



NATIONAL BOARD FOR TECHNICAL EDUCATION

PLOT B BIDA ROAD, P.M.B. 2239, KADUNA, NIGERIA

IN COLLABORATION WITH



NATIONAL OCCUPATIONAL STANDARDS (NOS)

CLIMATE SMART AGRICULTURE LEVELS 1 - 4

JUNE, 2026



**RENEWED HOPE
IN AGRICULTURE**

PREFACE

The development of the National Occupational Standards (NOS) for the agricultural sector marks another important milestone in Nigeria's commitment to strengthening Technical and Vocational Education and Training (TVET), promoting skills development, and improving workforce productivity. These standards have been developed to provide nationally recognized benchmarks for the knowledge, skills, and competencies required for effective performance in various agricultural occupations.

The National Occupational Standards were developed through a collaborative process involving industry experts, employers, professional bodies, regulatory agencies, training institutions, development partners, and other key stakeholders. Their contributions ensured that the standards reflect current industry practices, emerging technologies, and the competency requirements of the modern agricultural sector.

I wish to express my sincere appreciation to the Honourable Minister of Education for providing the policy direction that made this initiative possible. I also acknowledge the support of the Honourable Minister of Agriculture and Food Security and the Honourable Minister of Livestock Development for their commitment to advancing agricultural skills development in Nigeria.

I extend my profound gratitude to the Tertiary Education Trust Fund (TETFund) for its intervention and support, which facilitated the development of these National Occupational Standards. I also appreciate the invaluable contributions of the Sector Skills Council for Agriculture (SSC4A), members of the Implementation Committee, resource persons, industry practitioners, employers, professional associations, regulatory agencies, the French Embassy in Nigeria, development partners, and all stakeholders who contributed their expertise throughout the development process.

These National Occupational Standards will serve as an important reference for competency-based training, assessment, certification, apprenticeship, Recognition of Prior Learning (RPL), and workforce development within the agricultural sector. It is my expectation that all implementing institutions and industry partners will effectively utilize these standards to enhance the quality, relevance, and competitiveness of agricultural skills development in Nigeria.

I commend all stakeholders for their dedication and commitment to this important national assignment and look forward to the successful implementation of these National Occupational Standards for the benefit of the agricultural sector and the nation as a whole.

Professor Idris M. Bugaje, FNSE
Chairman, Implementation Committee

EXECUTIVE SECRETARY

National Board for Technical Education (NBTE), Kaduna

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NATIONAL SKILLS QUALIFICATION

LEVEL 1

CLIMATE SMART AGRICULTURE

JULY, 2026

GENERAL INFORMATION

OVERVIEW

This qualification is designed for individuals who are interested in pursuing a career in **Climate Smart Agriculture** for the award of National Skills Qualifications (NSQ)/National Occupational Standards (NOS). It is aimed at producing competencies necessary to support in **Climate Smart Agriculture** at NSQ Level 1.

This qualification is subject to review as and when the need arises.

QUALIFICATION PURPOSE

The qualification is designed to produce competent entry level Climate Smart Agriculture assistant with knowledge, skills, and attitude required to perform routine Climate Smart Agriculture activities under supervision using basic precision agriculture principles and tools

QUALIFICATION REQUIREMENTS

All Candidates must be:

- At least sixteen (16) years of age
- Medically fit
- Mentally fit (Mental alertness)
- A Nigerian citizen
- Other nationals should present International passport, residence permit or Parent work permit.
- Vetted
- Interest in agricultural production and related support operations;
- Ability to carry out simple practical tasks under supervision.

QUALIFICATION OBJECTIVES

The learner should be able to:

1. Understand the basic meaning, purpose and pillars of climate-smart agriculture.
2. Observe and report weather, soil, crop and livestock conditions on the farm.
3. Prepare land using basic conservation practices.
4. Plant and maintain climate-resilient crops using conventional farm practices.
5. Apply compost, mulch and organic manure safely.
6. Support basic water conservation, farm hygiene and waste control.
7. Keep simple records of farm activities and report observations to the supervisor.

Mandatory Units

S/N	Reference Number	Unit Title	Credit Value	Guided Learning Hours	Practice Time	Remarks
1.	AGR/CSA/001/L1	Work Safely in a Climate-Smart Agricultural Environment	2	20	60	Mandatory
2.	AGR/CSA/002/L1	Communicate Effectively in a Climate-Smart Agricultural Environment	2	20	60	Mandatory
3.	AGR/CSA/003/L1	Work As Part of a Team in Climate-Smart Agricultural Operations	2	20	60	Mandatory
4.	AGR/CSA/004/L1	Basic Principles of Climate-Smart Agriculture	3	30	90	Mandatory
5.	AGR/CSA/005/L1	Weather, Soil and Farm Conditions	2	20	60	Mandatory
6.	AGR/CSA/006/L1	Basic Conservation Techniques	3	30	90	Mandatory
7.	AGR/CSA/007/L1	Basic Climate-Resilient Crops	3	30	90	Mandatory
8.	AGR/CSA/008/L1	Simple Water Conservation Techniques on the Farm	3	30	90	Mandatory
9.	AGR/CSA/009/L1	Simple Farm Records	2	20	60	Mandatory
TOTAL			22	220	660	

QUALIFICATION STRUCTURE

This qualification comprises a total of nine (9) Mandatory Units, with a credit value of 22 and 220 Guided Learning Hours (GLH) across the full qualification. One (1) credit is equivalent to ten (10) GLH. Guided Learning Hours are the time a learner spends in the classroom, workshop and laboratory of the Skills Training Centre (STC), being taught, instructed, supervised or assessed by a qualified trainer, facilitator or assessor.

