



# Model Curriculum

**QP Name: Integrated Farming Practitioner**

**QP Code: AGR/Q1211**

**Version: 1.0**

**NSQF Level: 4**

**Model Curriculum Version: 1.0**

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## Training Parameters

Sector	Agriculture
Sub-Sector	Agriculture Crop Production
Occupation	Farm Management (Mixed crop and animal workers)
Country	India
NSQF Level	4
Aligned to NCO/ISCO/ISIC Code	NCO-2015/6130
Minimum Educational Qualification and Experience	12 <sup>th</sup> or Equivalent OR Previous relevant Qualification of NSQF Level 3.5 with 1.5-year experience in Agriculture and allied sectors OR Previous relevant Qualification of NSQF Level 3 of Crop Grower/Cultivator with 3-year experience in Agriculture and allied sectors
Pre-Requisite License or Training	NA
Minimum Job Entry Age	NA
Last Reviewed On	30/04/2024
Next Review Date	30/04/2027
NSQC Approval Date	30/04/2024
QP Version	1.0
Model Curriculum Creation Date	30/04/2024
Model Curriculum Valid Up to Date	30/04/2027
Model Curriculum Version	1.0
Minimum Duration of the Course	390 Hours
Maximum Duration of the Course	390 Hours

## Program Overview

This section summarizes the end objectives of the program along with its duration.

### Training Outcomes

At the end of the program, the learner should have acquired the listed knowledge and skills to:

- Discuss the role of an Integrated Farming Practitioner
- Evaluate the requirement of an IFS system
- Describe different models of IFS practiced in different agro-climatic conditions in India
- Assess various IFS systems applicable to the local agro-climatic conditions
- Plan for distribution of resources across various enterprises
- Integrate different enterprises as per their interaction and synergies
- Identify biosecurity threats and determine control measures for site
- Apply and monitor biosecurity control measures to site activities
- Determine requirements for an integrated farm establishment program
- Undertake management of different farm enterprises in an IFS
- Assess crops/produce for harvest and schedule the harvest
- Process the crop/produce obtained in an integrated farm
- Arrange for selling the crop/produce
- Establish relationship with customers and organise timely transport of produce to buyers
- Maintain records of different enterprises in an IFS
- Determine systems for collection and storage of production records
- Collect and maintain production records to ensure traceability
- Examine operations for readily implementable changes to improve sustainability
- Implement and review changes introduced in an IFS to ensure sustainability of the farm

### Compulsory Modules

The table lists the modules and their duration corresponding to the Compulsory NOS of the QP.

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
<b>AGR/N1249: Identify compatible farm enterprises for integrated farming system</b> <b>NOS Version- 1.0</b> <b>NSQF Level- 4</b>	15:00	15:00	0:00	0:00	30:00

Module 1: Introduction to the role of an Integrated Farming Practitioner	02:00	0:00	0:00	0:00	02:00
Module 2: Identify compatible farm enterprises for integrated farming system	13:00	15:00	0:00	0:00	28:00
<b>AGR/N1250: Undertake integration of different enterprises to ensure resource use efficiency in an Integrated Farming System</b> NOS Version- 1.0 NSQF Level- 4	30:00	30:00	0:00	0:00	60:00
Module 3: Undertake integration of different enterprises to ensure resource use efficiency in an Integrated Farming System	30:00	30:00	0:00	0:00	60:00
<b>AGR/N1251: Implement biosecurity measures</b> NOS Version- 1.0 NSQF Level- 4	15:00	15:00	0:00	0:00	30:00
Module 4: Implement biosecurity measures	15:00	15:00	0:00	0:00	30:00
<b>AGR/N01252: Manage an integrated farm production</b> NOS Version- 1.0 NSQF Level- 4	30:00	60:00	0:00	0:00	90:00
Module 5: Manage an integrated farm production	30:00	60:00	0:00	0:00	90:00
<b>AGR/N1253 – Harvest and market crops/produce in an Integrated Farming system</b> NOS Version-1.0 NSQF Level-4	30:00	30:00	0:00	0:00	60:00
Module 6: Harvest and market crops/produce in an Integrated Farming system	30:00	30:00	0:00	0:00	60:00

<b>AGR/N1254: Ensure traceability and sustainability in an integrated farming system</b> NOS Version-1.0 NSQF Level-4	10:00	20:00	0:00	0:00	30:00
Module 7: Ensure traceability and sustainability in an integrated farming system	10:00	20:00	0:00	0:00	30:00
<b>DGT/VSQ/N0102: Employability Skills (60 Hours)</b> NOS Version-1.0 NSQF Level-4	60:00	0:00	0:00	0:00	60:00
Module 8: Employability Skills (60 Hours)	60:00	0:00	0:00	0:00	60:00
<b>Module 9: On-the-Job Training (Mandatory)</b>	0:00	0:00	30:00	0:00	30:00
<b>Total Duration</b>	<b>190:00</b>	<b>170:00</b>	<b>30:00</b>	<b>0:00</b>	<b>390:00</b>

