

Qualification Pack



Silkworm Rearer

QP Code: AGR/Q5202

Version: 1.0

NSQF Level: 2

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AGR/Q5202: Silkworm Rearer

Brief Job Description

A Silkworm Rearer is responsible for rearing silkworms to obtain raw silk fibre from them. The individual procures silkworm eggs, arranges to hatch them, hatches and rears silkworms during their developmental stages, harvests and processes cocoon to extract raw silk fibre from them. The person also propagates and maintains mulberry trees for mulberry leaves to feed silkworms

Personal Attributes

The person must be physically fit to work for long durations. The individual must have attention to detail with good eyesight. The person must also know how to read and write.

Applicable National Occupational Standards (NOS)

Compulsory NOS:

1. [AGR/N5206: Prepare for rearing of silkworms](#)
2. [AGR/N5207: Incubate silkworm eggs and rear silkworm larvae](#)
3. [AGR/N5208: Perform pest and disease management during Silkworm rearing](#)
4. [AGR/N5209: Maintain pupae, harvest and process cocoons, and carryout silk marketing activities](#)
5. [DGT/VSQ/N0101: Employability Skills \(30 Hours\)](#)

Qualification Pack (QP) Parameters

Sector	Agriculture
Sub-Sector	Agriculture Allied Activities
Occupation	Silkworm Rearing
Country	India
NSQF Level	2
Credits	7
Aligned to NCO/ISCO/ISIC Code	NCO-2015/6123.0201

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Minimum Educational Qualification & Experience	No formal education prescribed
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	29/09/2026
NSQC Approval Date	29/09/2023
Version	1.0
Reference code on NQR	QG-02-AG-01009-2023-V1-ASCI
NQR Version	1.0

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AGR/N5206: Prepare for rearing of silkworms

Description

This OS unit is about preparing to rear silkworms.

Scope

The scope covers the following :

- Arrange the required resources
- Set up the rearing house
- Disinfect and precondition the rearing house, tools, implements and equipment
- Prepare mulberry leaves for feeding

Elements and Performance Criteria

Arrange the required resources

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

- PC1.** select an approved silkworm egg production unit and vendor based on the quality and price of silkworm eggs, tools, implements, equipment and other resources
- PC2.** procure silkworm eggs, tools, implements, equipment, rearing house construction material as per the requirement
- PC3.** arrange for safe and hygienic transportation of silkworm eggs under the recommended temperature and humidity
- PC4.** spread the silkworm loose eggs uniformly over appropriate material such as paraffin papers or wet foam pads and cover them to maintain them under the recommended temperature in the storage area
- PC5.** maintain the record of purchase

Set up the rearing house

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

- PC6.** select a site with the recommended temperature and humidity for the construction of rearing house for rearing silkworms, ensuring it is not damp and protected from direct sunlight and radiation
- PC7.** check the site does not experience storms and heavy rainfall
- PC8.** coordinate with an expert for the construction of the rearing house, ensuring adequate space and number of windows for ventilation depending on the brushing capacity and the method of rearing
- PC9.** ensure the rearing house has temperature control equipment to be used during unfavourable weather along with provision for making it air-tight for the purpose of being disinfected, whenever required
- PC10.** arrange for effective drainage of water from the rearing house to avoid dampness

Disinfect and precondition the rearing house, tools, implements and equipment

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

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- PC11.** clean and disinfect the rearing house, tools, implements and equipment using the recommended disinfectant such as chlorine dioxide, bleach, slaked lime, using the appropriate Personal Protective Equipment (PPE)
- PC12.** maintain the floor in the rearing house dry
- PC13.** ensure disinfection and preconditioning of the rearing house, tools, implements and equipment is carried out within the recommended period prior to starting the rearing activities

Prepare mulberry leaves for feeding

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

- PC14.** chop the mulberry leaves uniformly for feeding larvae
- PC15.** spray water on the chopped mulberry leaves at regular intervals or cover them with paraffin paper or wet foam pads to preserve their freshness