In addition to the GLH, the qualification requires at least twice or thrice the GLH as practice time. Practice time is the time a learner is expected to spend applying the skills of each unit in a real workplace environment, carrying out the same tasks repeatedly until performance becomes consistent, accurate and habitual to the standard the qualification demands. It is undertaken under the guidance of a workplace supervisor, recorded in the learner's logbook and duly endorsed. Practice time is the principal setting where core assessment is conducted. It is through repeated performance in the workplace that a learner's achievement of the Learning Outcomes and Performance Criteria is judged and evidenced. Practice time is an additional requirement to GLH and does not replace them.

To achieve this qualification, the learner must complete all mandatory units, undertake the prescribed practice time, and accumulate the minimum credit value approved by NBTE. Credit is awarded only when a learner has been assessed as competent against all Learning Outcomes and Performance Criteria of a unit.

GENERAL GUIDE

Unit title	Provides a clear explanation of the content of the unit.
Unit number	The unique number assigned to the unit.
Unit reference	The unique reference number given to each unit at qualification approval by NBTE.
Unit level	Denotes the level of the unit within the National Skills Qualification Framework (NSQF).
Unit credit value	The value that has been given to the unit based on the expected learning time for an average learner. 1 credit = 10 learning hours.
Unit aim	Provides a brief outline of the unit content.
Learning outcome	A statement of what a learner will know, understand or be able to do as a result of a process of learning.
Assessment criteria	A description of the requirements a learner must achieve to demonstrate that a learning outcome has been met.
Unit assessment guidance	Any additional guidance provided to support the assessment of the unit.

Unit guided learning hours	The average number of hours of supervised or directed study time or assessment required to achieve a qualification or unit of a qualification.
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UNIT 001: WORK SAFELY IN A CLIMATE-SMART AGRICULTURAL ENVIRONMENT

Unit Reference Number: AGR/CSA/001/L1

NSQ Level: 1

Credit Value: 2

Guided Learning Hours: 20

Practice Time: 60 Hours

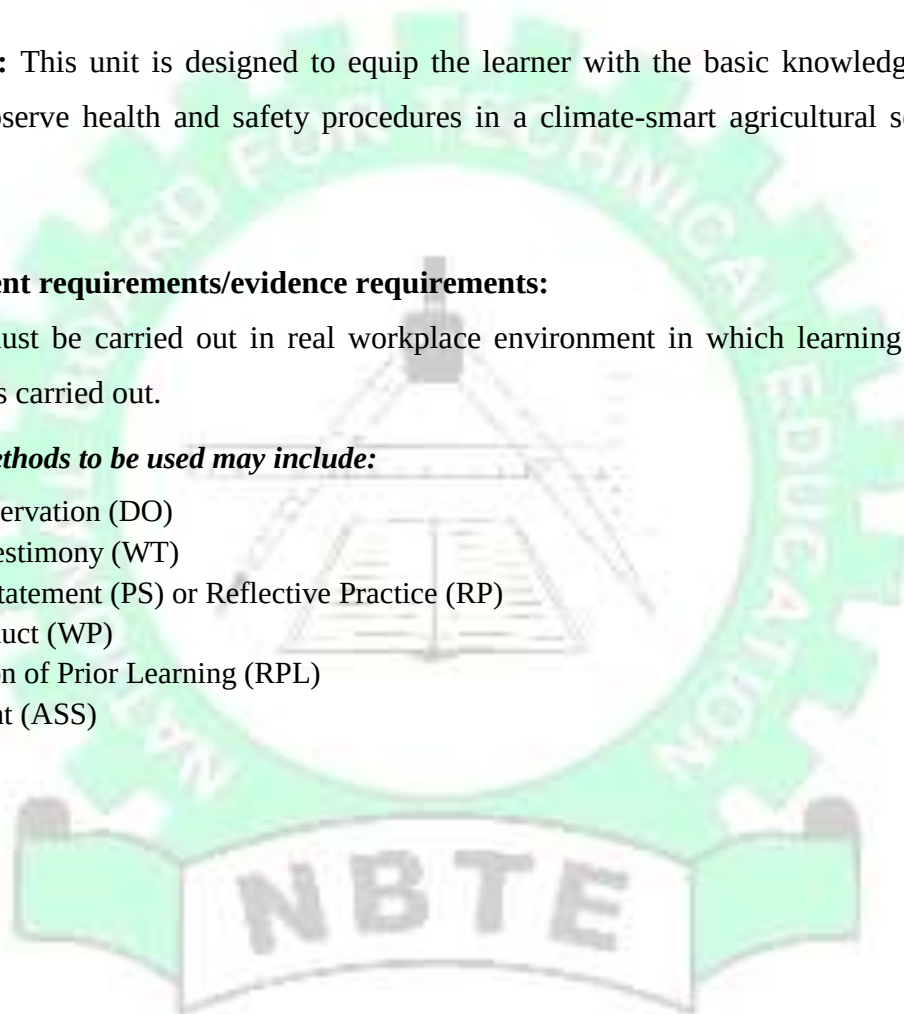
Unit Purpose: This unit is designed to equip the learner with the basic knowledge and skills required to observe health and safety procedures in a climate-smart agricultural setting under supervision.

