Mariculture Farmer

Options: Pearl Culture

QP Code: AGR/Q4909

Version: 3.0

NSQF Level: 4

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

Contents

AGR/Q4909: Mariculture Farmer

Brief Job Description

A Mariculture Farmer is responsible for managing the overall operations of a mariculture farm including the fabrication and installation of pens/ rafts/ cages, procuring and stocking seeds, maintaining the stocked organisms and harvesting them on maturity. The person may also carry out pearl culture to produce pearls by rearing pearl oysters.

Personal Attributes

The person must be physically fit to work for long hours and know how to swim. The individual must have finger dexterity along with good eyesight and the ability to co-ordinate with others to achieve the work objectives.

Applicable National Occupational Standards (NOS)

Compulsory NOS:

1. AGR/N4933: Install the pen/ raft/ cage and stock the seeds

2. AGR/N4934: Carry out post-stocking management

3. AGR/N4923: Harvest, process and market the aquaculture organisms

4. AGR/N4955: Follow the hygiene and safety practices in culture operations

5. AGR/N9922: Engage in collective farming/activity

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

Options(Not mandatory):

Option : Pearl Culture

This individual specialises in producing pearls by culturing pearl oysters in marine water.

1. AGR/N4945: Carry out marine water pearl culture

Qualification Pack (QP) Parameters

Sector	Agriculture

Sub-Sector	Fisheries
Occupation	Aquaculture
Country	India
NSQF Level	4
Credits	15
Aligned to NCO/ISCO/ISIC Code	NCO-2015/2132.0900
Minimum Educational Qualification & Experience	12th grade Pass OR Completed 2nd year of the 3-year diploma after 10 (and pursuing regular diploma) OR 10th grade pass (plus 2-year NTC) OR 10th grade pass (plus 1-year NTC plus 1 year NAC) OR 8th grade pass with 2 year NTC plus 1 year NAC plus 1 year CITS OR 10th grade pass and pursuing continuous schooling OR 10th grade pass with 2 Years of experience relevant experience OR Previous relevant Qualification of NSQF Level (Level 3.0 with minimum education as 8th Grade pass) with 3 Years of experience relevant experience OR Previous relevant Qualification of NSQF Level (Level 3.5 with 1.5- year relevant experience)
Minimum Level of Education for Training in School	
Pre-Requisite License or Training	NA
Minimum Job Entry Age	18 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-04-AG-00331-2023-V1.1-ASCI
NQR Version	1.1

AGR/N4933: Install the pen/ raft/ cage and stock the seeds

Description

This OS unit is about selecting a suitable site for mariculture, fabricating and installing the pen/ raft/ cage and stocking the seeds.

Scope

The scope covers the following :

- Select a suitable site for mariculture
- Procure seeds of organisms for culture activities
- Fabricate and install the pen/ raft/ cage
- Stock the seeds

Elements and Performance Criteria

Select a suitable site for mariculture

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

PC1. select a site that contains clear seawater, receives moderate rainfall throughout the year, and has suitable climatic conditions

PC2. check the site has the recommended depth and quality of water for mariculture activities

PC3. ensure that the site is not covered with coral reefs, seagrass, mangrove, etc.

PC4. ensure that the site is located far from sewage and industrial discharge and doesn't experience strong water currents

Procure seeds of organisms for culture activities

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

PC5. identify the species and type of seeds required for the specific marine aquaculture system

PC6. select a source of quality seeds

PC7. procure the seeds in the required quantity

PC8. arrange for stress and damage-free transportation and storage of the seeds

Fabricate and install the pen/ raft/ cage

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

PC9. procure cost-effective and durable material for fabricating the pen/ raft/ cage

PC10. co-ordinate with a fabricator for the fabrication of pen/ raft/ cage

PC11. install the pen/ raft/ cage at the selected site and secure it using anchors and ropes

PC12. install nets of the recommended mesh size

Stock the seeds

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

PC13. acclimatise the seeds before stocking them

PC14. follow the recommended prophylactic measures before stocking the seeds to protect them from diseases and ectoparasites

PC15. stock the seeds at the recommended temperature, ensuring no damage to them

PC16. maintain the recommended stocking density for the selected species

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. the criteria for selecting a site for mariculture such as clear seawater, moderate rainfall, suitable climatic conditions, recommended depth, etc.

KU2. the importance of ensuring the mariculture site is located away from sewage and industrial discharge

KU3. various species cultured in marine water such as hairtail, sargo, queen angelfish, etc.