## Module Details

### Module 1: Introduction to the role of an Integrated Farming Practitioner

*Bridge Module, Mapped to AGR/N1249 v1.0*

#### Terminal Outcomes:

- Discuss the job role of an Integrated Farming Practitioner

<b>Duration: 02:00</b>	<b>Duration: 0:00</b>
<b>Theory – Key Learning Outcomes</b>	<b>Practical – Key Learning Outcomes</b>
<ul style="list-style-type: none"> <li>• Describe the size and scope of the agriculture and its sub-sectors.</li> <li>• Discuss the role and responsibilities of an Integrated Farming Practitioner</li> <li>• Identify various employment opportunities for an Integrated Farming Practitioner</li> </ul>	
<b>Classroom Aids</b>	
Training Kit - Trainer Guide, Presentations, Whiteboard, Marker, Projector, Laptop, Video Films	
<b>Tools, Equipment and Other Requirements</b>	
NA	



## Module 2: Identify compatible farm enterprises for integrated farming system

*Mapped to AGR/N1249 v1.0*

### Terminal Outcomes:

- Assess the IFS system requirement
- Assess various IFS systems applicable to the local agro-climatic conditions

Duration: 13:00	Duration: 15:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> <li>● Discuss the need for IFS</li> <li>● Differentiate between mixed farming and integrated farming</li> <li>● Explain the principles of Integrated Farming system</li> <li>● Discuss about the plant and animal systems and their integration in a system and approach of IFS</li> <li>● Describe IFS practices</li> <li>● State goals of IFS</li> <li>● Enlist factors determining implementation of Integrated Farming System and explain them</li> <li>● Explain about factors determining Nature and Size of Enterprises in Integrated Farming System</li> <li>● List out advantages of Integrated Farming System</li> <li>● Explain components of integrated farming system</li> <li>● Describe various types of Integrated Farming Systems based on different enterprises and Agro Eco-System</li> <li>● Enlist and describe different Models of Integrated Farming System</li> <li>● Explain about interdependent and interacting farm enterprises for the efficient use of land, labour and other farm resources</li> </ul>	<ul style="list-style-type: none"> <li>● Determine the implementation requirement of IFS</li> <li>● Examine the principles of IFS that are aligned with sustainable agriculture practices</li> <li>● Determine various enterprises that can be a part of a sustainable IFS</li> <li>● Assess the agro-climatic conditions of the region to determine the enterprises that can be integrated into an IFS</li> <li>● Shortlist the appropriate enterprises for IFS based on the local agro-climatic conditions</li> <li>● determine the nature of enterprises considering their interactions and synergies for integration into an IFS</li> </ul>
Classroom Aids	
Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop	
Tools, Equipment and Other Requirements	
NA	



## Module 3: Undertake integration of different enterprises to ensure resource use efficiency in an Integrated Farming System

*Mapped to AGR/N1250 v1.0*

### Terminal Outcomes:

- Plan for distribution of resources across various enterprises
- Integrate different enterprises as per their interaction and synergies

Duration: 30:00	Duration: 30:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> <li>• Discuss IFS design information, including site plan and components of integrated plant and animal systems</li> <li>• Discuss about different interdependent and interacting farm enterprises for the efficient use of land, labour and other farm resources</li> <li>• Explain about plant and animal/bird/fish species and their interactions and interrelationships</li> <li>• Explain about indigenous animals and plants and its significance</li> <li>• Discuss about what grows or thrives locally – plants, animals, birds, fish</li> <li>• Explain about food, fodder and medicinal plant species suitable for chosen animals/birds/fish</li> <li>• Discuss the role of animals in improving soil, recycling nutrients, managing 'weedy' plants and controlling pests and diseases</li> <li>• Discuss about recycling of materials and waste</li> <li>• Explain workplace health and safety, including typical hazards and risks and their controls</li> <li>• Explain about economic considerations to be taken while selecting the enterprises- farm budget, monthly cash flow, opportunity costs, risks and market, equity/income distribution</li> </ul>	<ul style="list-style-type: none"> <li>• Estimate the type and quantity of resources required for the shortlisted enterprises</li> <li>• Identify resources which are easily available on farms/ nearby areas</li> <li>• Plan for utilizing the resources which are underutilized/not utilized</li> <li>• Plan to utilize the resources which are overutilized/not utilized in a sustainable fashion</li> <li>• select different enterprises in a way that maximizes the efficient use of resources and minimizes negative environmental impacts</li> <li>• determine the size of enterprises in IFS considering various factors including the available resources</li> <li>• allocate resources required for the identified enterprises as per their nature and size</li> <li>• Determine combinations of plant and animal species that achieve desired IFS outcomes</li> <li>• Identify and compile a list of plants and animals/birds/fish to suit IFS design parameters</li> <li>• Assess availability of the identified chosen varieties and breeds</li> <li>• Obtain plants, animals, fish, etc for IFS</li> <li>• minimize the waste from various subsystems of the farm by expanding the symbiotic or synergistic systems between livestock, aquaculture, agriculture, and agroindustry, such that</li> </ul>

	<p>the waste of one process becomes the input for other operations</p> <ul style="list-style-type: none"> <li>● enhance ecological diversity by selecting the appropriate cropping methodology, cropping, intercropping, to reduce competition including mixed crop rotation, and for water, nutrition, and space</li> <li>● use the entire available area effectively and ensure interactions between biotic and abiotic components</li> <li>● Diversify the rural farm to improve the farm household's dietary diversity and achieve sustainable livelihoods and minimize risks</li> <li>● Ensure that the integrated system enhances the benefits of all users of the common property resource</li> <li>● Consider various economic factors to arrive at the most judicious and profitable combination of enterprises</li> <li>● Work out the economics of the proposed integrated farming system</li> </ul>
<b>Classroom Aids</b>	
Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop , IFS models	
<b>Tools, Equipment and Other Requirements</b>	
<p>FYM and vermicompost making and other farm waste</p> <p>List of external inputs that were reduced in various locally significant IFS practices and the reduction in cost of investment on each enterprise.</p>	

