGR/N0109: Manage weed growth in crop fields

Description

This OS unit is about managing the growth of weeds in crop fields. It covers both preventive and remedial measures for weed control.

Scope

The scope covers the following :

- Identify weed growth
- Perform weed management

Elements and Performance Criteria

Identify weed growth

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

- PC1.** inspect the field, bunds, thrashing yard, granary, composting area, and irrigation and drainage channels periodically to identify weed growth
- PC2.** maintain the record of observations with respect to weed identification and their growth

Perform weed management

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

- PC3.** select an appropriate combination of different types of intercultural and mechanical methods for effective weed control such as trash mulching, solarisation and pasteurisation
- PC4.** select and prepare the recommended herbicide/ bio-herbicide solution suitable to the crop
- PC5.** spray the herbicide/ bio-herbicide safely in the recommended dose
- PC6.** remove weeds manually using the appropriate hand tools and implements, as required
- PC7.** retain the weeds of importance during the weeding process
- PC8.** maintain the herbicides and herbicide application equipment separately to prevent cross-contamination with other chemicals

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** the critical period for organic weed control, reducing the dependence on herbicides and weedicides
- KU2.** the adverse effect of different types of weed on crop growth such as grass, broad leaves, sedges
- KU3.** different weed control methods such as preventative, intercultural, mechanical, biological and chemicals
- KU4.** advantages and disadvantages of different weeding methods
- KU5.** the critical period of crop-weed competition
- KU6.** different manual weeding techniques

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- KU7.** the use of relevant weeding equipment such as hoe and spade
- KU8.** use of pre-emergent and post-emergent herbicides
- KU9.** differences between blanket and spot application of herbicides
- KU10.** the process of soil solarisation and pasteurisation
- KU11.** environmental norms to be adhered to during herbicide application
- KU12.** the effect of herbicide residue on different types of crop
- KU13.** ways to minimise pollution caused by overuse of herbicides
- KU14.** the importance of inspecting the field regularly to identify weed growth
- KU15.** the appropriate combination of different types of intercultural and mechanical methods for effective weed control such as solarisation and pasteurisation
- KU16.** the process of selecting and preparing the recommended herbicide/ bio-herbicide solution suitable to the crop
- KU17.** how to spray herbicide/ bio-herbicide safely on the crop
- KU18.** the importance of retaining the weeds of importance during the weeding process
- KU19.** the importance of maintaining the herbicides and herbicide application equipment separately to prevent cross-contamination with other chemicals

Generic Skills (GS)

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

- GS1.** maintain work-related notes and records
- GS2.** read the relevant guides, manuals and literature to get the latest updates about the field of work
- GS3.** communicate clearly and politely
- GS4.** listen attentively to understand the instructions being given
- GS5.** identify effective solutions to work-related issues
- GS6.** plan and prioritise tasks to ensure timely completion
- GS7.** take quick decisions in case of an emergency/ accident
- GS8.** plan effective use of time and resources

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Assessment Criteria

| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|---|--------------|-----------------|---------------|------------|
| <i>Identify weed growth</i> | 10 | 12 | - | 14 |
| PC1. inspect the field, bunds, thrashing yard, granary, composting area, and irrigation and drainage channels periodically to identify weed growth | - | - | - | - |
| PC2. maintain the record of observations with respect to weed identification and their growth | - | - | - | - |
| <i>Perform weed management</i> | 20 | 28 | - | 16 |
| PC3. select an appropriate combination of different types of intercultural and mechanical methods for effective weed control such as trash mulching, solarisation and pasteurisation | - | - | - | - |
| PC4. select and prepare the recommended herbicide/ bio-herbicide solution suitable to the crop | - | - | - | - |
| PC5. spray the herbicide/ bio-herbicide safely in the recommended dose | - | - | - | - |
| PC6. remove weeds manually using the appropriate hand tools and implements, as required | - | - | - | - |
| PC7. retain the weeds of importance during the weeding process | - | - | - | - |
| PC8. maintain the herbicides and herbicide application equipment separately to prevent cross- contamination with other chemicals | - | - | - | - |
| NOS Total | 30 | 40 | - | 30 |

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National Occupational Standards (NOS) Parameters

| | |
|----------------------------|-------------------------------------|
| NOS Code | AGR/N0109 |
| NOS Name | Manage weed growth in crop fields |
| Sector | Agriculture |
| Sub-Sector | Agriculture Crop Production |
| Occupation | Field Crops Cultivation(Food Crops) |
| NSQF Level | 4 |
| Credits | 1 |
| Version | 2.0 |
| Last Reviewed Date | 24/02/2022 |
| Next Review Date | 27/01/2025 |
| NSQC Clearance Date | 27/01/2022 |

Qualification Pack

AGR/N0208: Perform integrated pest and disease management for sugarcane crop

Description

This OS unit is about various measures to be taken to prevent and control insects, pests and diseases in a sugarcane field.