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** the use of relevant PPE, tools and equipment such as disinfection mask, protective gumboots, sprayer, room heater, water air cooler, kerosene blowlamp, wet and dry thermometer, forceps, etc.
- KU2.** various items and accessories required for rearing silkworms such as paraffin paper, formalin, bleaching powder, lime powder, slides and coverslips, gunny cloth, egg transportation box, egg incubation chamber and frame, etc.
- KU3.** the process of procuring silkworm eggs, tools, implements, equipment and other resources
- KU4.** the importance of arranging safe and hygienic transportation and storage of silkworm eggs under the recommended temperature and humidity
- KU5.** the criteria for selecting a site for the construction of the rearing house
- KU6.** the process of constructing the rearing house and the importance of ensuring adequate space and number of windows for ventilation in it
- KU7.** the importance of having temperature control equipment in the rearing house to control temperature during unfavourable weather along with provision for making it air-tight for the purpose of disinfecting it
- KU8.** the importance of ensuring effective drainage of water in the rearing house
- KU9.** the importance and process of disinfecting and preconditioning the rearing house, tools, implements and equipment, using the recommended disinfectant such as chlorine dioxide, bleach, slaked lime, and the appropriate Personal Protective Equipment (PPE) to be used for the purpose
- KU10.** the importance of using the trays of recommended dimensions during the rearing of young larvae
- KU11.** the process of preparing mulberry leaves for feeding silkworms and ensuring the leaves are succulent, and rich in nutrients and moisture
- KU12.** the use of a leaf preservation chamber for maintaining the freshness of mulberry leaves

Generic Skills (GS)

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

- GS1.** write work-related notes
- 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
- 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>Arrange the required resources</i>	10	12	-	10
PC1. select an approved silkworm egg production unit and vendor based on the quality and price of silkworm eggs, tools, implements, equipment and other resources	-	-	-	-
PC2. procure silkworm eggs, tools, implements, equipment, rearing house construction material as per the requirement	-	-	-	-
PC3. arrange for safe and hygienic transportation of silkworm eggs under the recommended temperature and humidity	-	-	-	-
PC4. spread the silkworm loose eggs uniformly over appropriate material such as paraffin papers or wet foam pads and cover them to maintain them under the recommended temperature in the storage area	-	-	-	-
PC5. maintain the record of purchase	-	-	-	-
<i>Set up the rearing house</i>	11	14	-	11
PC6. select a site with the recommended temperature and humidity for the construction of rearing house for rearing silkworms, ensuring it is not damp and protected from direct sunlight and radiation	-	-	-	-
PC7. check the site does not experience storms and heavy rainfall	-	-	-	-
PC8. coordinate with an expert for the construction of the rearing house, ensuring adequate space and number of windows for ventilation depending on the brushing capacity and the method of rearing	-	-	-	-
PC9. ensure the rearing house has temperature control equipment to be used during unfavourable weather along with provision for making it air-tight for the purpose of being disinfected, whenever required	-	-	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC10. arrange for effective drainage of water from the rearing house to avoid dampness	-	-	-	-
<i>Disinfect and precondition the rearing house, tools, implements and equipment</i>	6	9	-	6
PC11. clean and disinfect the rearing house, tools, implements and equipment using the recommended disinfectant such as chlorine dioxide, bleach, slaked lime, using the appropriate Personal Protective Equipment (PPE)	-	-	-	-
PC12. maintain the floor in the rearing house dry	-	-	-	-
PC13. ensure disinfection and preconditioning of the rearing house, tools, implements and equipment is carried out within the recommended period prior to starting the rearing activities	-	-	-	-
<i>Prepare mulberry leaves for feeding</i>	3	5	-	3
PC14. chop the mulberry leaves uniformly for feeding larvae	-	-	-	-
PC15. spray water on the chopped mulberry leaves at regular intervals or cover them with paraffin paper or wet foam pads to preserve their freshness	-	-	-	-
NOS Total	30	40	-	30

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National Occupational Standards (NOS) Parameters

NOS Code	AGR/N5206
NOS Name	Prepare for rearing of silkworms
Sector	Agriculture
Sub-Sector	Agriculture Allied Activities
Occupation	Silkworm Rearing
NSQF Level	2
Credits	1
Version	1.0
Last Reviewed Date	29/09/2023
Next Review Date	29/09/2026
NSQC Clearance Date	29/09/2023