## Module 4: Implement biosecurity measures

### Mapped to AGR/N1251 v1.0

#### Terminal Outcomes:

- Identify biosecurity threats and determine control measures for site
- Apply biosecurity control measures to site activities
- Monitor biosecurity procedures

Duration: 15:00	Duration: 15:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> <li>● Explain about principles and practices of biosecurity on different sites</li> <li>● Explain about sources of biosecurity information, biosecurity threats, biosecurity plans and their function</li> <li>● Discuss risk assessment principles, standards and regulations for biosecurity</li> <li>● Explain control measures to minimize the threats entering or spreading into, or from, the site</li> <li>● Explain record keeping for traceability, both trace back and trace forward, of inputs and outputs</li> <li>● Explain processes for monitoring effectiveness of control measures</li> <li>● Describe the process for reporting biosecurity concerns and issues.</li> <li>● Explain environmental protection strategies</li> <li>● Discuss about pest and weed management and control strategies</li> <li>● Explain work health and safety legislative requirements</li> <li>● Explain about environmental legislation and codes of practice, relating to crop/livestock/poultry/fish,etc production</li> </ul>	<ul style="list-style-type: none"> <li>● Access and interpret site biosecurity plan and information</li> <li>● Identify biosecurity hazards and threats for the site</li> <li>● Identify control measures to minimise the risk of identified biosecurity threats</li> <li>● Apply control measures identified in site biosecurity plan for all activities according to workplace procedures</li> <li>● Incorporate the site control measures into work routines</li> <li>● Monitor effectiveness of control measures</li> <li>● Monitor work duties of site personnel to ensure biosecurity control measures are applied appropriately</li> <li>● Report issues and concerns for biosecurity to the designated authority</li> <li>● Maintain currency in biosecurity measures applicable to workplace</li> <li>● Record inputs and outputs for traceability of activity according to workplace procedures and legislative requirements</li> </ul>
<b>Classroom Aids</b>	
Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop	
<b>Tools, Equipment and Other Requirements</b>	
Farms where biosecurity measures are adopted so that trainees can visit and witness the measures Traceability Records to be maintained by farmers	

Biosecurity issues in small holder farms

Record of observations during Field scotting

Documentation of observations on pest and disease incidence and the response to various to control measures adopted in the field

## Module 5: Manage an integrated farm production

*Mapped to AGR/N1252 v1.0*

### Terminal Outcomes:

- Determine requirements for an integrated farm establishment program
- Implement crop/livestock/poultry/fish, etc maintenance
- Monitor crop/livestock/poultry/fish, etc through to harvest

Duration: 30:00	Duration: 60:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> <li>● Explain about agricultural crops/ livestock/ poultry/fish, etc. and their cultural requirements</li> <li>● Discuss about land and soil conditions and assessment, including soil nutrient and fertility, interpretation of soil conditions and analysis, crop nutrient requirements, impact of soil biology on soil condition and nutrient availability, effects of soil characteristics on nutrient availability</li> <li>● Explain the significance of soil moisture and impact on crop development</li> <li>● Explain about budgeting and financial analysis techniques such as basic financial analysis, estimating costs, importance of financial records</li> <li>● Explain environmental protection strategies</li> <li>● Explain pest and weed management and control strategies</li> <li>● Discuss work health and safety legislative requirements</li> <li>● Explain environmental legislation and codes of practice, relating to crop/livestock/poultry/fish, etc production.</li> </ul>	<ul style="list-style-type: none"> <li>● Develop a crop/produce establishment program according to farm production plan post selecting plant/livestock/poultry/fish, etc varieties best suited to the local agro-climatic conditions and marketing goals</li> <li>● Determine available resources- soil moisture and water requirement for different integrated systems.</li> <li>● Assess available water reserves and develop a water management plan for various components of farm production</li> <li>● Determine crop/livestock/poultry/fish, etc nutrient requirements to achieve required yield according to environmental procedures</li> <li>● Determine appropriate sustainable practices that can be integrated for efficient farm production and continued improvement through introduction of sustainable practices, viz. intercropping, crop rotation, cover crops, agroforestry, fish farming, beekeeping, etc</li> <li>● Assess technology to ensure most efficient performance of operations</li> <li>● Identify and maintain budgetary requirements</li> <li>● Identify health and safety hazards, assess risk and develop and implement controls procedures</li> <li>● Implement strategies to reduce or eradicate pest/weed infestation</li> <li>● Apply nutrients/diets at rates specified in nutrient program</li> </ul>