KU4. the process of procuring quality seeds, their safe transportation and storage

KU5. the process of fabrication and installation of mariculture pens/ rafts/ cages

KU6. the process of stocking seeds in a mariculture pen/ raft/ cage

KU7. the importance and process of acclimatising the seeds before stocking

KU8. recommended stocking density and temperature for various marine water fish/ crustacean species

KU9. appropriate prophylactic measures to protect the seeds from diseases and ectoparasites

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 stay updated about the latest development in the field of work

GS3. plan and schedule tasks for effective time management

GS4. identify possible hazards and disruptions and take appropriate preventive measures

GS5. communicate politely and professionally

GS6. listen attentively to understand the information being shared

GS7. take quick decisions to deal with workplace emergencies

GS8. evaluate all possible solutions to a problem to select the best one

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Select a suitable site for mariculture	**8**	**12**	**-**	**8**
PC1. select a site that contains clear seawater, receives moderate rainfall throughout the year, and has suitable climatic conditions	-	-	-	-
PC2. check the site has the recommended depth and quality of water for mariculture activities	-	-	-	-
PC3. ensure that the site is not covered with coral reefs, seagrass, mangrove, etc.	-	-	-	-
PC4. ensure that the site is located far from sewage and industrial discharge and doesn't experience strong water currents	-	-	-	-
Procure seeds of organisms for culture activities	**6**	**8**	**-**	**6**
PC5. identify the species and type of seeds required for the specific marine aquaculture system	-	-	-	-
PC6. select a source of quality seeds	-	-	-	-
PC7. procure the seeds in the required quantity	-	-	-	-
PC8. arrange for stress and damage-free transportation and storage of the seeds	-	-	-	-
Fabricate and install the pen/ raft/ cage	**10**	**12**	**-**	**6**
PC9. procure cost-effective and durable material for fabricating the pen/ raft/ cage	-	-	-	-
PC10. co-ordinate with a fabricator for the fabrication of pen/ raft/ cage	-	-	-	-
PC11. install the pen/ raft/ cage at the selected site and secure it using anchors and ropes	-	-	-	-
PC12. install nets of the recommended mesh size	-	-	-	-
Stock the seeds	**6**	**8**	**-**	**10**

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC13. acclimatise the seeds before stocking them	-	-	-	-
PC14. follow the recommended prophylactic measures before stocking the seeds to protect them from diseases and ectoparasites	-	-	-	-
PC15. stock the seeds at the recommended temperature, ensuring no damage to them	-	-	-	-
PC16. maintain the recommended stocking density for the selected species	-	-	-	-
NOS Total	**30**	**40**	**-**	**30**

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	AGR/N4933
NOS Name	Install the pen/ raft/ cage and stock the seeds
Sector	Agriculture
Sub-Sector	Fisheries
Occupation	Aquaculture
NSQF Level	4
Credits	3
Version	2.0
Last Reviewed Date	24/02/2022
Next Review Date	24/02/2025
NSQC Clearance Date	24/02/2022

AGR/N4934: Carry out post-stocking management

Description

This OS unit is about carrying out nutrition and health management of the seeds stocked in the mariculture cages.

Scope

The scope covers the following :

- Maintain the mariculture cages and water quality
- Carry out feed management
- Carry out health and disease management
- Optimise resource utilisation and manage waste

Elements and Performance Criteria

Maintain the mariculture cages and water quality

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

PC1. maintain the required temperature, pH, dissolved oxygen, alkalinity and salinity levels in the mariculture cages

PC2. maintain an adequate exchange of water in the cages to ensure the quality of water

PC3. identify and remove predators from the cages

PC4. remove algae, aquatic weeds, and uneaten feed from the cages regularly

PC5. check the cages to ensure they are anchored in the correct position

PC6. carry out regular repair and maintenance of the cages

Carry out feed management

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

PC7. feed the stocked organisms with the recommended feed such as wet feed, pellets, floating feed, ensuring the required level of nutrients

PC8. follow the recommended feeding schedule for the stocked species

PC9. apply appropriate changes to the feed according to the stages of growth of the organisms to ensure their optimum growth

Carry out health and disease management

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

PC10. follow the recommended practices to prevent the outbreak of pathogens and disease such as application of chlorine/ approved disinfectants

PC11. monitor the organisms in the mariculture cages for signs of stress and disease such as reduced feeding, erratic behaviour, spots and lesions, etc.

PC12. sample the organisms and water, and co-ordinate with an approved lab to identify the problem

PC13. identify and quarantine the diseased organisms

PC14. select an appropriate treatment according to the identified disease/ infection or consult an expert

PC15. apply the prescribed treatment in the recommended dose

PC16. monitor the quarantined organisms for signs of improvements and stock with the healthy organisms once cured

Optimise resource utilisation and manage waste

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. segregate waste into appropriate categories

PC19. 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. how to maintain the required temperature, pH, dissolved oxygen, alkalinity and salinity levels in the mariculture cages

KU2. the importance of maintaining the adequate exchange of water in the cages to ensure the quality of water

KU3. the process of identifying and removing predators from the mariculture cages

KU4. the importance of cleaning the cages and carrying out their maintenance regularly

KU5. different types of feed for different species of mariculture organisms such as wet feed, pellets, floating feed, etc.

KU6. the process of feeding the mariculture organisms and the recommended feeding schedule for different species

KU7. changes required in the feed of mariculture organisms according to the stages of their growth

KU8. recommended practices to prevent the outbreak of pathogens and disease in the water body such as application of chlorine/ approved disinfectants

KU9. signs of stress and disease among the organisms such as reduced feeding, erratic behaviour, spots and lesions, etc.