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AGR/N5207: Incubate silkworm eggs and rear silkworm larvae

Description

This OS unit is about incubating silkworm eggs and rearing them to the larval stage

Scope

The scope covers the following :

- Preserve and incubate the silkworm eggs
- Carry out brushing and feed the larvae
- Maintain the rearing bed
- Ensure smooth moulting

Elements and Performance Criteria

Preserve and incubate the silkworm eggs

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

- PC1.** preserve the silkworm eggs in an earthen pot for the recommended duration prior to incubation
- PC2.** maintain the silkworm eggs in a dark storage area at the head pigmentation stage and expose them to light, when hatching is expected
- PC3.** incubate the silkworm eggs in the incubator at the recommended temperature, to hatch them into larvae

Carry out brushing and feed the larvae

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

- PC4.** carry out brushing to separate the hatched larvae from their eggshells, using the relevant implement and transfer them to rearing trays covered with paraffin paper
- PC5.** feed the larvae with the recommended quantity of tender and uniformly-chopped mulberry leaves, ensuring the leaves are rich in nutrients and moisture
- PC6.** follow the recommended practices to preserve the feed moisture
- PC7.** follow the recommended feeding schedule for the optimum growth of larvae

Maintain the rearing bed

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

- PC8.** remove the silkworm excreta and leftover leaves from the rearing bed and dispose them safely
- PC9.** follow the recommended practices to prevent insects from coming to the rearing bed
- PC10.** aerate the rearing bed appropriately
- PC11.** maintain the recommended temperature and humidity, along with adequate space on the rearing bed for easy movement of larvae and their healthy growth
- PC12.** maintain dryness in the rearing bed by applying lime during the moulting of larvae
- PC13.** maintain larvae in the rearing bed for the recommended duration until their development into pupae

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Ensure smooth moulting

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

PC14. identify the onset of moulting and regulate the larvae feed accordingly

PC15. ensure the larvae are not disturbed during the process

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** the importance of preserving the silkworm eggs in an earthen pot for the recommended duration prior to incubation
- KU2.** the importance of maintaining the silkworm eggs in a dark storage area at the head pigmentation stage and exposing them to light at the appropriate time
- KU3.** the process of incubating silkworm eggs in the incubator at the temperature required for hatching them into larvae
- KU4.** how to carry out brushing to separate the hatched larvae from their eggshells, using the relevant implement and transfer
- KU5.** the use of a net of the recommended mesh size for feeding the larvae
- KU6.** the importance of feeding the larvae with the recommended quantity of tender and uniformly-chopped mulberry leaves, and ensuring the leaves are rich in nutrients and moisture
- KU7.** the recommended feeding schedule to be followed for the optimum growth of larvae
- KU8.** the importance and process of maintaining cleanliness in the rearing bed
- KU9.** the recommended practices to be followed to prevent insects from coming to the rearing bed
- KU10.** the process of aerating the rearing bed
- KU11.** the recommended temperature and humidity, and space to be maintained on the rearing bed
- KU12.** the use of lime for maintaining dryness in the rearing bed
- KU13.** the recommended duration for maintaining larvae in the rearing bed until their development into pupae
- KU14.** how to detect moulting in larvae
- KU15.** the importance and ways of maintaining the recommended temperature and humidity in the rearing bed under different climatic conditions
- KU16.** the importance of stopping or resuming feeding of larvae during moulting for the uniform growth of silkworms, and maintaining the rearing bed thin and dry
- KU17.** the process of moulting of larvae and the importance of ensuring no disturbance to them during the process
- KU18.** different stages of growth of larvae and the terminology used to refer to them
- KU19.** the importance of using mulberry leaves of medium maturity or coarse leaves according to the stages of growth of larvae
- KU20.** how to identify mature mulberry leaves and the importance of not using them to prevent disease outbreak
- KU21.** use of the recommended rearing bed disinfectants

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Generic Skills (GS)