	<ul style="list-style-type: none"> <li>● Demonstrate management of water reserves for irrigation, aquaculture and watering livestock/poultry</li> <li>● Monitor water requirement and implement water management plan to maintain crop/livestock/poultry/fish, etc</li> <li>● Determine and implement processes to minimise waste and soil degradation according to environmental management policies</li> <li>● Determine trends in weed, pest and disease incidence, on crop and other components and implement control measures</li> <li>● Monitor soil structure and erosion and implement changes to production practices according to production plan</li> <li>● Check and maintain water and drainage systems</li> <li>● Monitor crop/component maturity and undertake harvesting to meet marketing and production targets</li> </ul>
<b>Classroom Aids</b>	
Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop	
<b>Tools, Equipment and Other Requirements</b>	
<p>Notes from the previous modules on bio security and integration of different enterprises</p> <p>Details on the breeds and varieties of livestock and cropping systems suitable to the geography</p> <p>Feed, fodder, health and hygiene requirements of locally integrated livestock enterprises</p> <p>Models of locally successful IFS units with details of income expenditure so that BC Ratios can be explained to trainees</p> <p>Applicable environmental legislation and codes of practice, relating to crop/livestock/poultry/fish,etc</p> <p>Farm inventory and Accounts management templates</p>	

## Module 6: Harvest and market crops/produce in an Integrated Farming system

*Mapped to AGR/N1253 v1.0*

### Terminal Outcomes:

- Assess crops/produce obtained from different farm enterprises in an IFS for harvest
- Prepare equipment for harvesting
- Harvest and process the crop/produce
- Sell the produce
- Develop and maintain relationship with customers
- Organise transport of produce to the buyers
- Maintain records

Duration: 30:00	Duration: 30:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> <li>● Explain IFS principles related to harvesting</li> <li>● Discuss principles of sustainable agricultural, aquaculture and animal husbandry practices</li> <li>● Explain about components commonly used in IFS</li> <li>● Discuss indicators of crop/produce maturity for harvesting</li> <li>● Explain the impact of environmental conditions on crop/produce harvesting, including weather impact on crop/produce and safe access to harvest site</li> <li>● Discuss harvesting techniques of various components in the selected IFS system</li> <li>● Discuss about equipment and machinery used in harvesting</li> <li>● Discuss sorting and grading methods</li> <li>● Explain about storage, transportation including containers and their maintenance</li> <li>● Discuss methods of waste disposal with minimal impact on the environment</li> <li>● Explain safe work practices when harvesting, grading and storing</li> </ul>	<ul style="list-style-type: none"> <li>● Identify crops/produce to be harvested according to the harvesting plan</li> <li>● Determine crop/produce maturity</li> <li>● Schedule crop/produce harvesting as per the maturity and the market needs</li> <li>● ensure conditions are conducive for harvesting operations</li> <li>● Select tools, equipment and machinery for harvesting operations</li> <li>● Carry out pre-operational and safety checks on tools, equipment and machinery according to manufacturer specifications</li> <li>● Select, use and maintain personal protective equipment (PPE)</li> <li>● Harvest crop/produce safely according to workplace safety procedures</li> <li>● Harvest and handle crop/produce to prevent damage and maintain quality</li> <li>● Sort and grade crop/produce into containers according to harvesting plan</li> <li>● Clean and maintain harvesting tools, equipment and machinery</li> <li>● Employ safe manual handling techniques throughout harvesting operations</li> </ul>



<p>crops/produce</p> <ul style="list-style-type: none"> <li>• Discuss applicable legislation, regulations, standards, codes of practice and established safe practices relevant to the full range of processes in selling produce</li> <li>• Explain organisation policies and procedures related to supply chain management, purchasing, and contracting</li> <li>• Explain ways to build trust and collaboration</li> <li>• Explain about ethical behaviour and established communication channels and protocols</li> <li>• Explain procedures for recording and reporting workplace information and completing relevant documentation</li> </ul>	<ul style="list-style-type: none"> <li>• Move and stack containers to minimise damage to crop/produce</li> <li>• Maintain temperature of crop/produce according to harvesting plan</li> <li>• Transport crop/produce from field to processing or storage area</li> <li>• Maintain containers in good working order</li> <li>• Identify various types of markets including e-marketing platforms</li> <li>• Identify and document potential customer base</li> <li>• Evaluate and document selling options</li> <li>• Sell the produce to the buyers at a profitable price</li> <li>• Identify and comply with market requirements</li> <li>• Investigate characteristics of customers</li> <li>• Develop connections with potential customers</li> <li>• Identify transport requirements and engage carrier for produce distribution</li> <li>• Schedule transport and delivery of product with the buyer</li> <li>• Identify and comply with buyer's delivery requirements</li> <li>• evaluate actual yield against production targets and determine possible reasons for variance</li> <li>• complete the pre-sale and post-sale documentation</li> <li>• record transactions according to traceability and workplace procedures</li> <li>• Document customer feedback and identify and record potential improvements</li> </ul>
<b>Classroom Aids</b>	
Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop	
<b>Tools, Equipment and Other Requirements</b>	
Quality standards of various products arising from the IFS that determine their price and marketability	
List of local markets and transport infrastructure	

List of customer requirements/consumer preferences and demand for local produce

List of machinery and implements required for harvesting the components of IFS

Storage infrastructure available locally

Post harvest processing technologies for the locally suitable IFS enterprises

A primary processing/storage infrastructure/marketing facility to plan a visit

## Module 7: Ensure traceability and sustainability in an integrated farming system

*Mapped to AGR/N1254 v1.0*

### Terminal Outcomes:

- Determine systems for collection and storage of production records
- Collect and maintain production records to ensure traceability
- Examine operations for readily implementable changes to improve sustainability
- Implement and review changes introduced in the IFS