KU10. the process of sampling the organisms and co-ordinating with an approved lab to identify the disease/ problem among the organisms

KU11. the process of identifying, quarantining and treating the diseased organisms

KU12. commonly prescribed treatment to treat mariculture organisms along with the recommended dose

KU13. the importance of following environmental and ecological best practices

KU14. benefits of resource optimisation and ways of efficiently managing various materials

KU15. different methods of recycling and disposing different types of waste

KU16. common sources of pollution and ways to minimise it

Generic Skills (GS)

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

GS1. write work-related records

GS2. communicate clearly and politely with co-workers and clients

GS3. read the relevant literature to get information about the latest developments in the field of work

GS4. plan and prioritise tasks to ensure timely completion

GS5. take quick decisions to deal with workplace emergencies/ accidents

GS6. listen attentively to understand the information/ instructions being shared by the speaker

GS7. identify possible disruptions to work and take appropriate preventive measures

GS8. co-ordinate with co-workers to achieve work objectives

GS9. evaluate all possible solutions to a problem to select the best one

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Maintain the mariculture cages and water quality	**8**	**12**	**-**	**6**
PC1. maintain the required temperature, pH, dissolved oxygen, alkalinity and salinity levels in the mariculture cages	-	-	-	-
PC2. maintain an adequate exchange of water in the cages to ensure the quality of water	-	-	-	-
PC3. identify and remove predators from the cages	-	-	-	-
PC4. remove algae, aquatic weeds, and uneaten feed from the cages regularly	-	-	-	-
PC5. check the cages to ensure they are anchored in the correct position	-	-	-	-
PC6. carry out regular repair and maintenance of the cages	-	-	-	-
Carry out feed management	**6**	**12**	**-**	**8**
PC7. feed the stocked organisms with the recommended feed such as wet feed, pellets, floating feed, ensuring the required level of nutrients	-	-	-	-
PC8. follow the recommended feeding schedule for the stocked species	-	-	-	-
PC9. apply appropriate changes to the feed according to the stages of growth of the organisms to ensure their optimum growth	-	-	-	-
Carry out health and disease management	**8**	**10**	**-**	**8**
PC10. follow the recommended practices to prevent the outbreak of pathogens and disease such as application of chlorine/ approved disinfectants	-	-	-	-
PC11. monitor the organisms in the mariculture cages for signs of stress and disease such as reduced feeding, erratic behaviour, spots and lesions, etc.	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC12. sample the organisms and water, and co-ordinate with an approved lab to identify the problem	-	-	-	-
PC13. identify and quarantine the diseased organisms	-	-	-	-
PC14. select an appropriate treatment according to the identified disease/ infection or consult an expert	-	-	-	-
PC15. apply the prescribed treatment in the recommended dose	-	-	-	-
PC16. monitor the quarantined organisms for signs of improvements and stock with the healthy organisms once cured	-	-	-	-
Optimise resource utilisation and manage waste	**8**	**6**	**-**	**8**
PC17. optimise the usage of water and other resources in various tasks and processes	-	-	-	-
PC18. segregate waste into appropriate categories	-	-	-	-
PC19. dispose the non-recyclable waste in an environment-friendly manner and recycle the recyclable waste appropriately	-	-	-	-
NOS Total	**30**	**40**	**-**	**30**

National Occupational Standards (NOS) Parameters

NOS Code	AGR/N4934
NOS Name	Carry out post-stocking management
Sector	Agriculture
Sub-Sector	Fisheries
Occupation	Aquaculture
NSQF Level	4
Credits	2
Version	2.0
Last Reviewed Date	24/02/2022
Next Review Date	24/02/2025
NSQC Clearance Date	24/02/2022

AGR/N4923: Harvest, process and market the aquaculture organisms

Description

This OS unit is about carrying out harvesting, sorting, grading and marketing of aquaculture organisms.

Scope

The scope covers the following :

- Harvest the aquaculture organisms
- Sort, grade and store the aquaculture organisms
- Market the aquaculture organisms

Elements and Performance Criteria

Harvest the aquaculture organisms

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

PC1. check the aquaculture organisms to ensure they have attained the marketable size and are ready for being harvested

PC2. select an appropriate time of the day and method to harvest the aquaculture organisms such as ring seine, hook and line, traps and pots, trawling, purse seining, etc.

PC3. use the appropriate tools and equipment such as dip net, cast net, portable lift net, gill nets according to the selected method

PC4. harvest the aquaculture organisms partially or completely according to the local demand and proximity to the relevant markets/ buyers

PC5. protect the aquaculture organisms from stress, damage and contamination during harvesting

PC6. maintain the record of harvested organisms

Sort, grade and store the aquaculture organisms

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

PC7. carry out sorting of organisms as per the relevant criteria such as species and maturity

PC8. grade the organisms manually or mechanically on the basis of appropriate quality parameters such as size and appearance

PC9. store the organisms in hygienic conditions at the recommended temperature and humidity before and after processing

Market the aquaculture organisms

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

PC10. identify the market demand and potential buyers of the harvested aquaculture organisms

PC11. negotiate the price with the buyer(s)

PC12. pack the aquaculture organisms in appropriate containers for being transported to the market/ buyer

PC13. maintain the optimum density while packing to ensure minimum stress to the organisms during transit

PC14. follow the recommended practices to save the produce from contamination during packing and transit

PC15. arrange an appropriate mode of transport to deliver the organisms to the buyer

PC16. use the relevant e-payment method such as Aadhaar Enabled Payment System (AEPS), Unified Payment Interface (UPI), Unstructured Supplementary Service Data (USSD) payment, etc.