Scope

The scope covers the following :

- Follow preventive measures to control pests and disease
- Identify pests and disease in the sugarcane crop
- Identify and apply the necessary treatment
- Optimise resource utilisation
- Perform waste management

Elements and Performance Criteria

Follow preventive measures to control pests and disease

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

- PC1.** use pest and disease-resistant varieties of sugarcane
- PC2.** follow the recommended practices to restrict the entry of pathogens into the field through planting material, irrigation water, workers, tools and equipment, and vectors such as whitefly
- PC3.** carry out crop rotation with suitable crops, ensuring timely sowing and hygiene in the field
- PC4.** identify and remove the diseased crop to prevent the spread of pests and diseases to the healthy crop
- PC5.** use the recommended combination of biological, mechanical and chemical control methods for effective pest and disease prevention, such as pheromone traps, light traps, bird perches, sticky traps, as suitable to the cultivar
- PC6.** use egg parasitoids from trichogramma, larval parasitoids microplitis, and sturmiopsis for controlling pests

Identify pests and disease in the sugarcane crop

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

- PC7.** check the sugarcane crop and identify different types of pests such as early shoot borer, top shoot borer, internode borer, white grub, termites, woolly aphids, mealy bugs, etc.
- PC8.** conduct regular field visits to identify plant disease vectors and major sugarcane diseases such as wilt, red rot, rust, smut, pokkah boeng, sett rot, ratoon stunting, yellow leaf, etc.
- PC9.** determine the stage of pest incidence along with the extent of damage and economic threshold levels (ETL) of the pests
- PC10.** use Integrated Pest Management (IPM) methods like light and pheromone traps to identify the presence and population of insects and vectors

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PC11. co-ordinate with the agricultural extension workers and diagnostic clinics to determine the causal organism for the disease and its treatment

Identify and apply the necessary treatment

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

PC12. follow the appropriate integrated pest management techniques such as trash mulching, de-trashing, pest egg destruction, bund freeing, water draining, usage of bio-control agents, etc.

PC13. identify and adopt natural enemies of crop pests such as ladybird, ground beetles, hoverfly for pest control, according to the advice of agricultural extension workers, Krishi Vigyan Kendra (KVK), agricultural universities etc.

PC14. apply the recommended treatment as per the prescription to remove pests and diseases

PC15. follow the recommended safety practices while applying any treatment, such as using the relevant PPE

PC16. maintain the record of the use of any pesticides, insecticides and any other treatment

Optimise resource utilisation

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

PC17. optimise the usage of water and other resources in various tasks and processes

PC18. plug water leakages to prevent its wastage

Perform waste management

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

PC19. segregate waste into appropriate categories

PC20. recycle the recyclable waste appropriately and dispose the non-recyclable waste in an environment-friendly manner

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. various types of pests and diseases found in sugarcane crop and their symptoms

KU2. different biotic and abiotic factors causing diseases and disorders in sugarcane crop

KU3. different modes of transmissions of sugarcane crop diseases such as setts, implements, vectors, water, rain, wind

KU4. the importance of adopting safe production methods for a safe produce

KU5. the advantages of adopting biological methods for controlling insects, pest and diseases, such as bio-pesticides and pheromones used in IPM (Integrated Pest Management)

KU6. the recommended minimum residue levels and Protected Health Information (PHI) for different types of pesticides

KU7. the use of pesticide spraying tools and equipment

KU8. applicable national and international standards on pesticide residues

KU9. the benefits of using pest and disease-resistant varieties of sugarcane

KU10. the recommended practices to be followed to restrict the entry of pathogens into the field through planting material, irrigation water, workers, tools and equipment, and vectors such as whitefly

KU11. the practice of crop rotation with suitable crops

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- KU12.** the importance of identifying and removing the diseased crop to prevent the spread of pests and diseases to the healthy crop
- KU13.** the use of recommended combination of biological, mechanical and chemical control methods for effective pest and disease prevention such as traps, sticky plates etc.
- KU14.** how to identify different types of pests in sugarcane crop such as early shoot borer, top shoot borer, internode borer, white grub, termites, woolly aphids, mealy bugs, etc.
- KU15.** how to identify plant disease vectors and major sugarcane diseases such as wilt, red rot, rust, smut, pokkah boeng, sett rot, ratoon stunting, yellow leaf, etc.
- KU16.** the process of determining the stage of pest incidence along with the extent of damage and economic threshold levels (ETL) of the pests
- KU17.** the use of IPM methods such as light and pheromone traps for identifying the presence and population of insects and vectors
- KU18.** the process of determining the causal organism for the disease and its treatment
- KU19.** natural enemies of sugarcane pests such as ladybird, ground beetles, hoverfly and the benefits of adopting them for pest control
- KU20.** the importance of applying the recommended treatment as per the prescription and maintaining the record of their use
- KU21.** the importance of using the recommended PPE while applying harmful chemicals
- KU22.** different ways to minimise the pollution caused due to overuse of pesticides
- KU23.** the benefits and ways of resource optimisation
- KU24.** the criteria for segregating waste into appropriate categories
- KU25.** how to recycle and dispose different types of waste

Generic Skills (GS)

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

- GS1.** maintain work-related notes and records
- GS2.** read the relevant literature to get the latest updates about the field of work
- GS3.** perform basic calculations
- GS4.** listen attentively to understand the information/ instructions being shared
- GS5.** communicate clearly and politely
- GS6.** plan and prioritise tasks to ensure timely completion
- GS7.** evaluate all possible solutions to a problem to select the best one
- GS8.** co-ordinate with the co-workers to achieve the work objectives
- GS9.** identify possible disruptions to work and take appropriate preventive measures
- GS10.** take quick decisions to deal with workplace emergencies/ accidents