Duration: 10:00	Duration: 20:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> <li>• Explain the importance of record-keeping</li> <li>• Explain the procedures for production records</li> <li>• Discuss methods for collection and storage of records</li> <li>• Explain the recording processes to meet quality assurance requirements</li> <li>• Explain about the technology used to record and analyse production information</li> <li>• Discuss latest trends and technologies in sustainable farming practices and biosecurity measures</li> <li>• Explain economic, environmental and social sustainability issues within the industry</li> <li>• Discuss current and emerging approaches to improving sustainability within the industry</li> <li>• Explain the sustainability issues relevant to the work area and/or its value chain, including the following:</li> <li>• Explain about extended product lifecycle and retaining and/or managing residual resources</li> <li>• Discuss about safety and/or environmental impact of materials</li> <li>• Explain about efficient use of materials, resources and/or energy</li> </ul>	<ul style="list-style-type: none"> <li>• Determine physical records and inventories required for proper management of the farm</li> <li>• Identify methods for collecting and storing information that allow effective access and analysis</li> <li>• Identify the most appropriate information collection and storage methods according to farm requirements</li> <li>• Identify the most appropriate system for record keeping</li> <li>• Collect records as per the farm requirement</li> <li>• Collate and sort records for analysis and decision-making purposes</li> <li>• Save records in a range of formats for future retrieval</li> <li>• Review current practices and identify potential areas across the value chain for improvement</li> <li>• Examine processes and/or procedures related to work area or value chain to identify sustainability issues</li> <li>• Short-list sustainability issues which may be easily eliminated or improved</li> <li>• Estimate positive and negative sustainability impacts arising from readily implementable changes to address short-listed sustainability issues</li> </ul>

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| <ul style="list-style-type: none"> <li>● Explain about reduction of pollution and/or greenhouse gas emissions</li> <li>● Explain about waste management</li> <li>● Discuss current and emerging industry practices relevant to sustainability issues</li> <li>● Explain about interactions between sustainability issues and operational processes</li> <li>● Discuss measures and indicators relevant to sustainability issues in the work area and/or its value chain</li> <li>● Discuss the newly introduced changes and related issues with the co-workers and other stakeholders for finding solutions</li> <li>● Discuss measures and indicators of success with the experts</li> <li>● Explain about new biosecurity threats, technologies, and advancements in agricultural practices</li> </ul> | <ul style="list-style-type: none"> <li>● Estimate positive and negative business impacts of readily implementable changes to address short-listed sustainability issues</li> <li>● Rank short-listed sustainability issues by estimated sustainability and business benefits and costs</li> <li>● Seek feedback from stakeholders to improve the management of the environment and resource efficiency</li> <li>● Develop implementation plan to deliver desired outcomes</li> <li>● Use appropriate techniques and tools to achieve efficiencies and sustainability targets</li> <li>● Negotiate required resources with stakeholders</li> <li>● Bring Innovations in introducing crops, livestock species, and other systems</li> <li>● Apply strategies to minimise wastage</li> <li>● Apply strategies to minimise environmental risks and impacts</li> <li>● Acquire and deploy resources required to achieve agreed outcome</li> <li>● Monitor implementation and make required adjustments</li> <li>● Measure immediate impact of change</li> <li>● Identify any non-compliances with planned improvements</li> <li>● analyse further actions to achieve desired outcomes, as needed</li> <li>● Record progress against resource efficiency and environmental targets</li> <li>● seek and implement improvements in integration efficiency and sustainability</li> </ul> |
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#### Classroom Aids

Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop

#### Tools, Equipment and Other Requirements

Templates of inventory records

Documentation model of pest and disease management activities being undertaken

Table containing List of recommended sustainable practices, adoption feasibility, scope for continuous improvement and the personal and environmental benefits thereof

Information on local/regional environmental sustainability issues, measures for building resilient systems and targets

A local farm facility where sustainability issues are addressed, so as to arrange a field visit

Traceability Software

## Module 8: Employability Skills (60 hours)

Mapped to NOS DGT/VSQ/N0102 v1.0

**Duration: 60:00**

### Key Learning Outcomes

#### Introduction to Employability Skills Duration: 1.5 Hours

After completing this programme, participants will be able to:

1. Discuss the Employability Skills required for jobs in various industries
2. List different learning and employability related GOI and private portals and their usage

#### Constitutional values - Citizenship Duration: 1.5 Hours

3. Explain the constitutional values, including civic rights and duties, citizenship, responsibility towards society and personal values and ethics such as honesty, integrity, caring and respecting others that are required to become a responsible citizen
4. Show how to practice different environmentally sustainable practices.

#### Becoming a Professional in the 21st Century Duration: 2.5 Hours

5. Discuss importance of relevant 21st century skills.
6. Exhibit 21st century skills like Self-Awareness, Behavior Skills, time management, critical and adaptive thinking, problem-solving, creative thinking, social and cultural awareness, emotional awareness, learning to learn etc. in personal or professional life.
7. Describe the benefits of continuous learning.