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

- GS1.** write work-related notes and maintain relevant records
- GS2.** read the relevant literature to get the latest updates about the field of work
- GS3.** listen attentively to understand the information/ instructions being shared
- GS4.** communicate clearly and politely
- GS5.** plan and prioritise tasks to ensure timely completion
- GS6.** evaluate all possible solutions to a problem to select the best one
- GS7.** co-ordinate with the co-workers to achieve work objectives
- GS8.** identify possible disruptions to work and take appropriate preventive measures
- 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>Preserve and incubate the silkworm eggs</i>	6	8	-	6
PC1. preserve the silkworm eggs in an earthen pot for the recommended duration prior to incubation	-	-	-	-
PC2. maintain the silkworm eggs in a dark storage area at the head pigmentation stage and expose them to light, when hatching is expected	-	-	-	-
PC3. incubate the silkworm eggs in the incubator at the recommended temperature, to hatch them into larvae	-	-	-	-
<i>Carry out brushing and feed the larvae</i>	9	12	-	9
PC4. carry out brushing to separate the hatched larvae from their eggshells, using the relevant implement and transfer them to rearing trays covered with paraffin paper	-	-	-	-
PC5. feed the larvae with the recommended quantity of tender and uniformly-chopped mulberry leaves, ensuring the leaves are rich in nutrients and moisture	-	-	-	-
PC6. follow the recommended practices to preserve the feed moisture	-	-	-	-
PC7. follow the recommended feeding schedule for the optimum growth of larvae	-	-	-	-
<i>Maintain the rearing bed</i>	11	15	-	11
PC8. remove the silkworm excreta and leftover leaves from the rearing bed and dispose them safely	-	-	-	-
PC9. follow the recommended practices to prevent insects from coming to the rearing bed	-	-	-	-
PC10. aerate the rearing bed appropriately	-	-	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC11. maintain the recommended temperature and humidity, along with adequate space on the rearing bed for easy movement of larvae and their healthy growth	-	-	-	-
PC12. maintain dryness in the rearing bed by applying lime during the moulting of larvae	-	-	-	-
PC13. maintain larvae in the rearing bed for the recommended duration until their development into pupae	-	-	-	-
<i>Ensure smooth moulting</i>	4	5	-	4
PC14. identify the onset of moulting and regulate the larvae feed accordingly	-	-	-	-
PC15. ensure the larvae are not disturbed during the process	-	-	-	-
NOS Total	30	40	-	30

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National Occupational Standards (NOS) Parameters

NOS Code	AGR/N5207
NOS Name	Incubate silkworm eggs and rear silkworm larvae
Sector	Agriculture
Sub-Sector	Agriculture Allied Activities
Occupation	Silkworm Rearing
NSQF Level	2
Credits	1
Version	1.0
Last Reviewed Date	29/09/2023
Next Review Date	29/09/2026
NSQC Clearance Date	29/09/2023

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AGR/N5208: Perform pest and disease management during Silkworm rearing

Description

This OS unit is about ensuring hygiene in the rearing house and performing pest and disease management during sericulture.

Scope

The scope covers the following :

- Maintain hygiene in the rearing house
- Perform pest and disease management

Elements and Performance Criteria

Maintain hygiene in the rearing house

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

- PC1.** maintain cleanliness along with recommended temperature and humidity in the rearing house to prevent pest and disease outbreak
- PC2.** apply the recommended chemical or solution in the rearing house to prevent pests and disease, using the appropriate PPE
- PC3.** ensure recommended space among the stocked silkworms for their healthy growth

Perform pest and disease management

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

- PC4.** follow the recommended practices to prevent infestation by silkworm pests such as beetles, ants, straw mites, vertebrate predators, etc.
- PC5.** check the mulberry leaves for pest infestation before feeding the silkworms, and replace the infested and dry leaves
- PC6.** monitor the silkworms regularly to identify the signs of pests and disease infestation
- PC7.** sample the silkworms and coordinate with an approved laboratory to determine diseases and disorders in silkworms
- PC8.** quarantine the unhealthy silkworms to treat them, and prevent them from infecting healthy silkworms
- PC9.** treat the unhealthy silkworms with the treatment prescribed by the laboratory
- PC10.** monitor the silkworms being treated and stock them with healthy silkworms on full recovery
- PC11.** maintain the record of treatment used to treat silkworms
- PC12.** identify, segregate and dispose the moribund and dead silkworms