Qualification Pack

Assessment Criteria

| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|---|--------------|-----------------|---------------|------------|
| <i>Follow preventive measures to control pests and disease</i> | 8 | 8 | - | 8 |
| PC1. use pest and disease-resistant varieties of sugarcane | - | - | - | - |
| PC2. follow the recommended practices to restrict the entry of pathogens into the field through planting material, irrigation water, workers, tools and equipment, and vectors such as whitefly | - | - | - | - |
| PC3. carry out crop rotation with suitable crops, ensuring timely sowing and hygiene in the field | - | - | - | - |
| PC4. identify and remove the diseased crop to prevent the spread of pests and diseases to the healthy crop | - | - | - | - |
| PC5. use the recommended combination of biological, mechanical and chemical control methods for effective pest and disease prevention, such as pheromone traps, light traps, bird perches, sticky traps, as suitable to the cultivar | - | - | - | - |
| PC6. use egg parasitoids from trichogramma, larval parasitoids microplitis, and sturmiopsis for controlling pests | - | - | - | - |
| <i>Identify pests and disease in the sugarcane crop</i> | 8 | 10 | - | 8 |
| PC7. check the sugarcane crop and identify different types of pests such as early shoot borer, top shoot borer, internode borer, white grub, termites, woolly aphids, mealy bugs, etc. | - | - | - | - |
| PC8. conduct regular field visits to identify plant disease vectors and major sugarcane diseases such as wilt, red rot, rust, smut, pokkah boeng, sett rot, ratoon stunting, yellow leaf, etc. | - | - | - | - |
| PC9. determine the stage of pest incidence along with the extent of damage and economic threshold levels (ETL) of the pests | - | - | - | - |

Qualification Pack

| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|--|--------------|-----------------|---------------|------------|
| PC10. use Integrated Pest Management (IPM) methods like light and pheromone traps to identify the presence and population of insects and vectors | - | - | - | - |
| PC11. co-ordinate with the agricultural extension workers and diagnostic clinics to determine the causal organism for the disease and its treatment | - | - | - | - |
| <i>Identify and apply the necessary treatment</i> | 6 | 10 | - | 6 |
| PC12. follow the appropriate integrated pest management techniques such as trash mulching, de- trashing, pest egg destruction, bund freeing, water draining, usage of bio-control agents, etc. | - | - | - | - |
| PC13. identify and adopt natural enemies of crop pests such as ladybird, ground beetles, hoverfly for pest control, according to the advice of agricultural extension workers, Krishi Vigyan Kendra (KVK), agricultural universities etc. | - | - | - | - |
| PC14. apply the recommended treatment as per the prescription to remove pests and diseases | - | - | - | - |
| PC15. follow the recommended safety practices while applying any treatment, such as using the relevant PPE | - | - | - | - |
| PC16. maintain the record of the use of any pesticides, insecticides and any other treatment | - | - | - | - |
| <i>Optimise resource utilisation</i> | 4 | 6 | - | 4 |
| PC17. optimise the usage of water and other resources in various tasks and processes | - | - | - | - |
| PC18. plug water leakages to prevent its wastage | - | - | - | - |
| <i>Perform waste management</i> | 4 | 6 | - | 4 |
| PC19. segregate waste into appropriate categories | - | - | - | - |
| PC20. recycle the recyclable waste appropriately and dispose the non-recyclable waste in an environment-friendly manner | - | - | - | - |
| NOS Total | 30 | 40 | - | 30 |

Qualification Pack

National Occupational Standards (NOS) Parameters

| | |
|----------------------------|---|
| NOS Code | AGR/N0208 |
| NOS Name | Perform integrated pest and disease management for sugarcane crop |
| Sector | Agriculture |
| Sub-Sector | Agriculture Crop Production |
| Occupation | Field Crop Cultivation (Cash crop) |
| NSQF Level | 3 |
| Credits | 1 |
| Version | 3.0 |
| Last Reviewed Date | NA |
| Next Review Date | 24/02/2025 |
| NSQC Clearance Date | 24/02/2022 |

Qualification Pack

AGR/N0111: Perform irrigation management for field crops

Description

This OS unit is about performing irrigation management of field crops.

Scope

The scope covers the following :

- Prepare for field irrigation
- Irrigate the field
- Manage the water usage

Elements and Performance Criteria

Prepare for field irrigation

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

- PC1.** collect a water sample from the source of irrigation and coordinate with an authorised lab to get it tested
- PC2.** follow the measures recommended by the lab to improve the water quality
- PC3.** set up an appropriate irrigation system such as surface irrigation, drip irrigation, sub-surface irrigation system based on the requirement of the specific field crop

Irrigate the field

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

- PC4.** irrigate the field according to the recommended irrigation schedule for the crop, ensuring there is adequate water supply at various stages of crop's growth
- PC5.** maintain the record of field irrigation to ensure irrigation as per the schedule
- PC6.** follow the recommended practices to prevent over and under-irrigation, ensuring there is no waterlogging at any stage of the crop's growth

Manage the water usage

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

- PC7.** follow the recommended practices for effective drainage of excess water from the field
- PC8.** maintain the recommended level of water in the soil to prevent the harmful effects of inappropriate levels of moisture in it
- PC9.** plug water spills and leakages to prevent its wastage