#### Basic English Skills Duration: 10 Hours

8. Show how to use basic English sentences for everyday conversation in different contexts, in person and over the telephone
9. Read and interpret text written in basic English
10. Write a short note/paragraph / letter/e -mail using basic English

#### Career Development & Goal Setting Duration: 2 Hours

11. Create a career development plan with well-defined short- and long-term goals

#### Communication Skills Duration: 5 Hours

12. Demonstrate how to communicate effectively using verbal and nonverbal communication etiquette.
13. Explain the importance of active listening for effective communication
14. Discuss the significance of working collaboratively with others in a team

#### Diversity & Inclusion Duration: 2.5 Hours

15. Demonstrate how to behave, communicate, and conduct oneself appropriately with all genders and PwD
16. Discuss the significance of escalating sexual harassment issues as per POSH act.

#### Financial and Legal Literacy Duration: 5 Hours

17. Outline the importance of selecting the right financial institution, product, and service
18. Demonstrate how to carry out offline and online financial transactions, safely and securely
19. List the common components of salary and compute income, expenditure, taxes, investments etc.
20. Discuss the legal rights, laws, and aids

#### **Essential Digital Skills Duration: 10 Hours**

21. Describe the role of digital technology in today's life
22. Demonstrate how to operate digital devices and use the associated applications and features, safely and securely
23. Discuss the significance of displaying responsible online behavior while browsing, using various social media platforms, e-mails, etc., safely and securely
24. Create sample word documents, excel sheets and presentations using basic features
25. utilize virtual collaboration tools to work effectively

#### **Entrepreneurship Duration: 7 Hours**

26. Explain the types of entrepreneurship and enterprises
27. Discuss how to identify opportunities for potential business, sources of funding and associated financial and legal risks with its mitigation plan
28. Describe the 4Ps of Marketing-Product, Price, Place and Promotion and apply them as per requirement
29. Create a sample business plan, for the selected business opportunity

#### **Customer Service Duration: 5 Hours**

30. Describe the significance of analysing different types and needs of customers
31. Explain the significance of identifying customer needs and responding to them in a professional manner.
32. Discuss the significance of maintaining hygiene and dressing appropriately

#### **Getting Ready for apprenticeship & Jobs Duration: 8 Hours**

33. Create a professional Curriculum Vitae (CV)
34. Use various offline and online job search sources such as employment exchanges, recruitment agencies, and job portals respectively
35. Discuss the significance of maintaining hygiene and confidence during an interview
36. Perform a mock interview
37. List the steps for searching and registering for apprenticeship opportunities



## Module 9: On-the-Job Training (OJT)

*Mapped to AGR/Q1210 v1.0*

**Duration: 30:00**

### Key Learning Outcomes

1. Shortlist the appropriate enterprises for IFS based on the local agro-climatic conditions
2. Estimate the type and quantity of resources required for the shortlisted enterprises
3. Plan for the optimum resource utilization
4. Identify and compile a list of plants and animals/birds/fish to suit IFS design parameters
5. select the appropriate cropping methodology, cropping, intercropping, to reduce competition including mixed crop rotation, and for water, nutrition, and space
6. Apply control measures identified in site biosecurity plan for all activities according to workplace procedures
7. Determine crop/livestock/poultry/fish, etc nutrient requirements to achieve required yield according to environmental procedures
8. Develop a crop/produce establishment program according to farm production plan post selecting plant/livestock/poultry/fish, etc varieties best suited to the local agro-climatic conditions and marketing goals
9. Determine available resources- soil moisture and water requirement for different integrated systems.
10. Determine trends in weed, pest and disease incidence, on crop and other components and implement control measures
11. Monitor soil structure and erosion and implement changes to production practices according to production plan
12. Check and maintain water and drainage systems
13. Monitor crop/component maturity and undertake harvesting to meet marketing and production targets
14. Harvest crop/produce safely according to workplace safety procedures
15. Sort and grade crop/produce into containers according to harvesting plan
16. record transactions according to traceability and workplace procedures
17. Identify methods for collecting and storing information that allow effective access and analysis

## Annexure

### Trainer Requirements

Trainer Prerequisites						
Minimum Educational Qualification	Specialization	Relevant Industry Experience		Training Experience		Remarks
		Years	Specialization	Years	Specialization	
Diploma	Agriculture/crop production/seed production/Dairy Management/Animal Husbandry / Animal Husbandry and Veterinary Science / Animal sciences/ Animal production and management	5	Specialisation in farming systems and sustainable farm management	3		Knowledge in integrated farming systems, sustainable livestock and agriculture management practices is beneficial.
Graduate	Agriculture / Animal sciences/	2	Specialisation in farming systems and sustainable farm management	1		(Agricultural Sciences/Animal husbandry) with minimum 3 years Teaching experience (will be considered industry experience)
M.Sc.	MSc in agriculture and allied sciences	1	Specialisation in farming systems and sustainable farm management	1		
Trainer Certification						
Domain Certification				Platform Certification		
Certified for Job Role “ <b>Integrated Farming Practitioner</b> ”, mapped to QP: “AGR/Q1210, v1.0”, Minimum accepted score is 80%				Recommended that the Trainer is certified for the Job Role: “Trainer (Vet and Skills)”, mapped to the Qualification Pack: “MEP/Q2601, v2.0”. The minimum accepted score as per MEPSC guidelines is 80%.		