Unit assessment requirements/evidence requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used may include:

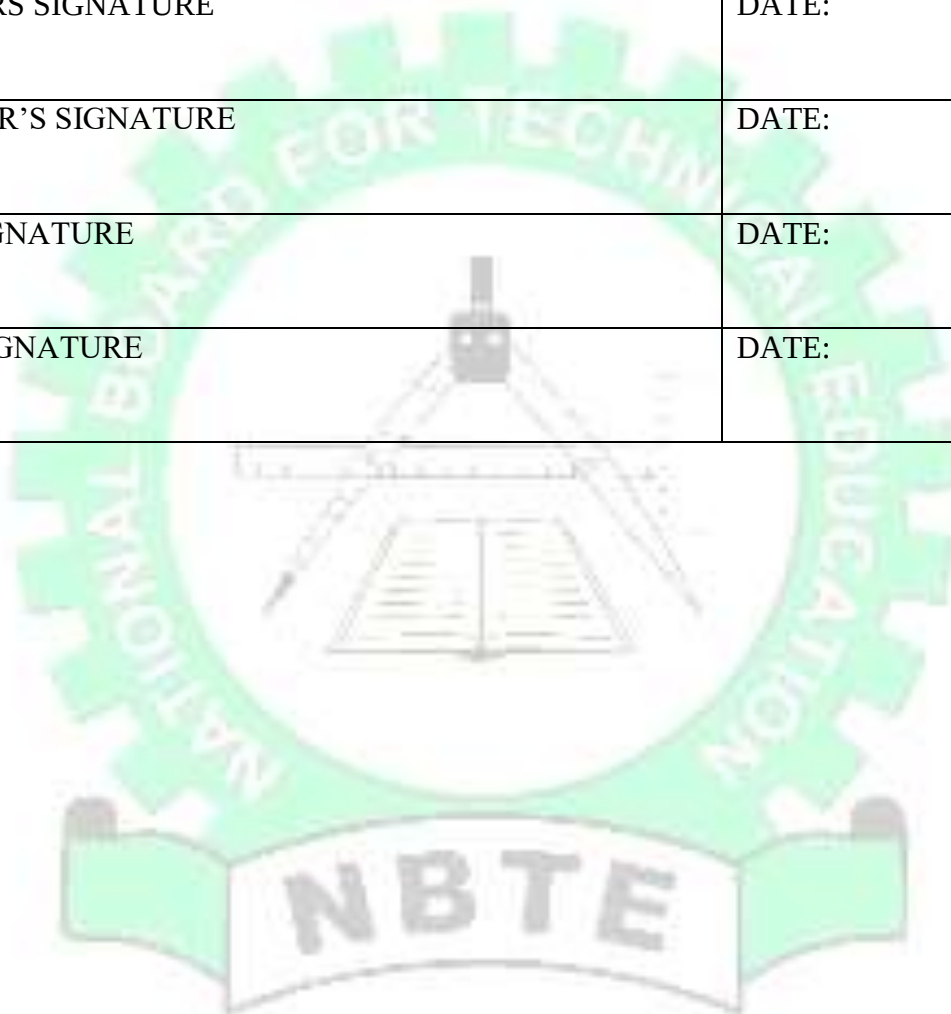
1. Direct Observation (DO)
2. Witness Testimony (WT)
3. Personal Statement (PS) or Reflective Practice (RP)
4. Work Product (WP)
5. Recognition of Prior Learning (RPL)
6. Assignment (ASS)



Unit 001: Work Safely in a Climate-Smart Agricultural Environment

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 1: Identify health and safety requirements in a CSA farm environment	1.1	State the importance of health and safety in climate-smart agricultural operations.									
	1.2	Identify common hazards on a CSA farm (heat, chemicals, sharp tools, unstable terrain, floods etc.).									
	1.3	Explain safety signs and symbols used on the farm.									
	1.4	Report unsafe conditions or risks to the supervisor immediately.									
LO 2: Apply personal protective equipment (PPE) in CSA farm operations	2.1	Identify types of PPE required for different CSA farm tasks.									
	2.2	Select appropriate PPE for a given task.									
	2.3	Demonstrate correct use of PPE.									
	2.4	Handle PPE properly before and after use.									
LO 3: Follow safe work practices during farm tasks	3.1	Carry out assigned tasks in line with supervisor's safety instructions.									
	3.2	Use farm tools and equipment safely and correctly.									
	3.3	Apply safe manual handling and lifting techniques.									
	3.4	Observe safe access and exit routes on the farm.									
	3.5	Return tools, materials and equipment to designated storage after use.									
LO 4: Respond to accidents and emergencies on the farm	4.1	Identify basic emergency tools/equipment on the farm.									
	4.2	Apply basic first aid procedures where applicable.									
	4.3	Report accidents or injuries to the appropriate supervisors.									
	4.4	Follow emergency evacuation procedures when required.									
LO 5: Maintain hygiene and clean work environment	5.1	Carry out regular hygiene and cleaning in a working environment.									
	5.2	Dispose of farm waste appropriately to designated waste points.									
	5.3	Maintain personal hygiene in line with									

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA	Evidence Type	Evidence Ref. No.	Page No.
The learner will:		The learner can:			
		farm health requirements.			
	5.4	Identify environmentally safe waste disposal methods relevant to CSA.			
LEARNERS SIGNATURE			DATE:		
ASSESSOR'S SIGNATURE			DATE:		
IQA'S SIGNATURE			DATE:		
EQA'S SIGNATURE			DATE:		



UNIT 002: COMMUNICATE EFFECTIVELY IN A CLIMATE-SMART AGRICULTURAL ENVIRONMENT

Unit Reference Number: AGR/CSA/002/L1

NSQ Level: 2

Credit Value: 2

Guided Learning Hours: 20

Practice Time: 60

Unit Purpose: This unit is designed to equip the learner with basic communication skills required to receive and convey simple information, follow instructions, and report farm observations effectively in a climate-smart agriculture setting under supervision.