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** the timing and method of irrigation appropriate for a given soil type and climatic conditions
- KU2.** the quantity of water required for different types of crops and its effect on the yield
- KU3.** the importance of sampling and testing irrigation water through an authorised lab to determine its quality

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- KU4.** various measures to be followed to improve the water quality
- KU5.** the process of setting up different types of irrigation systems such as surface irrigation, drip irrigation, sub-surface irrigation system, etc.
- KU6.** the advantages and disadvantages of using different types of irrigation systems
- KU7.** the importance of irrigating the field according to the recommended irrigation schedule for the crop and the factors to be considered in scheduling irrigation
- KU8.** the recommended practices to be followed to prevent over and under-irrigation
- KU9.** the recommended practices to be followed for effective drainage of excess water from the field
- KU10.** the importance of maintaining the recommended level of water in the soil to prevent the harmful effects caused by inappropriate levels of moisture
- KU11.** various practices to be followed to optimise the usage of water and prevent its wastage

Generic Skills (GS)

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

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

Qualification Pack

Assessment Criteria

| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|--|--------------|-----------------|---------------|------------|
| <i>Prepare for field irrigation</i> | 12 | 16 | - | 10 |
| PC1. collect a water sample from the source of irrigation and coordinate with an authorised lab to get it tested | - | - | - | - |
| PC2. follow the measures recommended by the lab to improve the water quality | - | - | - | - |
| PC3. set up an appropriate irrigation system such as surface irrigation, drip irrigation, sub-surface irrigation system based on the requirement of the specific field crop | - | - | - | - |
| <i>Irrigate the field</i> | 8 | 12 | - | 12 |
| PC4. irrigate the field according to the recommended irrigation schedule for the crop, ensuring there is adequate water supply at various stages of crop's growth | - | - | - | - |
| PC5. maintain the record of field irrigation to ensure irrigation as per the schedule | - | - | - | - |
| PC6. follow the recommended practices to prevent over and under-irrigation, ensuring there is no waterlogging at any stage of the crop's growth | - | - | - | - |
| <i>Manage the water usage</i> | 10 | 12 | - | 8 |
| PC7. follow the recommended practices for effective drainage of excess water from the field | - | - | - | - |
| PC8. maintain the recommended level of water in the soil to prevent the harmful effects of inappropriate levels of moisture in it | - | - | - | - |
| PC9. plug water spills and leakages to prevent its wastage | - | - | - | - |
| NOS Total | 30 | 40 | - | 30 |

Qualification Pack

National Occupational Standards (NOS) Parameters

| | |
|----------------------------|---|
| NOS Code | AGR/N0111 |
| NOS Name | Perform irrigation management for field crops |
| Sector | Agriculture |
| Sub-Sector | Agriculture Crop Production |
| Occupation | Field Crops Cultivation(Food Crops) |
| NSQF Level | 4 |
| Credits | 1 |
| Version | 3.0 |
| Last Reviewed Date | NA |
| Next Review Date | 24/02/2025 |
| NSQC Clearance Date | 24/02/2022 |

Qualification Pack

AGR/N0209: Carry out harvesting, ratooning and marketing of sugarcane

Description

This OS unit is about harvesting and marketing sugarcane crop. It also covers ratooning that is carried out in a sugarcane field after harvesting to promote the growth of new sugarcane crop.

Scope

The scope covers the following :

- Harvest the sugarcane crop
- Carry out ratooning
- Market the produce

Elements and Performance Criteria

Harvest the sugarcane crop

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

- PC1.** assess the maturity of the crop according to the time of planting sugarcane or by using a hand refractometer brix
- PC2.** select the manual or mechanical harvesting method according to the quantity of sugarcane crop to be harvested and arrange the necessary tools and equipment for harvesting the crop
- PC3.** harvest the sugarcane crop, ensuring minimum loss
- PC4.** remove the extraneous matters such as leaves, trash, roots from the harvested sugarcanes and cover them with foliage to prevent the loss of moisture
- PC5.** store the harvested sugarcane at the recommended temperature, ensuring hygienic conditions

Carry out ratooning

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

- PC6.** arrange and prepare the appropriate equipment for ratooning such as ratooner, ratoon manager, trash shredder etc.
- PC7.** carry out ratooning following the recommended methods such as gap filling, stubble shaving and off-barring, within the recommended period after harvesting the sugarcane crop
- PC8.** carry out trash mulching and composting after ratooning and apply the recommended fertilisers according to the nutrient management schedule of the ratoon crop
- PC9.** apply the recommended herbicides and irrigate the ratoon crop with the recommended quantity of water

Market the produce

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

- PC10.** select an appropriate time for selling sugarcane produce based on its demand and profitability
- PC11.** identify the buyers of harvested sugarcane such as sugar mills and jaggery makers
- PC12.** coordinate and negotiate with the buyer to secure a profitable price for the produce
- PC13.** arrange an appropriate mode of transport to deliver the produce to the buyer

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- PC14.** process the payment using the buyer-preferred e-payment method
- PC15.** calculate the benefit-cost (B:C) ratio
- PC16.** maintain the manual and/ or electronic record of sales and payments using the physical registers and/ or the relevant computer application