PC17. maintain the record of sales and payments

PC18. calculate the benefit-cost (B:C) ratio

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. maturity indicators of various aquaculture organisms

KU2. appropriate time and method to harvest the aquaculture organisms safely such as ring seine, shore seine, hook and line, traps and pots, trawling, purse seining, hook and line, etc.

KU3. use of the relevant harvesting tools and equipment such as stake net, Chinese dip net, cast net, mini trawls, gill nets, trammel net, cast net and portable lift net to harvest the aquaculture organisms

KU4. applicable documentation requirements

KU5. the process and various criteria for sorting and grading harvested aquaculture organisms

KU6. appropriate conditions to store the harvested aquaculture organisms

KU7. various activities in the process of marketing the produce such as identifying the market demand, connecting with buyers and negotiating the price, processing order and payments etc.

KU8. recommended practices for packing and transporting aquaculture organisms safely while protecting them from contamination

KU9. use of various e-payment methods such as Aadhaar Enabled Payment System (AEPS), Unified Payment Interface (UPI), Unstructured Supplementary Service Data (USSD) payment, etc.

KU10. how to calculate the benefit-cost (B:C) ratio

Generic Skills (GS)

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

GS1. write work-related records

GS2. communicate clearly and politely with co-workers and clients

GS3. read the relevant literature to get information about the latest developments in the field of work

GS4. plan and prioritise tasks to ensure timely completion

GS5. take quick decisions to deal with workplace emergencies/ accidents

GS6. listen attentively to understand the information/ instructions being shared by the speaker

GS7. identify possible disruptions to work and take appropriate preventive measures

GS8. co-ordinate with co-workers to achieve work objectives

GS9. evaluate all possible solutions to a problem to select the best one

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Harvest the aquaculture organisms	**14**	**14**	**-**	**10**
PC1. check the aquaculture organisms to ensure they have attained the marketable size and are ready for being harvested	-	-	-	-
PC2. select an appropriate time of the day and method to harvest the aquaculture organisms such as ring seine, hook and line, traps and pots, trawling, purse seining, etc.	-	-	-	-
PC3. use the appropriate tools and equipment such as dip net, cast net, portable lift net, gill nets according to the selected method	-	-	-	-
PC4. harvest the aquaculture organisms partially or completely according to the local demand and proximity to the relevant markets/ buyers	-	-	-	-
PC5. protect the aquaculture organisms from stress, damage and contamination during harvesting	-	-	-	-
PC6. maintain the record of harvested organisms	-	-	-	-
Sort, grade and store the aquaculture organisms	**8**	**14**	**-**	**12**
PC7. carry out sorting of organisms as per the relevant criteria such as species and maturity	-	-	-	-
PC8. grade the organisms manually or mechanically on the basis of appropriate quality parameters such as size and appearance	-	-	-	-
PC9. store the organisms in hygienic conditions at the recommended temperature and humidity before and after processing	-	-	-	-
Market the aquaculture organisms	**8**	**12**	**-**	**8**
PC10. identify the market demand and potential buyers of the harvested aquaculture organisms	-	-	-	-
PC11. negotiate the price with the buyer(s)	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC12. pack the aquaculture organisms in appropriate containers for being transported to the market/ buyer	-	-	-	-
PC13. maintain the optimum density while packing to ensure minimum stress to the organisms during transit	-	-	-	-
PC14. follow the recommended practices to save the produce from contamination during packing and transit	-	-	-	-
PC15. arrange an appropriate mode of transport to deliver the organisms to the buyer	-	-	-	-
PC16. use the relevant e-payment method such as Aadhaar Enabled Payment System (AEPS), Unified Payment Interface (UPI), Unstructured Supplementary Service Data (USSD) payment, etc.	-	-	-	-
PC17. maintain the record of sales and payments	-	-	-	-
PC18. calculate the benefit-cost (B:C) ratio	-	-	-	-
NOS Total	**30**	**40**	**-**	**30**

National Occupational Standards (NOS) Parameters

NOS Code	AGR/N4923
NOS Name	Harvest, process and market the aquaculture organisms
Sector	Agriculture
Sub-Sector	Fisheries
Occupation	Aquaculture
NSQF Level	4
Credits	2
Version	3.0
Last Reviewed Date	NA
Next Review Date	24/02/2025
NSQC Clearance Date	24/02/2022

AGR/N4955: Follow the hygiene and safety practices in culture operations

Description

This OS unit is about following various hygiene and safety practices during culture operations.

Scope

The scope covers the following :

- Maintain the water body and its hygiene
- Maintain the health of cultured organisms
- Maintain personal health and safety

Elements and Performance Criteria

Maintain the water body and its hygiene

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

PC1. follow the recommended practices to protect the aquaculture farm from different types of threats such as storms, predatory birds, harmful organisms, poachers, etc.