Unit assessment requirements/ evidence requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used may include:

1. Direct Observation (DO)
2. Witness Testimony (WT)
3. Personal Statement (PS) or Reflective Practice (RP)
4. Work Product (WP)
5. Recognition of Prior Learning (RPL)
6. Assignment (ASS)

Unit 002: Communicate Effectively in a Climate-Smart Agricultural Environment

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type	Evidence Ref. Page No.
LO 1: Apply basic verbal and non-verbal communication in a CSA farm environment	1.1	Use simple verbal communication to pass on necessary information to colleagues and supervisors.		
	1.2	Use non-verbal means (body language, gestures, signs) to convey basic information.		
	1.3	Respond to common farm signs and symbols appropriately.		
	1.4	Comply with the instructions given by the supervisor.		
LO 2: Recognize information in the farm work environment	2.1	Identify sources of information and instructions on the farm.		
	2.2	Receive simple written or oral instructions from the supervisor and act on them.		
	2.3	Report simple farm observations to the supervisor using basic reporting tools (checklists, farm diary etc.).		
	2.4	Use simple communication devices such as mobile phones to relay information when directed.		
LO 3: Communicate farm activities and challenges appropriately	3.1	Report completed tasks and challenges to the supervisor using clear simple language.		
	3.2	Communicate relevant observations on weather, soil, crop or livestock conditions to the appropriate person		
	3.3	Obey communication protocols and instructions within the farm environment.		
	3.4	Communicate simple climate-related farm observations using basic recording tools.		
LEARNERS SIGNATURE			DATE:	
ASSESSOR'S SIGNATURE			DATE:	

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type	Evidence Ref. Page No.
IQA'S SIGNATURE			DATE:	
EQA'S SIGNATURE			DATE:	



UNIT 003: WORK AS PART OF A TEAM IN CLIMATE-SMART AGRICULTURAL OPERATIONS

Unit Reference Number: AGR/CSA/003/L1

NSQ Level: 3

Credit Value: 2

Guided Learning Hours: 20

Practice Time: 60

Unit Purpose: This unit is designed to equip the learner with the basic skills, knowledge and understanding required to work cooperatively as part of a team, follow organisational conduct and contribute positively to the successful completion of climate-smart agriculture tasks under supervision.

Unit assessment requirements/ evidence requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used may include:

1. Direct Observation (DO)
2. Witness Testimony (WT)
3. Personal Statement (PS) or Reflective Practice (RP)
4. Work Product (WP)
5. Recognition of Prior Learning (RPL)
6. Assignment (ASS)

Unit 003: Work As Part of a Team in Climate-Smart Agricultural Operations

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 1: Develop positive working relationships with colleagues in CSA operations	1.1	Identify the importance of teamwork in achieving climate smart agriculture objectives.									
	1.2	Treat colleagues with respect and fairness during farm activities.									
	1.3	Assist team members with tasks when required.									
	1.4	Communicate individual work progress to colleagues where it may affect team tasks.									
	1.5	Report requests for assistance that fall outside personal responsibility to the appropriate supervisor.									
LO 2: Take responsibility within the team	2.1	Identify own role and responsibilities within the team.									
	2.2	Complete individual tasks according to the team schedule and instructions.									
	2.3	Participate actively and constructively in team activities.									
	2.4	Demonstrate willingness to learn from more experienced team members.									
LO 3: Comply with farm organizational policies and conduct	3.1	Explain the basic code of conduct applicable in the farm workplace.									
	3.2	Work in line with organizational standards.									
	3.3	Adhere strictly to instructions given by management and supervisors.									
	3.4	Respect the work environment.									
LEARNERS SIGNATURE			DATE:								
ASSESSOR'S SIGNATURE			DATE:								
IQA'S SIGNATURE			DATE:								
EQA'S SIGNATURE			DATE:								

UNIT 004: BASIC PRINCIPLES OF CLIMATE-SMART AGRICULTURE

Unit Reference Number: AGR/CSA/004/L1

NSQ Level: 1

Credit Value: 3

Guided Learning Hours: 30

Practice Time: 90

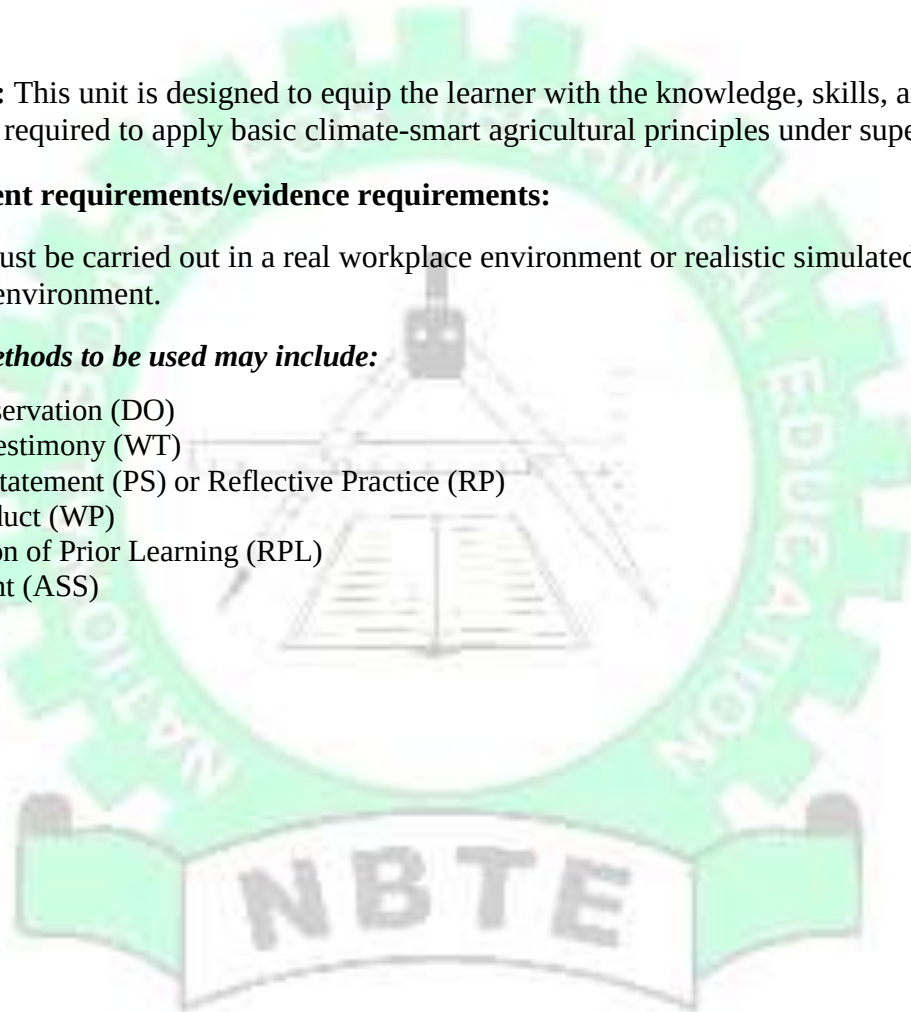
Unit Purpose: This unit is designed to equip the learner with the knowledge, skills, and understanding required to apply basic climate-smart agricultural principles under supervision.