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** ideal climate and conditions for harvesting sugarcane
- KU2.** how to assess the maturity of sugarcane crop according to the time of cultivation of sugarcane and by using a hand refractometer brix
- KU3.** the manual and mechanical methods of harvesting sugarcane and the use of relevant tools and equipment
- KU4.** different ways of preventing the loss of moisture in harvested sugarcane
- KU5.** the appropriate temperature to store the harvested sugarcane
- KU6.** how to prepare and use various ratooning equipment such as ratooner, ratoon manager, trash shredder, etc.
- KU7.** the ratooning methods such as gap filling, stubble shaving and off-barring
- KU8.** the irrigation and nutrient management of sugarcane ratoons
- KU9.** the properties of different types of sugarcane ripeners
- KU10.** the importance and process of preparing and applying trash mulch and compost after ratooning
- KU11.** the process of identifying and negotiating with potential buyers
- KU12.** the appropriate mode of transport for transporting sugarcane
- KU13.** how to use various e-payment methods
- KU14.** how to calculate the benefit-cost (B:C) ratio
- KU15.** how to maintain various records manually and electronically using the physical registers and relevant computer application

Generic Skills (GS)

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

- GS1.** prepare work-related documents
- GS2.** read the relevant literature to get the latest updates about the field of work
- GS3.** communicate clearly and politely
- GS4.** perform basic calculations
- GS5.** listen attentively to understand the instructions being given
- GS6.** identify appropriate solutions to work-related issues
- GS7.** plan and prioritise tasks to ensure timely completion
- GS8.** take quick decision in case of an emergency/ accident
- GS9.** plan effective use of time and resources

Qualification Pack

Assessment Criteria

| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|---|--------------|-----------------|---------------|------------|
| <i>Harvest the sugarcane crop</i> | 16 | 22 | - | 14 |
| PC1. assess the maturity of the crop according to the time of planting sugarcane or by using a hand refractometer brix | - | - | - | - |
| PC2. select the manual or mechanical harvesting method according to the quantity of sugarcane crop to be harvested and arrange the necessary tools and equipment for harvesting the crop | - | - | - | - |
| PC3. harvest the sugarcane crop, ensuring minimum loss | - | - | - | - |
| PC4. remove the extraneous matters such as leaves, trash, roots from the harvested sugarcanes and cover them with foliage to prevent the loss of moisture | - | - | - | - |
| PC5. store the harvested sugarcane at the recommended temperature, ensuring hygienic conditions | - | - | - | - |
| <i>Carry out ratooning</i> | 6 | 8 | - | 8 |
| PC6. arrange and prepare the appropriate equipment for ratooning such as ratooner, ratoon manager, trash shredder etc. | - | - | - | - |
| PC7. carry out ratooning following the recommended methods such as gap filling, stubble shaving and off- barring, within the recommended period after harvesting the sugarcane crop | - | - | - | - |
| PC8. carry out trash mulching and composting after ratooning and apply the recommended fertilisers according to the nutrient management schedule of the ratoon crop | - | - | - | - |
| PC9. apply the recommended herbicides and irrigate the ratoon crop with the recommended quantity of water | - | - | - | - |
| <i>Market the produce</i> | 8 | 10 | - | 8 |

Qualification Pack

| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|---|--------------|-----------------|---------------|------------|
| PC10. select an appropriate time for selling sugarcane produce based on its demand and profitability | - | - | - | - |
| PC11. identify the buyers of harvested sugarcane such as sugar mills and jaggery makers | - | - | - | - |
| PC12. coordinate and negotiate with the buyer to secure a profitable price for the produce | - | - | - | - |
| PC13. arrange an appropriate mode of transport to deliver the produce to the buyer | - | - | - | - |
| PC14. process the payment using the buyer-preferred e-payment method | - | - | - | - |
| PC15. calculate the benefit-cost (B:C) ratio | - | - | - | - |
| PC16. maintain the manual and/ or electronic record of sales and payments using the physical registers and/ or the relevant computer application | - | - | - | - |
| NOS Total | 30 | 40 | - | 30 |

Qualification Pack

National Occupational Standards (NOS) Parameters

| | |
|----------------------------|--|
| NOS Code | AGR/N0209 |
| NOS Name | Carry out harvesting, ratooning and marketing of sugarcane |
| Sector | Agriculture |
| Sub-Sector | Agriculture Crop Production |
| Occupation | Field Crop Cultivation (Cash crop) |
| NSQF Level | 3 |
| Credits | 1 |
| Version | 2.0 |
| Last Reviewed Date | 24/02/2022 |
| Next Review Date | 24/02/2025 |
| NSQC Clearance Date | 24/02/2022 |

Qualification Pack

AGR/N9922: Engage in collective farming/activity

Description

This OS unit is about working collectively in Producer Groups (PGs), Farmers Interest Groups (FIGs), Self-Help Groups (SHGs) and other similar groups to attain a common objective.