PC2. carry out regular maintenance of the dykes and fences in the culture pond

PC3. identify and remove the preying organisms from the culture pond or tank

PC4. remove sludge, algae, uneaten feed and any other waste materials from the culture pond or tank

PC5. apply the necessary disinfectants or preventive treatment in the culture pond or tank to prevent disease outbreak and the growth of harmful organisms

Maintain the health of cultured organisms

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

PC6. follow the recommended practices to protect the cultured organisms from the air, water or fomite-borne contamination and diseases

PC7. sample the cultured organisms regularly to identify the signs of stress/ disease/ phenotypic disorders and the presence of parasites and pathogens

PC8. identify, quarantine and treat the unhealthy organisms following the recommended practices

PC9. monitor the quarantined organisms for signs of improvement and restock them in the culture pond or tank on complete recovery

PC10. remove the dead and moribund organisms and dispose them in an environment-friendly manner

Maintain personal health and safety

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

PC11. check the relevant Personal Protective Equipment (PPE) before use and repair or replace it, as required

PC12. use the relevant PPE during various aquaculture operations such as the application of hazardous chemicals

PC13. use the recommended soap or sanitiser to keep hands sanitised

PC14. store hazardous chemicals, tools and equipment in the safe storage area to avoid personal harm or injury

PC15. administer first-aid to the injured personnel and co-ordinate with the emergency services for further medical attention

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. how to protect the aquaculture farm and cultured species from various threats

KU2. the process of identifying and removing predators or preying organisms from the culture pond or tank

KU3. the importance and process of carrying out regular cleaning of the culture pond or tank to remove sludge, algae, uneaten feed, etc.

KU4. the recommended disinfectants for water bodies and the process of applying them to prevent disease outbreak and growth of harmful organisms

KU5. recommended practices to protect the cultured organisms from air/ water/ fomite-borne contamination and diseases during and after harvesting

KU6. the process of sampling the cultured organisms to identify disease, disorders and presence of parasites and pathogens

KU7. the signs of stress or disease in the cultured organisms such as spots, lesions, erratic movement, etc.

KU8. the process of identifying, quarantining and treating the unhealthy organisms

KU9. the signs of improvement in the quarantined organisms

KU10. the importance of removing the dead and moribund organisms from the water body promptly and disposing them safely

KU11. the importance of using the relevant PPE and ensuring it is damage-free

KU12. appropriate practices to be followed to maintain personal hygiene and prevent infections

KU13. the importance of storing hazardous chemicals, tools and equipment safely

KU14. how to administer first-aid and co-ordinate with emergency services

Generic Skills (GS)

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

GS1. maintain work-related notes and records

GS2. read the relevant guidelines and safety instruction in the local language/ English

GS3. listen attentively to understand the information/ instructions being given

GS4. communicate politely and professionally

GS5. co-ordinate with the co-workers to achieve the work objectives

GS6. evaluate all the possible solutions to a problem to select the best one

GS7. take quick decisions within the limits of authority to resolve work-related issues

GS8. plan and schedule tasks to ensure timely completion

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Maintain the water body and its hygiene	**10**	**15**	**-**	**10**
PC1. follow the recommended practices to protect the aquaculture farm from different types of threats such as storms, predatory birds, harmful organisms, poachers, etc.	-	-	-	-
PC2. carry out regular maintenance of the dykes and fences in the culture pond	-	-	-	-
PC3. identify and remove the preying organisms from the culture pond or tank	-	-	-	-
PC4. remove sludge, algae, uneaten feed and any other waste materials from the culture pond or tank	-	-	-	-
PC5. apply the necessary disinfectants or preventive treatment in the culture pond or tank to prevent disease outbreak and the growth of harmful organisms	-	-	-	-
Maintain the health of cultured organisms	**10**	**15**	**-**	**10**
PC6. follow the recommended practices to protect the cultured organisms from the air, water or fomite-borne contamination and diseases	-	-	-	-
PC7. sample the cultured organisms regularly to identify the signs of stress/ disease/ phenotypic disorders and the presence of parasites and pathogens	-	-	-	-
PC8. identify, quarantine and treat the unhealthy organisms following the recommended practices	-	-	-	-
PC9. monitor the quarantined organisms for signs of improvement and restock them in the culture pond or tank on complete recovery	-	-	-	-
PC10. remove the dead and moribund organisms and dispose them in an environment-friendly manner	-	-	-	-
Maintain personal health and safety	**10**	**10**	**-**	**10**

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC11. check the relevant Personal Protective Equipment (PPE) before use and repair or replace it, as required	-	-	-	-
PC12. use the relevant PPE during various aquaculture operations such as the application of hazardous chemicals	-	-	-	-
PC13. use the recommended soap or sanitiser to keep hands sanitised	-	-	-	-
PC14. store hazardous chemicals, tools and equipment in the safe storage area to avoid personal harm or injury	-	-	-	-
PC15. administer first-aid to the injured personnel and co-ordinate with the emergency services for further medical attention	-	-	-	-
NOS Total	**30**	**40**	**-**	**30**

National Occupational Standards (NOS) Parameters

NOS Code	AGR/N4955
NOS Name	Follow the hygiene and safety practices in culture operations
Sector	Agriculture
Sub-Sector	Fisheries
Occupation	Aquaculture
NSQF Level	4
Credits	1
Version	2.0
Last Reviewed Date	NA
Next Review Date	24/02/2025
NSQC Clearance Date	24/02/2022

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:

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

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

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Create PGs/ FIGs/ SHGs	**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	-	-	-	-
Prepare for the PG/ FIG/ SHG operations	**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	-	-	-	-
Conduct group meetings and training sessions	**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	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Carry out collective farming/ activities	**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**

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

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

Description

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

Scope

The scope covers the following :

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

Elements and Performance Criteria

Introduction to Employability Skills

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

PC1.   identify employability skills required for jobs in various industries

PC2.   identify and explore learning and employability portals

Constitutional values – Citizenship

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

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

PC4.   follow environmentally sustainable practices

Becoming a Professional in the 21st Century

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

PC5.   recognize the significance of 21st Century Skills for employment

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

Basic English Skills

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

PC7. use basic English for everyday conversation in different contexts, in person and over the telephone

PC8. read and understand routine information, notes, instructions, mails, letters etc. written in English

PC9. write short messages, notes, letters, e-mails etc. in English

Career Development & Goal Setting

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

PC10. understand the difference between job and career

PC11. prepare a career development plan with short- and long-term goals, based on aptitude

Communication Skills

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

PC12. follow verbal and non-verbal communication etiquette and active listening techniques in various settings

PC13. work collaboratively with others in a team

Diversity & Inclusion

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

PC14. communicate and behave appropriately with all genders and PwD

PC15. escalate any issues related to sexual harassment at workplace according to POSH Act

Financial and Legal Literacy

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

PC16. select financial institutions, products and services as per requirement

PC17. carry out offline and online financial transactions, safely and securely

PC18. identify common components of salary and compute income, expenses, taxes, investments etc

PC19. identify relevant rights and laws and use legal aids to fight against legal exploitation

Essential Digital Skills

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

PC20. operate digital devices and carry out basic internet operations securely and safely

PC21. use e- mail and social media platforms and virtual collaboration tools to work effectively

PC22. use basic features of word processor, spreadsheets, and presentations

Entrepreneurship

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

PC23. identify different types of Entrepreneurship and Enterprises and assess opportunities for potential business through research

PC24. develop a business plan and a work model, considering the 4Ps of Marketing Product, Price, Place and Promotion

PC25. identify sources of funding, anticipate, and mitigate any financial/ legal hurdles for the potential business opportunity

Customer Service

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

PC26. identify different types of customers

PC27. identify and respond to customer requests and needs in a professional manner.

PC28. follow appropriate hygiene and grooming standards

Getting ready for apprenticeship & Jobs

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

PC29. create a professional Curriculum vitae (Résumé)

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

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

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

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

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

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

KU2. various constitutional and personal values

KU3. different environmentally sustainable practices and their importance

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

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

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

KU7. about effective communication

KU8. POSH Act

KU9. Gender sensitivity and inclusivity

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

KU11. how to compute income and expenditure

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

KU13. different legal rights and laws

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

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

KU16. how to identify business opportunities

KU17. types and needs of customers

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

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

Generic Skills (GS)

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

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

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

GS3. behave politely and appropriately with all

GS4. how to work in a virtual mode

GS5. perform calculations efficiently

GS6. solve problems effectively

GS7. pay attention to details

GS8. manage time efficiently

GS9. maintain hygiene and sanitization to avoid infection

Assessment Criteria

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

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

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

National Occupational Standards (NOS) Parameters

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

AGR/N4945: Carry out marine water pearl culture

Description

This OS unit is about carrying out pearl culture in marine water and includes various activities such as selecting a site, procuring and conditioning the oysters and setting up a pearl farm, etc.

Scope

The scope covers the following :

- Check feasibility and select a site for pearl culture
- Procure and condition the pearl oysters
- Set up the marine water pearl culture farm
- Graft and transfer pearl oysters to the pearl farm
- Maintain the water body
- Maintain the pearl oysters
- Harvest and market the pearl oysters

Elements and Performance Criteria

Check feasibility and select a site for pearl culture

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

PC1. conduct a feasibility study to determine profitability in carrying out pearl culture such as costs involved in the maintenance of a pearl culture farm, labour, hiring a grafting technician, etc.

PC2. select a suitable site for pearl culture with the prior presence of pearl oysters, recommended temperature and salinity levels, clean water away from industrial discharge and sewage, recommended depth, mild water currents and winds, etc.

Procure and condition the pearl oysters

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

PC3. select the appropriate species of oysters considering the type of pearl to be produced and the local climate, their stages of development, etc.

PC4. check the availability of a reliable source of pearl oysters

PC5. procure hatchery-produced pearl oysters or collect from the wild in the required quantity

PC6. use disinfected water or recommended chemicals to condition the oysters and prevent bacterial/ fungal/ protozoan infections

Set up the marine water pearl culture farm

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

PC7. arrange the material required for setting the pearl culture farm such as bamboo/ lightweight timber for rafts and sealed plastic drums/ mild steel barrels for floats, coir or synthetic ropes, anchors, etc.