Unit assessment requirements/evidence requirements:

Assessment must be carried out in a real workplace environment or realistic simulated farm/training environment.

Assessment methods to be used may include:

1. Direct Observation (DO)
2. Witness Testimony (WT)
3. Personal Statement (PS) or Reflective Practice (RP)
4. Work Product (WP)
5. Recognition of Prior Learning (RPL)
6. Assignment (ASS)



Unit 004: Basic Principles of Climate-Smart Agriculture

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 1: Explain the basic principles of climate-smart agriculture	1.1	State the meaning and importance of climate-smart agriculture									
	1.2	Identify tools and materials required for CSA practices									
	1.3	Operate under supervisors' instructions and safety procedures									
	1.4	Report risks, faults or unusual farm conditions to the supervisor									
LO 2: Carry out basic climate smart agricultural practices	2.1	Identify climate-resilient crop varieties based on local climate projections									
	2.2	Recognize the basic signs attributed to climate/heat stress in animals									
	2.3	Distinguish between regular feed and, high-quality supplements or local fodder that improve animal digestion and reduce methane production									
	2.4	Carry out basic crop rotation or intercropping plans such as planting at least two complementary crops together (e.g. maize and beans/legume to fix nitrogen)									
LO 3: Record information on basic climate-smart agriculture practices	3.1	Identify basic climate-smart agricultural recording tools									
	3.2	Record simple information using a farm diary or checklist									
	3.3	Communicate task completion and challenges to the supervisor									
	3.4	Describe obvious problems observed on the farm to the supervisor									
LEARNERS SIGNATURE			DATE:								
ASSESSOR'S SIGNATURE			DATE:								
IQA'S SIGNATURE			DATE:								
EQA'S SIGNATURE			DATE:								

UNIT 005: WEATHER, SOIL AND FARM CONDITIONS

Unit Reference Number: AGR/CSA/005/L1

NSQ Level: 1

Credit Value: 2

Guided Learning Hours: 20

Practice Time: 60

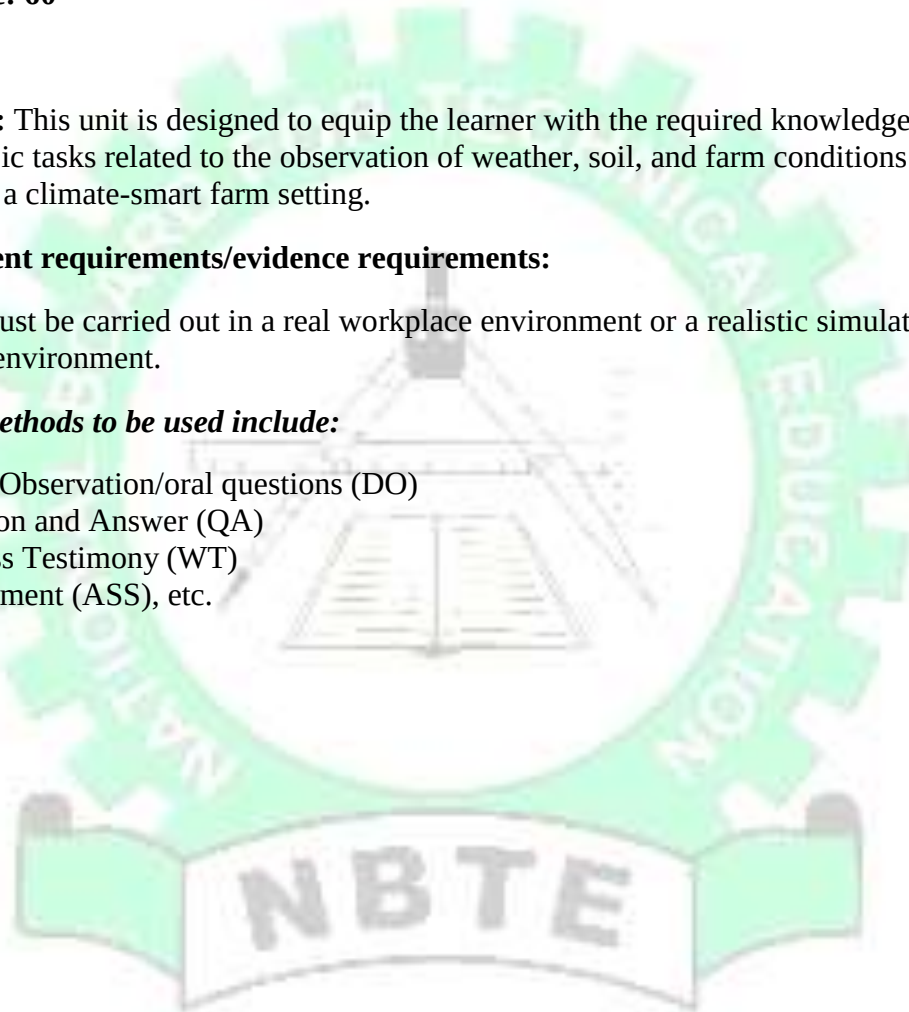
Unit Purpose: This unit is designed to equip the learner with the required knowledge and skills to perform basic tasks related to the observation of weather, soil, and farm conditions under supervision in a climate-smart farm setting.