Scope

The scope covers the following :

- Create PGs/ FIGs/ SHGs
- Prepare for the PG/ FIG/ SHG operations
- Conduct group meetings and training sessions
- Carry out collective farming/ activities

Elements and Performance Criteria

Create PGs/ FIGs/ SHGs

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

- PC1.** identify farmers/ groups with the common interests in the area
- PC2.** create Producer Groups (PGs)/Farmers Interest Groups (FIGs)/ Self-Help Groups (SHGs), following the applicable rules and regulations

Prepare for the PG/ FIG/ SHG operations

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

- PC3.** organise fundraising activities to support the functioning of the group
- PC4.** establish links with the local government at panchayat level to obtain access to the relevant development programmes and funds
- PC5.** induct subject matter experts (SMEs) in the group
- PC6.** assist in arranging the required Information and Communication Technology (ICT) products for the group
- PC7.** plan the commodity convergence with the relevant developmental programmes
- PC8.** plan optimal production to meet the market and household food security needs

Conduct group meetings and training sessions

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

- PC9.** conduct the initial group meetings to introduce the members, discuss the group objectives, group income-generating enterprises/ activities, methods of operation, etc.
- PC10.** assist in exchanging the domain and technical knowledge such as market or price information, latest technology, and resolving common issues or conflicts through the PG/ FIG/ SHG meetings
- PC11.** organise capacity building exercises such as skill development and training programmes

Carry out collective farming/ activities

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

Qualification Pack

- PC12.** organise field trials to identify and resolve problems encountered by group members in the field operations
- PC13.** procure/hire advanced and expensive farm machineries/tools and equipment using the group fund for collective use of the group members
- PC14.** establish and manage the group-owned bank of quality seeds/ fertilisers/ pesticides/ tools and equipment, etc.
- PC15.** use the group's credit facility as per the applicable terms and conditions
- PC16.** carry out relevant duties as per own role in the PG/FIG/ SHG such as the group leader/ secretary/ book-keeper, etc.
- PC17.** co-ordinate within the group(s) in procuring inputs in bulk/large-scale farming, packing/transportation/marketing of the produce, etc.
- PC18.** assist in forming forward and backward linkages through the PGs/ FIGs/ SHGs
- PC19.** identify and follow the relevant practices to add value to the produce such as processing, packing, upgrading the quality, etc.
- PC20.** arrange for the regular repair and maintenance of the farm machineries/tools, equipment/tube/bore wells/storage/drying platforms/processing units, etc.
- PC21.** connect and partner with other groups to expand the network and address common problems at a large scale

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** the process of preparing for the PG/ FIG/ SHG operations such as fundraising, induction of SMEs, investing in ICT products, etc.
- KU2.** how to establish links with the local government at the panchayat level to obtain access to the relevant development programmes and funds
- KU3.** the process of commodity convergence with the relevant developmental programmes
- KU4.** the importance of planning optimal production to meet the market and household food security needs
- KU5.** the importance of setting the group objectives and deciding the group income-generating enterprises/ activities, methods of operation, benefits, etc.
- KU6.** the importance of organising the PG/FIG/ SHG meetings and training sessions to resolve common concerns and get information about the latest developments in the field of work
- KU7.** the benefits of various capacity building exercises such as skill development and training programmes
- KU8.** the importance and process of conducting field trials to identify and resolve problems encountered by farmers in the field operations
- KU9.** the concept of group-owned bank to provide quality seeds, fertilisers, pesticides, tools and equipment to the member farmers
- KU10.** the process of using the group's credit facility
- KU11.** core collective farming activities such as procuring inputs in bulk, large-scale farming, packing, transportation and marketing of the produce, etc.
- KU12.** the concept and benefits of forming forward and backward linkages

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KU13. relevant value addition practices such as processing, packing, upgrading the quality, etc.

KU14. the benefits of connecting with similar groups to address common problems at a large scale

Generic Skills (GS)

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

GS1. write relevant notes and reports

GS2. read the relevant literature to get latest updates about the field of work

GS3. communicate politely and professionally

GS4. listen attentively to understand the information being shared

GS5. plan tasks for effective use of time

GS6. identify possible disruptions to work and take appropriate preventive measures

GS7. evaluate all possible solutions to a problem to select the best one

Qualification Pack

Assessment Criteria

| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|---|--------------|-----------------|---------------|------------|
| <i>Create PGs/ FIGs/ SHGs</i> | 6 | 8 | - | 6 |
| PC1. identify farmers/ groups with the common interests in the area | - | - | - | - |
| PC2. create Producer Groups (PGs)/Farmers Interest Groups (FIGs)/ Self-Help Groups (SHGs), following the applicable rules and regulations | - | - | - | - |
| <i>Prepare for the PG/ FIG/ SHG operations</i> | 6 | 10 | - | 6 |
| PC3. organise fundraising activities to support the functioning of the group | - | - | - | - |
| PC4. establish links with the local government at panchayat level to obtain access to the relevant development programmes and funds | - | - | - | - |
| PC5. induct subject matter experts (SMEs) in the group | - | - | - | - |
| PC6. assist in arranging the required Information and Communication Technology (ICT) products for the group | - | - | - | - |
| PC7. plan the commodity convergence with the relevant developmental programmes | - | - | - | - |
| PC8. plan optimal production to meet the market and household food security needs | - | - | - | - |
| <i>Conduct group meetings and training sessions</i> | 8 | 6 | - | 8 |
| PC9. conduct the initial group meetings to introduce the members, discuss the group objectives, group income-generating enterprises/ activities, methods of operation, etc. | - | - | - | - |
| PC10. assist in exchanging the domain and technical knowledge such as market or price information, latest technology, and resolving common issues or conflicts through the PG/ FIG/ SHG meetings | - | - | - | - |
| PC11. organise capacity building exercises such as skill development and training programmes | - | - | - | - |