PC8. prepare the rafts and floats in the recommended size and tie them using ropes

PC9. apply anti-saline/ anti-corrosive paint if using steel barrels as floats

PC10. install the rafts and floats in the water body according to the wind direction

PC11. moor the rafts in the water using anchors to prevent them from breaking free

Graft and transfer pearl oysters to the pearl farm

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

PC12. select healthy oysters of the required characteristics for grafting

PC13. ensure the oysters starve for the recommended period before the grafting operation

PC14. co-ordinate with a grafting technician to prepare the grafts

PC15. check that grafting is done as per the required quality standards

PC16. create a scalpel slit in the soft tissue near the reproductive organ of the host oyster

PC17. insert the graft into the slit after opening the host oyster using the necessary tools and equipment such as wedges and pliers

PC18. insert nucleus in the scalpel slit to provoke the host oyster to cover the nucleus with pearl nacre

PC19. maintain the oyster in water for the recommended period

PC20. carry out x-ray examination of the oysters to check if the implant has been successful

PC21. transfer the oysters with the successful implant to the pearl farm ensuring no damage to them

PC22. place the oysters in lantern baskets/ pocket nets attached to the rafts and suspend into water

PC23. maintain the recommended spacing among the lantern baskets/ pocket nets to ensure healthy growth of pearl oysters

Maintain the water body

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

PC24. carry out regular cleaning to remove fouling organisms from the water body and oyster shells, ensuring no damage to the oysters

PC25. filter the recommended quantity of water in the water body regularly to provide adequate feed to pearl oysters in the form of algae and other small organisms

PC26. inspect the floats regularly to ensure they are anchored firmly in the correct position

PC27. identify and remove predators from the water body

PC28. protect the pearl farm from exposure to extreme temperatures, dirt, chemicals, vandalism and theft

Maintain the pearl oysters

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

PC29. monitor the pearl oysters regularly to identify the signs of stress and disease

PC30. apply the appropriate treatment in the recommended dose to cure the unhealthy pearl oysters

PC31. maintain the record of treatment used in the water body

PC32. identify, remove and dispose the dead pearl oysters and other waste safely as per the recommended practices

PC33. maintain the oysters in the water body for the recommended duration

Harvest and market the pearl oysters

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

PC34. check the pearls oysters to ensure the pearls have achieved the sufficient coating for being harvested

PC35. collect the lantern baskets/ pocket nets from the water body and retrieve the pearl oysters

PC36. transport the pearl oysters to the processing unit in a cool and moist environment

PC37. use the appropriate equipment to split open the oysters and cut the pearl bags to remove the pearls

PC38. dry the harvested pearls to the recommended level to protect against loss of lustre

PC39. sort and grade the harvested pearls on the applicable parameters

PC40. market the pearls and maintain the records of sales and payments

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. the criteria for selecting a site for pearl culture such as the recommended temperature and salinity levels, clean water, recommended depth, mild water currents, etc.

KU2. the process of conducting a feasibility study to determine profitability in carrying out pearl culture

KU3. the criteria for selecting a variety of oyster for pearl culture

KU4. the process of procuring and conditioning the pearl oysters

KU5. various material required for setting up a pearl culture farm such as bamboo/ lightweight timber, sealed plastic drums/ mild steel barrels, coir or synthetic ropes, anchors, etc.

KU6. the process of setting up a pearl culture farm

KU7. the process of grafting pearl oysters and the applicable quality standards

KU8. the process of implanting nucleus into the host oyster and checking if the implant is successful

KU9. the process of transferring the successful implants into the pearl culture farm

KU10. the importance and process of maintaining the pearl culture water body

KU11. how to protect the pearl culture farm from extreme temperatures, dirt, chemicals, vandalism and theft

KU12. health and disease management of the pearl oysters

KU13. the process of harvesting and marketing the pearls

KU14. the process of drying the harvested pearls to the recommended level to preserve their lustre

KU15. relevant parameters for sorting and grading the harvested pearls

KU16. marketing of cultured pearls and the applicable record-keeping requirements

Generic Skills (GS)

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

GS1. read the relevant literature to get updated information about the field of work

GS2. plan and prioritise tasks to ensure timely completion

GS3. take quick decisions to resolve work-related issues

GS4. communicate politely and professionally

GS5. identify possible disruptions to work and take appropriate preventive measures