Unit assessment requirements/evidence requirements:

Assessment must be carried out in a real workplace environment or a realistic simulated farm/training environment.

Assessment methods to be used include:

1. Direct Observation/oral questions (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Assignment (ASS), etc.



Unit 005: Weather, Soil and Farm Conditions

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 1: Describe the importance of weather, soil and farm conditions in CSA	1.1	Describe the weather pattern in CSA planning within the farm settlement									
	1.2	Identify basic soil types and their conditions									
	1.3	Report unusual farm conditions to the supervisor									
	1.4	State the effects of climatic conditions on farm practices									
LO 2: Carry out basic operations using appropriate tools for weather, soil and farm conditions	2.1	Use basic weather tools such as a thermometer, barometer, rain gauge, wind vane, and anemometer etc.									
	2.2	Observe the preparation of soil in accordance with CSA practice									
	2.3	Perform all assigned tasks in line with CSA environmental friendly guidelines									
	2.4	Clean tools and materials after use									
	2.5	Return tools and materials to the storage area									
LO 3: Record simple information on weather, soil and farm conditions	3.1	Identify obvious problems on the farm									
	3.2	Record simple information using a standardized farm diary									
	3.3	Maintain personal hygiene and environmental cleanliness after each farm activity									
LEARNERS SIGNATURE			DATE:								
ASSESSOR'S SIGNATURE			DATE:								
IQA'S SIGNATURE			DATE:								
EQA'S SIGNATURE			DATE:								

UNIT 006: BASIC CONSERVATION TECHNIQUES

Unit Reference Number: AGR/CSA/006/L1

NSQ Level: 1

Credit Value: 3

Guided Learning Hours: 30

Practice Time: 90

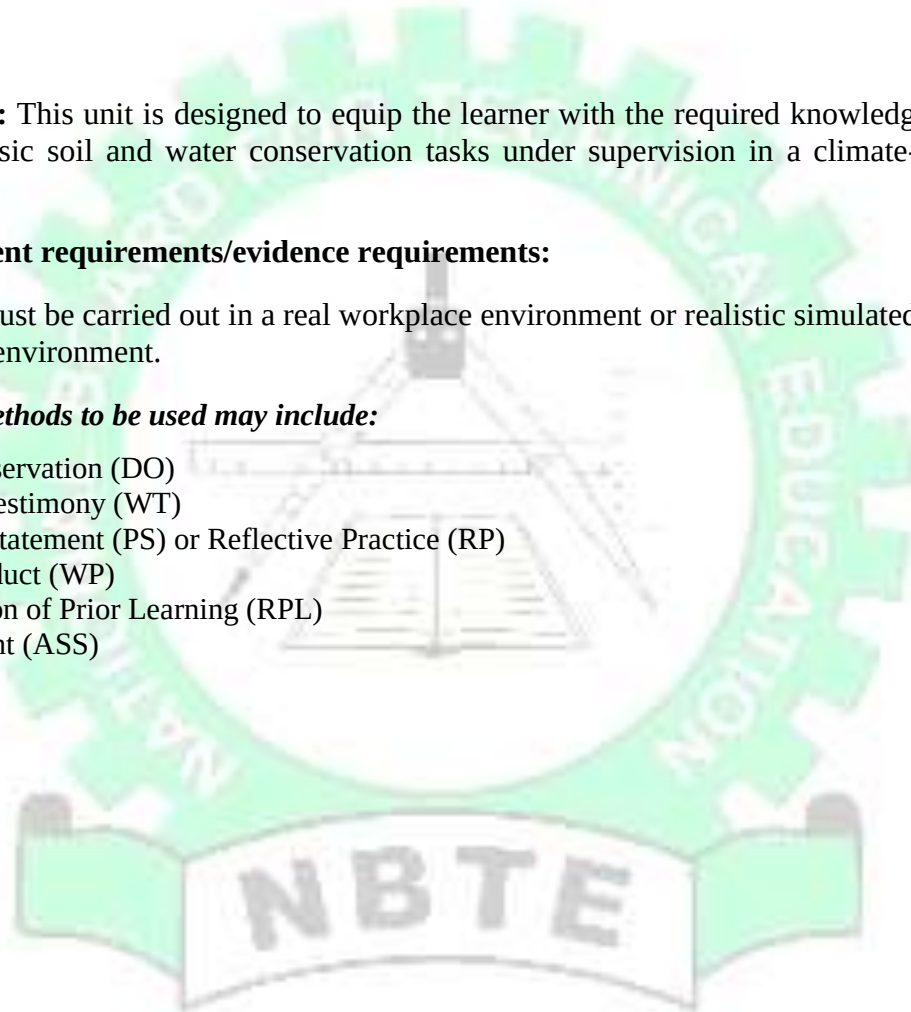
Unit Purpose: This unit is designed to equip the learner with the required knowledge and skills to perform basic soil and water conservation tasks under supervision in a climate-smart farm setting.

Unit assessment requirements/evidence requirements:

Assessment must be carried out in a real workplace environment or realistic simulated farm/training environment.