Qualification Pack

| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|--|--------------|-----------------|---------------|------------|
| <i>Carry out collective farming/ activities</i> | 10 | 16 | - | 10 |
| PC12. organise field trials to identify and resolve problems encountered by group members in the field operations | - | - | - | - |
| PC13. procure/hire advanced and expensive farm machineries/tools and equipment using the group fund for collective use of the group members | - | - | - | - |
| PC14. establish and manage the group-owned bank of quality seeds/ fertilisers/ pesticides/ tools and equipment, etc. | - | - | - | - |
| PC15. use the group's credit facility as per the applicable terms and conditions | - | - | - | - |
| PC16. carry out relevant duties as per own role in the PG/FIG/ SHG such as the group leader/ secretary/ book-keeper, etc. | - | - | - | - |
| PC17. co-ordinate within the group(s) in procuring inputs in bulk/large-scale farming, packing/transportation/marketing of the produce, etc. | - | - | - | - |
| PC18. assist in forming forward and backward linkages through the PGs/ FIGs/ SHGs | - | - | - | - |
| PC19. identify and follow the relevant practices to add value to the produce such as processing, packing, upgrading the quality, etc. | - | - | - | - |
| PC20. arrange for the regular repair and maintenance of the farm machineries/tools, equipment/tube/bore wells/storage/drying platforms/processing units, etc. | - | - | - | - |
| PC21. connect and partner with other groups to expand the network and address common problems at a large scale | - | - | - | - |
| NOS Total | 30 | 40 | - | 30 |

Qualification Pack

National Occupational Standards (NOS) Parameters

| | |
|----------------------------|---------------------------------------|
| NOS Code | AGR/N9922 |
| NOS Name | Engage in collective farming/activity |
| Sector | Agriculture |
| Sub-Sector | Generic |
| Occupation | Generic |
| NSQF Level | 4 |
| Credits | 1 |
| Version | 2.0 |
| Last Reviewed Date | NA |
| Next Review Date | 24/02/2025 |
| NSQC Clearance Date | 24/02/2022 |

Qualification Pack

AGR/N9903: Maintain health and safety at the workplace

Description

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

Scope

The scope covers the following :

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

Elements and Performance Criteria

Maintain personal hygiene

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

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

Maintain clean and safe workplace

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

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

Administer appropriate emergency procedures

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

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- 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

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

Qualification Pack

Assessment Criteria

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

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

Qualification Pack

National Occupational Standards (NOS) Parameters

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

Qualification Pack

DGT/VSQ/N0101: Employability Skills (30 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
- 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. understand the significance of employability skills in meeting the job requirements

Constitutional values - Citizenship

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

PC2. identify constitutional values, civic rights, duties, personal values and ethics and environmentally sustainable practices

Becoming a Professional in the 21st Century

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

PC3. explain 21st Century Skills such as Self-Awareness, Behavior Skills, Positive attitude, self-motivation, problem-solving, creative thinking, time management, social and cultural awareness, emotional awareness, continuous learning mindset etc.

Basic English Skills

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

PC4. speak with others using some basic English phrases or sentences

Communication Skills

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

PC5. follow good manners while communicating with others

PC6. work with others in a team

Qualification Pack

Diversity & Inclusion

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

PC7. communicate and behave appropriately with all genders and PwD

PC8. report any issues related to sexual harassment

Financial and Legal Literacy

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

PC9. use various financial products and services safely and securely

PC10. calculate income, expenses, savings etc.

PC11. approach the concerned authorities for any exploitation as per legal rights and laws

Essential Digital Skills

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

PC12. operate digital devices and use its features and applications securely and safely

PC13. use internet and social media platforms securely and safely

Entrepreneurship

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

PC14. identify and assess opportunities for potential business

PC15. identify sources for arranging money and associated financial and legal challenges

Customer Service

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

PC16. identify different types of customers

PC17. identify customer needs and address them appropriately

PC18. follow appropriate hygiene and grooming standards

Getting ready for apprenticeship & Jobs

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

PC19. create a basic biodata

PC20. search for suitable jobs and apply

PC21. identify and register apprenticeship opportunities as per requirement

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. need for employability skills

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 basic spoken English language

KU6. Do and dont of effective communication

KU7. inclusivity and its importance

KU8. different types of disabilities and appropriate communication and behaviour towards PwD

KU9. different types of financial products and services

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- KU10.** how to compute income and expenses
- KU11.** importance of maintaining safety and security in financial transactions
- KU12.** different legal rights and laws
- KU13.** how to operate digital devices and applications safely and securely
- KU14.** ways to identify business opportunities
- KU15.** types of customers and their needs
- KU16.** how to apply for a job and prepare for an interview
- KU17.** apprenticeship scheme and the process of registering on apprenticeship portal

Generic Skills (GS)

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

- GS1.** communicate effectively using appropriate language
- GS2.** behave politely and appropriately with all
- GS3.** perform basic calculations
- GS4.** solve problems effectively
- GS5.** be careful and attentive at work
- GS6.** use time effectively
- GS7.** maintain hygiene and sanitisation to avoid infection