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

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- KU1.** the importance of maintaining cleanliness along with appropriate temperature and humidity in the rearing house
- KU2.** the recommended treatment to be applied in the rearing house to prevent pests and disease
- KU3.** the use of relevant PPE
- KU4.** the recommended practices to be followed to prevent infestation by silkworm pests such as beetles, ants, straw mites, vertebrate predators, etc.
- KU5.** the signs of pests and disease infestation in silkworms
- KU6.** importance and process of coordinating with an approved laboratory to determine diseases and disorders in silkworms
- KU7.** the process of quarantining the unhealthy silkworms and treating them with the treatment prescribed by the laboratory
- KU8.** the signs of recovery in unhealthy silkworms
- KU9.** the importance and process of maintaining the record of treatment used to treat silkworms
- KU10.** the process of identifying, segregating and disposing the moribund and dead silkworms

Generic Skills (GS)

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

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

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Maintain hygiene in the rearing house</i>	10	14	-	10
PC1. maintain cleanliness along with recommended temperature and humidity in the rearing house to prevent pest and disease outbreak	-	-	-	-
PC2. apply the recommended chemical or solution in the rearing house to prevent pests and disease, using the appropriate PPE	-	-	-	-
PC3. ensure recommended space among the stocked silkworms for their healthy growth	-	-	-	-
<i>Perform pest and disease management</i>	20	26	-	20
PC4. follow the recommended practices to prevent infestation by silkworm pests such as beetles, ants, straw mites, vertebrate predators, etc.	-	-	-	-
PC5. check the mulberry leaves for pest infestation before feeding the silkworms, and replace the infested and dry leaves	-	-	-	-
PC6. monitor the silkworms regularly to identify the signs of pests and disease infestation	-	-	-	-
PC7. sample the silkworms and coordinate with an approved laboratory to determine diseases and disorders in silkworms	-	-	-	-
PC8. quarantine the unhealthy silkworms to treat them, and prevent them from infecting healthy silkworms	-	-	-	-
PC9. treat the unhealthy silkworms with the treatment prescribed by the laboratory	-	-	-	-
PC10. monitor the silkworms being treated and stock them with healthy silkworms on full recovery	-	-	-	-
PC11. maintain the record of treatment used to treat silkworms	-	-	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC12. identify, segregate and dispose the moribund and dead silkworms	-	-	-	-
NOS Total	30	40	-	30

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National Occupational Standards (NOS) Parameters

NOS Code	AGR/N5208
NOS Name	Perform pest and disease management during Silkworm rearing
Sector	Agriculture
Sub-Sector	Agriculture Allied Activities
Occupation	Silkworm Rearing
NSQF Level	2
Credits	1
Version	1.0
Last Reviewed Date	29/09/2023
Next Review Date	29/09/2026
NSQC Clearance Date	29/09/2023

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AGR/N5209: Maintain pupae, harvest and process cocoons, and carryout silk marketing activities

Description

This OS unit is about maintaining pupae until their maturity. It also covers the harvesting and processing of cocoons for extracting silk fibres from them.

Scope

The scope covers the following :

- Stock and prepare pupae for cocoon spinning
- Transfer pupae to moutage for cocoon spinning
- Monitor the cocoon spinning process
- Harvest cocoons and obtain silk threads
- Market the raw silk and cocoons
- Optimise resource utilisation
- Perform waste management

Elements and Performance Criteria

Stock and prepare pupae for cocoon spinning

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

- PC1.** prepare trays of appropriate materials such as bamboo and paper for stocking pupae, ensuring easy absorption of excess moisture
- PC2.** feed pupae with fresh mulberry leaves as per the feeding schedule
- PC3.** apply the recommended chemicals on mulberry leaves in the prescribed quantity for healthy growth of pupae along with uniform spinning of cocoons
- PC4.** remove faeces and leftover mulberry leaves, and disinfect the trays using the approved disinfectant

Transfer pupae to moutage for cocoon spinning

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

- PC5.** collect pupae from the tray after they achieve the required growth, using a net and transfer them to the moutage for spinning cocoons
- PC6.** ensure adequate space on moutage to allow pupae spin cocoon
- PC7.** position the moutage appropriately to prevent staining of cocoons by pupae's urine
- PC8.** identify and remove the unhealthy and dead pupae from the moutage