## Assessor Requirements

Assessor Prerequisites						
Minimum Educational Qualification	Specialization	Relevant Industry Experience		Assessment Experience		Remarks
		Years	Specialization	Years	Specialization	
Graduation	B.Sc. Agriculture/Horticulture and Animal Husbandry and equivalent to Agriculture / Animal sciences	3	Specialisation in farming systems and sustainable farm management			
Post-graduation	MSc in agriculture and allied sciences/Bsc Agriculture with MSc in any discipline	1				
PhD	BSc In agriculture with any specialization in PhD	1				

Assessor Certification	
Domain Certification	Platform Certification
Certified for Job Role “ <b>Integrated Farming Practitioner</b> ”, mapped to QP: “AGR/Q1210, v1.0”, Minimum accepted score is 80%	Certified for the Job Role: “Assessor (Vet and Skills)”, mapped to the Qualification Pack: “MEP/Q2701, v2.0”, with a minimum score of 80%.

## Assessment Strategy

### Assessment System Overview

In Agriculture Sector it is of ultimate importance that individuals dealing with crop production or livestock have the requisite knowledge and competencies to undertake the task. Based on the Assessment Criteria, SSC in association with empaneled AAs, define the test structure for the given job roles to cover the required skills and competencies. Assessment strategy consists of the following:

1. Multiple Choice Questions: To assess basic knowledge (Objective/Subjective)
2. Viva: To assess awareness on processes (Oral and/or written questioning)
3. Practical: To evaluate skills and identify competencies. (Observation)

Assessments for knowledge and awareness on processes may be conducted through 'real-time' internet-based evaluation or by conducting the same 'offline' through TABs. Skills and competencies are to be assessed by conducting 'practical' on the ground through qualified and ToA certified assessors.

An individual must have adequate knowledge and skills to perform a specific task, weightage for different aspects of the assessment is given as follows:

- Multiple Choice Questions: 20%-30%, depending on the specific QP
- Viva: 20%
- Practical: 50% - 60% (Involves demonstrations of applications and presentations of procedures/tasks and other components)
- Assessment will be carried out by certified assessors through empaneled assessment partners. Based on the results of the assessment; ASCI will certify the learners/candidates

### Testing Environment

Assessments are conducted on laptops, Mobiles and android tablets via both offline and online mode depending on the internet connectivity at the assessment location.

In remote locations/villages, assessments get delivered through tablets without the requirement of the Internet.

- Multilingual assessments (ASCI is conducting the assessments in 13 + languages pan India)
- Rubric driven assessments in Practical/Viva sections and responses recorded accordingly
- All responses, data, records and feedback are stored digitally on the cloud
- Advanced auto-proctoring features – photographs, time-stamp, geographic-tagging, toggle- screen/copy-paste disabled, etc.
- Android-based monitoring system
- End to end process from allocation of a batch to final result upload, there is no manual intervention

- Assessment will normally be fixed for a day after the end date of the training / within 7 days of completion of training.
- Assessment will be conducted at the training venue
- The room where assessment is conducted will be set with proper seating arrangements with enough space to curb copying or other unethical activities
- Question bank of theory and practice will be prepared by ASCI /assessment agency and approved ASCI. Only from approved Question Bank assessment agency will prepare the question paper. Theory testing will include multiple-choice questions, pictorial questions, etc. which will test the trainee on his theoretical knowledge of the subject.
- The theory, practical and viva assessments will be carried out on the same day. In case of a greater number of candidates, the number of assessors and venue facilitation be increased and facilitated

Assessment			
Assessment Type	Formative or Summative	Strategies	Examples
Theory	Summative	MCQ/Written exam	Knowledge of facts related to the job role and functions. Understanding of principles and concepts related to the job role and functions
Practical	Summative	Structured tasks/Demonstration	Practical application /Demonstration /Application tasks
Viva	Summative	Questioning and Probing	Mock interviews on the usability of job roles/advantages /importance of adherence to procedures. Viva will be used to gauge trainee's confidence and correct knowledge in handling the job situation

The question paper is pre-loaded in the computer /Tablet and it will be in the language as requested by the training partner.

## Assessment Quality Assurance framework

### Assessment Framework and Design:

Based on the Assessment Criteria, SSC in association with AAs will define the test structure for the given roles to cover the required skills and competencies. ASCI offer a bouquet of tools for multi-dimensional evaluation of candidates covering language, cognitive skills, behavioural traits and domain knowledge.

**Theoretical Knowledge** - Item constructs and types are determined by a theoretical understanding of the testing objectives and published research about the item types and constructs that have shown statistical validity towards measuring the construct. Test item types that have been reported to be coachable are not included. Based on these, items are developed by domain experts. They are provided with comprehensive guidelines of the testing objectives of each question and other quality measures.

**Type** – Questions based on Knowledge Required, Case-based practical scenario questions and automated simulation-based questions.

**Practical Skills** - The practical assessments are developed taking into consideration two aspects: what practical tasks is the candidate expected to perform on the job and what aspects of the job cannot be judged through theoretical assessments. The candidates shall be asked to perform either an entire task or a set of subtasks depending on the nature of the job role

**Type** – Standardized rubrics for evaluation against a set of tasks in a demo/practical task

**Viva Voce** - Those practical tasks which cannot be performed due to time or resource constraints are evaluated through the viva mode. Practical tasks are backed up with Viva for thorough assessment and complete evaluation

**Type** – Procedural questions, dos and don'ts, subjective questions to check the understanding of practical tasks.

The assessor has to go through an orientation program organized by the Assessment Agency. The training would give an overview to the assessors on the overall framework of QP evaluation. The assessor shall be given a NOS and PC level overview of each QP as applicable. The overall structure of assessment and objectivity of the marking scheme will be explained to them. The giving of marks will be driven by an objective framework that will maintain the standardization of the marking scheme.