Qualification Pack

Assessment Criteria

| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|--|--------------|-----------------|---------------|------------|
| <i>Introduction to Employability Skills</i> | 1 | 1 | - | - |
| PC1. understand the significance of employability skills in meeting the job requirements | - | - | - | - |
| <i>Constitutional values - Citizenship</i> | 1 | 1 | - | - |
| PC2. identify constitutional values, civic rights, duties, personal values and ethics and environmentally sustainable practices | - | - | - | - |
| <i>Becoming a Professional in the 21st Century</i> | 1 | 3 | - | - |
| PC3. explain 21st Century Skills such as Self-Awareness, Behavior Skills, Positive attitude, self-motivation, problem-solving, creative thinking, time management, social and cultural awareness, emotional awareness, continuous learning mindset etc. | - | - | - | - |
| <i>Basic English Skills</i> | 2 | 3 | - | - |
| PC4. speak with others using some basic English phrases or sentences | - | - | - | - |
| <i>Communication Skills</i> | 1 | 1 | - | - |
| PC5. follow good manners while communicating with others | - | - | - | - |
| PC6. work with others in a team | - | - | - | - |
| <i>Diversity & Inclusion</i> | 1 | 1 | - | - |
| PC7. communicate and behave appropriately with all genders and PwD | - | - | - | - |
| PC8. report any issues related to sexual harassment | - | - | - | - |
| <i>Financial and Legal Literacy</i> | 3 | 4 | - | - |
| PC9. use various financial products and services safely and securely | - | - | - | - |

Qualification Pack

| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|---|--------------|-----------------|---------------|------------|
| PC10. calculate income, expenses, savings etc. | - | - | - | - |
| PC11. approach the concerned authorities for any exploitation as per legal rights and laws | - | - | - | - |
| <i>Essential Digital Skills</i> | 4 | 6 | - | - |
| PC12. operate digital devices and use its features and applications securely and safely | - | - | - | - |
| PC13. use internet and social media platforms securely and safely | - | - | - | - |
| <i>Entrepreneurship</i> | 3 | 5 | - | - |
| PC14. identify and assess opportunities for potential business | - | - | - | - |
| PC15. identify sources for arranging money and associated financial and legal challenges | - | - | - | - |
| <i>Customer Service</i> | 2 | 2 | - | - |
| PC16. identify different types of customers | - | - | - | - |
| PC17. identify customer needs and address them appropriately | - | - | - | - |
| PC18. follow appropriate hygiene and grooming standards | - | - | - | - |
| <i>Getting ready for apprenticeship & Jobs</i> | 1 | 3 | - | - |
| PC19. create a basic biodata | - | - | - | - |
| PC20. search for suitable jobs and apply | - | - | - | - |
| PC21. identify and register apprenticeship opportunities as per requirement | - | - | - | - |
| NOS Total | 20 | 30 | - | - |

Qualification Pack

National Occupational Standards (NOS) Parameters

| | |
|----------------------------|---------------------------------|
| NOS Code | DGT/VSQ/N0101 |
| NOS Name | Employability Skills (30 Hours) |
| Sector | Cross Sectoral |
| Sub-Sector | Professional Skills |
| Occupation | Employability |
| NSQF Level | 2 |
| Credits | 1 |
| Version | 1.0 |
| Last Reviewed Date | NA |
| Next Review Date | 03/05/2026 |
| NSQC Clearance Date | 03/05/2023 |

Assessment Guidelines and Assessment Weightage

Assessment Guidelines

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each PC.
2. The assessment for the theory part will be based on knowledge bank of questions created by the SSC.
3. Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training center (as per assessment criteria below).
4. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/ training center based on these criteria.
5. In case of successfully passing only certain number of NOSs, the trainee is eligible to take

Qualification Pack

subsequent assessment on the balance NOS's to pass the Qualification Pack.

6. In case of unsuccessful completion, the trainee may seek reassessment on the Qualification Pack

Minimum Aggregate Passing % at QP Level : 50

(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/N0207. Prepare the sugarcane cultivation site and plant the setts | 30 | 40 | - | 30 | 100 | 15 |
| AGR/N0108. Carry out macro and micronutrient management of field crops | 30 | 40 | - | 30 | 100 | 15 |
| AGR/N0109. Manage weed growth in crop fields | 30 | 40 | - | 30 | 100 | 10 |
| AGR/N0208. Perform integrated pest and disease management for sugarcane crop | 30 | 40 | - | 30 | 100 | 15 |
| AGR/N0111. Perform irrigation management for field crops | 30 | 40 | - | 30 | 100 | 15 |
| AGR/N0209. Carry out harvesting, ratooning and marketing of sugarcane | 30 | 40 | - | 30 | 100 | 15 |
| AGR/N9922. Engage in collective farming/activity | 30 | 40 | - | 30 | 100 | 5 |
| AGR/N9903. Maintain health and safety at the workplace | 40 | 25 | - | 35 | 100 | 5 |
| DGT/VSQ/N0101. Employability Skills (30 Hours) | 20 | 30 | - | - | 50 | 5 |
| Total | 270 | 335 | - | 245 | 850 | 100 |

Qualification Pack

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 |
| PPE | Personal Protective Equipment |

Qualification Pack

Glossary

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

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| | |
|---|--|
| 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. |