Assessment methods to be used may include:

1. Direct Observation (DO)
2. Witness Testimony (WT)
3. Personal Statement (PS) or Reflective Practice (RP)
4. Work Product (WP)
5. Recognition of Prior Learning (RPL)
6. Assignment (ASS)



Unit 006: Basic Conservation Techniques

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type	Evidence Ref. Page No.
LO 1: Explain the importance of soil and water conservation on the farm	1.1	Define conservation in climate smart agricultural perspective		
	1.2	State the importance of conservation in CSA farming		
	1.3	Identify common causes of water and soil loss on the farm		
	1.4	Follow safety guidance and the supervisor's instructions at each given task		
LO 2: Carry out basic soil and water conservation activities on the farm	2.1	Prepare the farm according to specific supervisors' instructions on the conservation techniques to be adopted		
	2.2	Assist in simple soil and water conservation activities on the farm.		
	2.3	Apply simple soil and water-saving practices during farm operations		
	2.4	Distinguish between different types of soil and water conservation techniques and when each is applicable		
LO 3: Monitor water conservation activities	3.1	Identify water wastage or leakages promptly, for immediate action		
	3.2	Report water-related problems to the supervisor for solution		
	3.3	Record simple information on water conservation activities		
LEARNERS SIGNATURE			DATE:	
ASSESSOR'S SIGNATURE			DATE:	
IQA'S SIGNATURE			DATE:	
EQA'S SIGNATURE			DATE:	

UNIT 007: BASIC CLIMATE-RESILIENT CROPS

Unit Reference Number: AGR/CSA/007/L1

NSQ Level: 1

Credit Value: 3

Guided Learning Hours: 30

Practice Time: 90

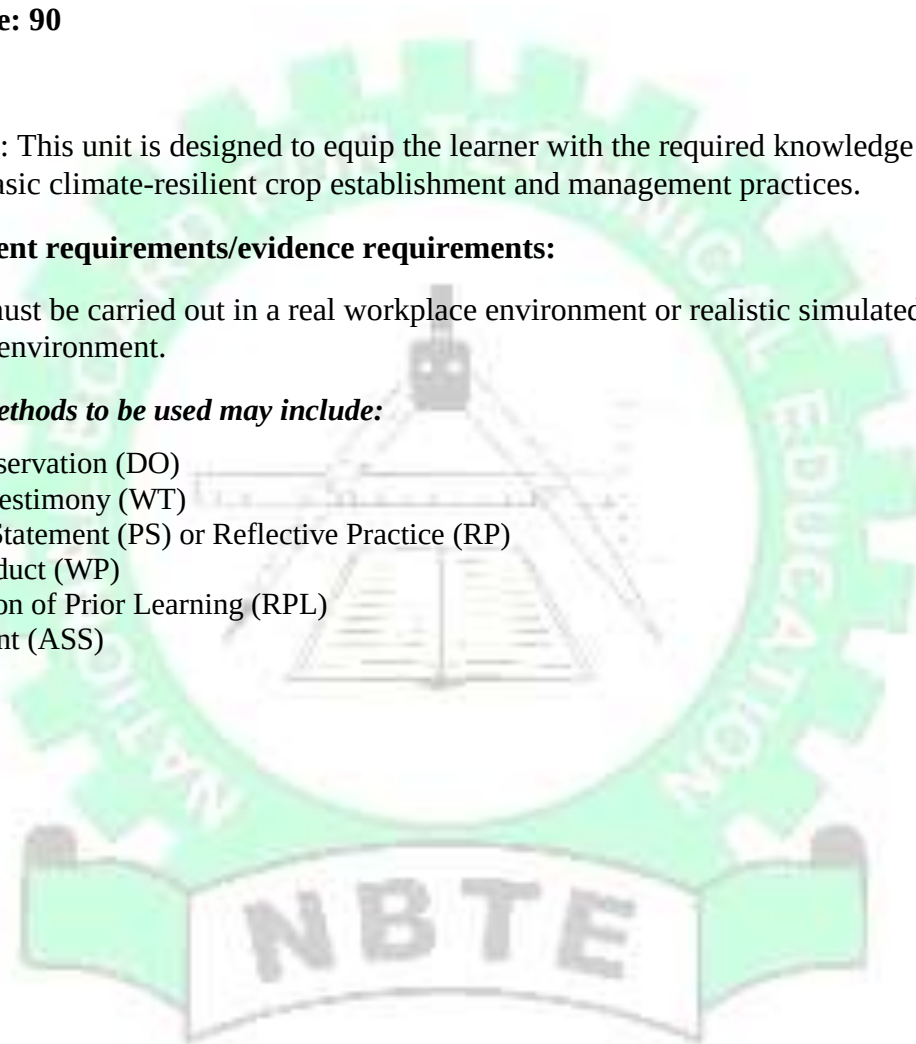
Unit Purpose: This unit is designed to equip the learner with the required knowledge and skills to carry out basic climate-resilient crop establishment and management practices.

Unit assessment requirements/evidence requirements:

Assessment must be carried out in a real workplace environment or realistic simulated farm/training environment.

Assessment methods to be used may include:

1. Direct Observation (DO)
2. Witness Testimony (WT)
3. Personal Statement (PS) or Reflective Practice (RP)
4. Work Product (WP)
5. Recognition of Prior Learning (RPL)
6. Assignment (ASS)



Unit 007: Basic Climate-Resilient Crops

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type	Evidence Ref. Page No.
LO 1: Identify climate-resilient crops	1.1	Identify suitable crops adapted to local climate challenges.		
	1.2	Differentiate basic crop traits based on adaptation to climate stress		
	1.3	Identify crop traits linked to resilience in local climate condition.		
	1.4	Distinguish between a local variety and an improved climate-resilient variety using basic seed sampling techniques		
LO 2: Select crops for given climate condition	2.1	Select appropriate crop variety for a given scenario		
	2.2	Select suitable crops for different weather conditions.		
	2.3	Use local weather information or NiMet seasonal forecast to justify crop choice.		
	2.4	Select crops with maturity period that exceeds the anticipated length of the rainy season		
LO 3: Apply basic resilient crop practices	3.1	Carry out correct spacing for the selected crop.		
	3.2	Apply mulch or organic matter around planted crops to conserve soil moisture.		
	3.3	Identify sign of climate stress such as wilting and leaf curl in growing crops		
	3.4	Apply mulching practices or early harvest as a corrective action for climate stress.		
LEARNERS SIGNATURE			DATE:	
ASSESSOR'S SIGNATURE			DATE:	
IQA'S SIGNATURE			DATE:	
EQA'S SIGNATURE			DATE:	

UNIT 008: SIMPLE WATER CONSERVATION TECHNIQUES ON THE FARM

Unit Reference Number: AGR/CSA/008/L1

NSQ Level: 1

Credit Value: 3

Guided Learning Hours: 30

Practice Time: 90

Unit Purpose: This unit is designed to equip the learner with the required knowledge and skills to perform basic climate-smart simple water conservation techniques under supervision in a climate-smart farm setting

Unit assessment requirements/evidence requirements:

Assessment must be carried out in a real workplace environment or a realistic simulated farm/training environment.