Monitor the cocoon spinning process

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

- PC9.** maintain the recommended temperature, humidity and light exposure during the spinning process
- PC10.** follow the recommended practices to prevent attacks from predatory ants during the spinning process

Harvest cocoons and obtain silk threads

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

- PC11.** check the pupae for the signs of maturity such as colour and hardness
- PC12.** harvest the cocoons containing appropriate quantity with mature pupae in them
- PC13.** expose the cocoons to heat or steam via sunlight exposure or boiling, and undertake the reeling process to separate and obtain raw silk fibre

Market the raw silk and cocoons

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

- PC14.** identify the potential buyers/ markets such as e-trading platforms, cooperatives, local traders, exporters for marketing the harvested raw silk fibre, and cocoons
- PC15.** coordinate and negotiate with the buyers to secure a profitable price for raw silk fibre and cocoons
- PC16.** arrange an appropriate mode of transport for safe and hygienic delivery of raw silk fibre and cocoons to the buyers, under the recommended temperature and humidity
- PC17.** process the payments using the buyer-preferred e-payment method
- PC18.** maintain the manual and/ or electronic record of sales and payments using the physical registers and/ or the relevant computer application

Optimise resource utilisation

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

- PC19.** optimise the usage of water and other resources in various tasks and processes
- PC20.** plug water leakages to prevent its wastage

Perform waste management

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

- PC21.** segregate waste into appropriate categories
- PC22.** dispose the non-recyclable waste in an environment-friendly manner and recycle the recyclable waste appropriately

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** the process of preparing trays for stocking pupae, and the recommended materials to be used for the purpose
- KU2.** the process of feeding pupae with fresh mulberry leaves sprayed with the recommended chemicals to ensure healthy growth along with uniform spinning of cocoons
- KU3.** the process of cleaning and disinfecting the pupae trays using the approved disinfectant
- KU4.** the process of collecting pupae from the tray after they achieve the required growth and transferring them to the mountage for spinning cocoons
- KU5.** the importance of ensuring adequate space on mountage to allow pupae to spin cocoon
- KU6.** the importance of positioning the mountage appropriately to prevent staining of cocoons by pupae's urine
- KU7.** the process of identifying and removing the unhealthy and dead pupae from the mountage
- KU8.** the recommended temperature, humidity and light exposure to be maintained during the cocoon spinning process

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- KU9.** the recommended practices to be followed to prevent attack by predatory ants during the spinning process
- KU10.** how to achieve uniform spinning of cocoons
- KU11.** the appropriate time and stage for transferring the pupae to mountage
- KU12.** the recommended number of pupae to be maintained on the mountage
- KU13.** the importance and need of maintaining the mountage under shade and good ventilation
- KU14.** the importance and ways of controlling fluctuations in humidity to prevent thinning and thickening of silk filament
- KU15.** the signs of maturity of pupae such as colour and hardness
- KU16.** the appropriate time, and process of harvesting the cocoons
- KU17.** the process of exposing the cocoons to heat or steam via sunlight exposure or boiling, and undertaking the reeling process to separate and obtain raw silk fibre from them
- KU18.** how to identify, connect and negotiate with the potential buyers of raw fibre silk and cocoons
- KU19.** the appropriate packing material to be used to pack raw silk fibre and cocoons
- KU20.** the relevant labelling requirements
- KU21.** use of different types of e-payment methods
- KU22.** the importance of maintaining the record of sales and payments
- KU23.** how to maintain manual and electronic records using the physical registers and the relevant computer application respectively
- KU24.** basic accounting practices such as calculating the expenditure and cost of production, and benefit-cost (B:C) ratio, etc.
- KU25.** the benefits and different ways of resource optimisation
- KU26.** the criteria for segregating waste into appropriate categories
- KU27.** the importance of disposing the non-recyclable waste in an environment-friendly manner
- KU28.** how to recycle different types of recyclable waste

Generic Skills (GS)