### Type of Evidence and Evidence Gathering Protocol:

During the assessment the evidence collected by AAs and ASCI are:

- GeoTagging to track ongoing assessment
- AA's coordinator emails the list of documents and evidence (photos and videos) to the assessor one day before the assessment. The list is mentioned below:
  - Signed Attendance sheet
  - Assessor feedback sheet

- Candidate feedback sheet
  - Assessment checklist for assessor
  - Candidate Aadhar/ID card verification
  - Pictures of the classroom, labs to check the availability of adequate equipment's and tools to conduct the training and assessment
  - Pictures and videos of Assessment, training feedback and infrastructure.
- Apart from the Assessor, a Technical assistant is popularly known as Proctor also ensures the proper documentation and they verify each other's tasks.
- To validate their work on the day of the assessment, regular calls and video calls are done.
- On-boarding and training of the assessor and proctor are done on a timely basis to ensure that the quality of the assessment should be maintained.
- Training covers the understanding of QP, NSQF level, NOS and assessment structure

### ***Methods of Validation***

- Morning Check (Pre-Assessment): Backend team of AA calls and confirms assessor/technical SPOC event status. Assessor/Technical SPOC are instructed to reach the centre on time by 9:30 AM / as decided with TC and delay should be highlighted to the Training Partner in advance.
- Video Calls: Random video calls are made to the technical SPOC/assessor so as to keep a check on assessment quality and ensure assessment is carried out in a fair and transparent manner
- Aadhar verification of candidates
- Evening Check (Post Assessment): Calls are made to the ground team to ensure the event is over by what time and the documentation is done properly or not.
- TP Calling: To keep a check on malpractices, an independent audit team calls the TP on a recorded line to take confirmation if there was any malpractice activity observed in the assessment on part of the AA/SSC team. If calls are not connected, an email is sent to TP SPOC for taking their confirmation
- Video and Picture Evidence: Backend team collects video and pictures for assessment on a real-time basis and highlights any issue such as students sitting idle/ trainer helping the candidates during the assessment.
- Surprise Visit: Time to time SSC/AA Audit team can visit the assessment location and conduct a surprise audit for the assessment carried out by the ground team.
- Geo Tagging: On the day of the assessment, each technical SPOC is required to login into our internal app which is Geotagged. Any deviation with the centre address needs to be highlighted to the assessment team on a real-time basis.

### ***Method for assessment documentation, archiving, and Access:***

- ASCI have a fully automated result generation process in association with multiple AAs
- Theory, Practical and Viva marks form the basis of the results and encrypted files generated to avoid data manipulation. All responses were captured and stored in the



System with Time-Stamped at the end of AAs and SSC. NOS-wise and PC-wise scores can be generated.

- Maker Checker concept: One person prepares the results and another audit result which is internally approved by AA at first and then gets vetted at the end of SSC
- All softcopies of documents are received from the on-ground tech team over email. The same is downloaded by our internal backend team and saved in Repository. The repository consists of scheme-wise folders. These scheme-wise folders have two job role-specific folders. These specific folders have Year wise and Month wise folders where all documents are saved in Batch specific folders. All Hard copies are filed and stored in the storeroom.

#### ***Result Review & Recheck Mechanism –***

- Time-stamped assessment logs
- Answer/Endorsement sheets for each candidate
- Attendance Sheet
- Feedback Forms: Assessor feedback form, Candidate feedback form, TP feedback form
- The results for each of the candidates shall be stored and available for review (retained for 5 years/ till the conclusion of the project or scheme)

## References

### Glossary

Term	Description
<b>Declarative Knowledge</b>	Declarative knowledge refers to facts, concepts and principles that need to be known and/or understood in order to accomplish a task or to solve a problem.
<b>Key Learning Outcome</b>	The key learning outcome is the statement of what a learner needs to know, understand and be able to do in order to achieve the terminal outcomes. A set of key learning outcomes will make up the training outcomes. Training outcome is specified in terms of knowledge, understanding (theory) and skills (practical application).
<b>OJT (M)</b>	On-the-job training (Mandatory); trainees are mandated to complete specified hours of training on-site
<b>OJT (R)</b>	On-the-job training (Recommended); trainees are recommended the specified hours of training on-site
<b>Procedural Knowledge</b>	Procedural knowledge addresses how to do something, or how to perform a task. It is the ability to work or produce a tangible work output by applying cognitive, affective or psychomotor skills.
<b>Training Outcome</b>	Training outcome is a statement of what a learner will know, understand and be able to do upon the completion of the training.
<b>Terminal Outcome</b>	The terminal outcome is a statement of what a learner will know, understand and be able to do upon the completion of a module. A set of terminal outcomes help to achieve the training outcome.

### Acronyms and Abbreviations

Term	Description
<b>AGR</b>	Agriculture
<b>NOS</b>	National Occupational Standard(s)
<b>NSQF</b>	National Skills Qualifications Framework
<b>QP</b>	Qualifications Pack
<b>TVET</b>	Technical and Vocational Education and Training
<b>PPE</b>	Personal Protective Equipment
<b>OJT</b>	On-the-job Training
<b>PwD</b>	People with Disability