GS6. take quick decisions to deal with any emergencies/ accidents

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Check feasibility and select a site for pearl culture	**2**	**4**	**-**	**2**
PC1. conduct a feasibility study to determine profitability in carrying out pearl culture such as costs involved in the maintenance of a pearl culture farm, labour, hiring a grafting technician, etc.	-	-	-	-
PC2. select a suitable site for pearl culture with the prior presence of pearl oysters, recommended temperature and salinity levels, clean water away from industrial discharge and sewage, recommended depth, mild water currents and winds, etc.	-	-	-	-
Procure and condition the pearl oysters	**4**	**6**	**-**	**4**
PC3. select the appropriate species of oysters considering the type of pearl to be produced and the local climate, their stages of development, etc.	-	-	-	-
PC4. check the availability of a reliable source of pearl oysters	-	-	-	-
PC5. procure hatchery-produced pearl oysters or collect from the wild in the required quantity	-	-	-	-
PC6. use disinfected water or recommended chemicals to condition the oysters and prevent bacterial/ fungal/ protozoan infections	-	-	-	-
Set up the marine water pearl culture farm	**2**	**4**	**-**	**4**
PC7. arrange the material required for setting the pearl culture farm such as bamboo/ lightweight timber for rafts and sealed plastic drums/ mild steel barrels for floats, coir or synthetic ropes, anchors, etc.	-	-	-	-
PC8. prepare the rafts and floats in the recommended size and tie them using ropes	-	-	-	-
PC9. apply anti-saline/ anti-corrosive paint if using steel barrels as floats	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC10. install the rafts and floats in the water body according to the wind direction	-	-	-	-
PC11. moor the rafts in the water using anchors to prevent them from breaking free	-	-	-	-
Graft and transfer pearl oysters to the pearl farm	**6**	**6**	**-**	**6**
PC12. select healthy oysters of the required characteristics for grafting	-	-	-	-
PC13. ensure the oysters starve for the recommended period before the grafting operation	-	-	-	-
PC14. co-ordinate with a grafting technician to prepare the grafts	-	-	-	-
PC15. check that grafting is done as per the required quality standards	-	-	-	-
PC16. create a scalpel slit in the soft tissue near the reproductive organ of the host oyster	-	-	-	-
PC17. insert the graft into the slit after opening the host oyster using the necessary tools and equipment such as wedges and pliers	-	-	-	-
PC18. insert nucleus in the scalpel slit to provoke the host oyster to cover the nucleus with pearl nacre	-	-	-	-
PC19. maintain the oyster in water for the recommended period	-	-	-	-
PC20. carry out x-ray examination of the oysters to check if the implant has been successful	-	-	-	-
PC21. transfer the oysters with the successful implant to the pearl farm ensuring no damage to them	-	-	-	-
PC22. place the oysters in lantern baskets/ pocket nets attached to the rafts and suspend into water	-	-	-	-
PC23. maintain the recommended spacing among the lantern baskets/ pocket nets to ensure healthy growth of pearl oysters	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Maintain the water body	**4**	**6**	**-**	**4**
PC24. carry out regular cleaning to remove fouling organisms from the water body and oyster shells, ensuring no damage to the oysters	-	-	-	-
PC25. filter the recommended quantity of water in the water body regularly to provide adequate feed to pearl oysters in the form of algae and other small organisms	-	-	-	-
PC26. inspect the floats regularly to ensure they are anchored firmly in the correct position	-	-	-	-
PC27. identify and remove predators from the water body	-	-	-	-
PC28. protect the pearl farm from exposure to extreme temperatures, dirt, chemicals, vandalism and theft	-	-	-	-
Maintain the pearl oysters	**6**	**8**	**-**	**4**
PC29. monitor the pearl oysters regularly to identify the signs of stress and disease	-	-	-	-
PC30. apply the appropriate treatment in the recommended dose to cure the unhealthy pearl oysters	-	-	-	-
PC31. maintain the record of treatment used in the water body	-	-	-	-
PC32. identify, remove and dispose the dead pearl oysters and other waste safely as per the recommended practices	-	-	-	-
PC33. maintain the oysters in the water body for the recommended duration	-	-	-	-
Harvest and market the pearl oysters	**6**	**6**	**-**	**6**
PC34. check the pearls oysters to ensure the pearls have achieved the sufficient coating for being harvested	-	-	-	-
PC35. collect the lantern baskets/ pocket nets from the water body and retrieve the pearl oysters	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC36. transport the pearl oysters to the processing unit in a cool and moist environment	-	-	-	-
PC37. use the appropriate equipment to split open the oysters and cut the pearl bags to remove the pearls	-	-	-	-
PC38. dry the harvested pearls to the recommended level to protect against loss of lustre	-	-	-	-
PC39. sort and grade the harvested pearls on the applicable parameters	-	-	-	-
PC40. market the pearls and maintain the records of sales and payments	-	-	-	-
NOS Total	**30**	**40**	**-**	**30**

National Occupational Standards (NOS) Parameters

NOS Code	AGR/N4945
NOS Name	Carry out marine water pearl culture
Sector	Agriculture
Sub-Sector	Fisheries
Occupation	Aquaculture
NSQF Level	4
Credits	2
Version	2.0
Last Reviewed Date	24/02/2022
Next Review Date	24/02/2025
NSQC Clearance Date	24/02/2022

Assessment Guidelines and Assessment Weightage

Assessment Guidelines

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.

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

Individual assessment agencies will create unique question papers for the theory part for each candidate at each examination/training center (as per the assessment criteria below).

Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/ training center based on these criteria.

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.

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

Minimum Aggregate Passing % at QP Level : 70

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

Assessment Weightage

Compulsory NOS

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
AGR/N4933.Install the pen/ raft/ cage and stock the seeds	30	40	-	30	100	30
AGR/N4934.Carry out post-stocking management	30	40	-	30	100	25
AGR/N4923.Harvest, process and market the aquaculture organisms	30	40	-	30	100	25
AGR/N4955.Follow the hygiene and safety practices in culture operations	30	40	-	30	100	10
AGR/N9922.Engage in collective farming/activity	30	40	-	30	100	5
DGT/VSQ/N0102.Employability Skills (60 Hours)	20	30	-	-	50	5
Total	**170**	**230**	**-**	**150**	**550**	**100**

Optional: 1 Pearl Culture

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
AGR/N4945.Carry out marine water pearl culture	30	40	-	30	100	20
Total	**30**	**40**	**-**	**30**	**100**	**20**

Acronyms

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

Glossary

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

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