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

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

Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Stock and prepare pupae for cocoon spinning</i>	7	7	-	7
PC1. prepare trays of appropriate materials such as bamboo and paper for stocking pupae, ensuring easy absorption of excess moisture	-	-	-	-
PC2. feed pupae with fresh mulberry leaves as per the feeding schedule	-	-	-	-
PC3. apply the recommended chemicals on mulberry leaves in the prescribed quantity for healthy growth of pupae along with uniform spinning of cocoons	-	-	-	-
PC4. remove faeces and leftover mulberry leaves, and disinfect the trays using the approved disinfectant	-	-	-	-
<i>Transfer pupae to moutage for cocoon spinning</i>	5	6	-	5
PC5. collect pupae from the tray after they achieve the required growth, using a net and transfer them to the moutage for spinning cocoons	-	-	-	-
PC6. ensure adequate space on moutage to allow pupae spin cocoon	-	-	-	-
PC7. position the moutage appropriately to prevent staining of cocoons by pupae's urine	-	-	-	-
PC8. identify and remove the unhealthy and dead pupae from the moutage	-	-	-	-
<i>Monitor the cocoon spinning process</i>	3	4	-	3
PC9. maintain the recommended temperature, humidity and light exposure during the spinning process	-	-	-	-
PC10. follow the recommended practices to prevent attacks from predatory ants during the spinning process	-	-	-	-
<i>Harvest cocoons and obtain silk threads</i>	4	8	-	4

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC11. check the pupae for the signs of maturity such as colour and hardness	-	-	-	-
PC12. harvest the cocoons containing appropriate quantity with mature pupae in them	-	-	-	-
PC13. expose the cocoons to heat or steam via sunlight exposure or boiling, and undertake the reeling process to separate and obtain raw silk fibre	-	-	-	-
<i>Market the raw silk and cocoons</i>	7	9	-	7
PC14. identify the potential buyers/ markets such as e-trading platforms, cooperatives, local traders, exporters for marketing the harvested raw silk fibre, and cocoons	-	-	-	-
PC15. coordinate and negotiate with the buyers to secure a profitable price for raw silk fibre and cocoons	-	-	-	-
PC16. arrange an appropriate mode of transport for safe and hygienic delivery of raw silk fibre and cocoons to the buyers, under the recommended temperature and humidity	-	-	-	-
PC17. process the payments using the buyer-preferred e-payment method	-	-	-	-
PC18. maintain the manual and/ or electronic record of sales and payments using the physical registers and/ or the relevant computer application	-	-	-	-
<i>Optimise resource utilisation</i>	2	3	-	2
PC19. optimise the usage of water and other resources in various tasks and processes	-	-	-	-
PC20. plug water leakages to prevent its wastage	-	-	-	-
<i>Perform waste management</i>	2	3	-	2
PC21. segregate waste into appropriate categories	-	-	-	-
PC22. dispose the non-recyclable waste in an environment-friendly manner and recycle the recyclable waste appropriately	-	-	-	-

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
NOS Total	30	40	-	30

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	AGR/N5209
NOS Name	Maintain pupae, harvest and process cocoons, and carryout silk marketing activities
Sector	Agriculture
Sub-Sector	Agriculture Allied Activities
Occupation	Silkworm Rearing
NSQF Level	2
Credits	3
Version	1.0
Last Reviewed Date	29/09/2023
Next Review Date	29/09/2026
NSQC Clearance Date	29/09/2023

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

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 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. Individual assessment agencies will create unique question papers for the theory part for each candidate at each examination/training centre (as per assessment criteria below).
4. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/ training centre based on these criteria.
5. In case of successfully passing only a certain number of NOSs, the trainee is eligible to take a 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

Qualification Pack

(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/N5206.Prepare for rearing of silkworms	30	40	-	30	100	15
AGR/N5207.Incubate silkworm eggs and rear silkworm larvae	30	40	-	30	100	15
AGR/N5208.Perform pest and disease management during Silkworm rearing	30	40	-	30	100	15
AGR/N5209.Maintain pupae, harvest and process cocoons, and carryout silk marketing activities	30	40	-	30	100	50
DGT/VSQ/N0101.Employability Skills (30 Hours)	20	30	-	-	50	5
Total	140	190	-	120	450	100

Qualification Pack

Acronyms

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

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.