Assessment methods to be used may include:

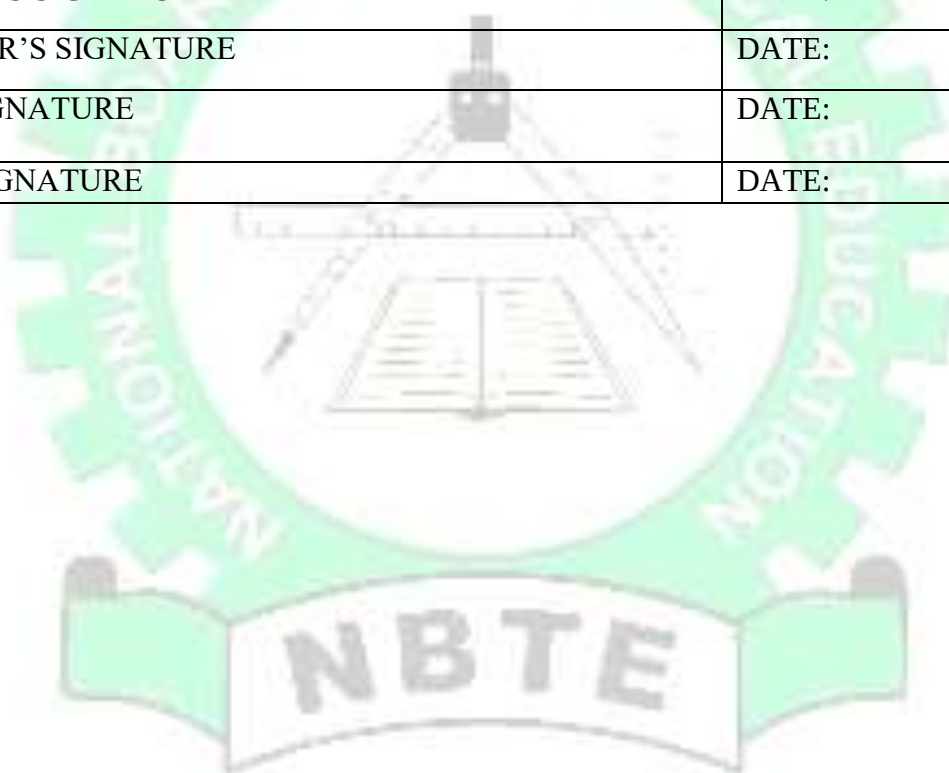
1. Direct Observation (DO)
2. Witness Testimony (WT)
3. Personal Statement (PS) or Reflective Practice (RP)
4. Work Product (WP)
5. Recognition of Prior Learning (RPL)
6. Assignment (ASS)



Unit 008: Simple Water Conservation Techniques on the Farm

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type	Evidence Ref. Page No.
LO 1: Identify the field site for climate-smart water conservation.	1.1	Identify the importance of climate-smart water conservation techniques.		
	1.2	Recognise basic techniques for climate-smart water conservation.		
	1.3	Distinguish among agricultural relevant tools and apparatus used for basic climate-smart water conservation activities such as PPE.		
	1.4	Identify land topography such as; slope direction, visible erosion patterns, and soil surface moisture conditions.		
	1.5	Describe the source of water available on farm such as streams, run-off water etc.		
	1.6	Report observation of the farm conditions.		
LO 2: Carry out simple soil moisture conservation techniques	2.1	Carry out organic mulch (crop residues, dry grass) application.		
	2.2	Carry out minimal or zero-tillage preparation.		
	2.3	Carry out a functional cover crop layout between crops.		
	2.4	Demonstrate zai pits practice in arid or semi-arid farm area.		
LO 3: Construct structural earthworks for rainwater harvesting and runoff management	3.1	Plan construction of earth bunds, ridges, or contour furrows according to technical field specifications.		
	3.2	Plan digging of micro-catchment structures (e.g., Zai pits, planting basins) at designated intervals to trap water directly around targeted root zones.		
	3.3	Construct earth bunds, ridges, or contour furrows according to technical field specifications.		
	3.4	Dig micro-catchment structures (e.g., Zai pits, planting basins) at designated intervals to trap water directly around targeted root zones.		

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type	Evidence Ref. Page No.			
LO 4: Perform basic water collection practices on small-scale farming	4.1	Identify leaks and blockages in storage.					
	4.2	Perform immediate minor repairs or immediate remedy for obstructions, leaks and blockages.					
	4.3	Report major faults to supervisors.					
	4.4	Keep simple and accurate farm logs.					
	4.5	Clear debris.					
	4.6	Clean basic catchment surfaces or diversion channels.					
LEARNERS SIGNATURE			DATE:				
ASSESSOR'S SIGNATURE			DATE:				
IQA'S SIGNATURE			DATE:				
EQA'S SIGNATURE			DATE:				



UNIT 009: SIMPLE FARM RECORDS

Unit Reference Number: AGR/CSA/009/L1

NSQ Level: 1

Credit Value: 2

Guided Learning Hours: 20

Practice Time: 30

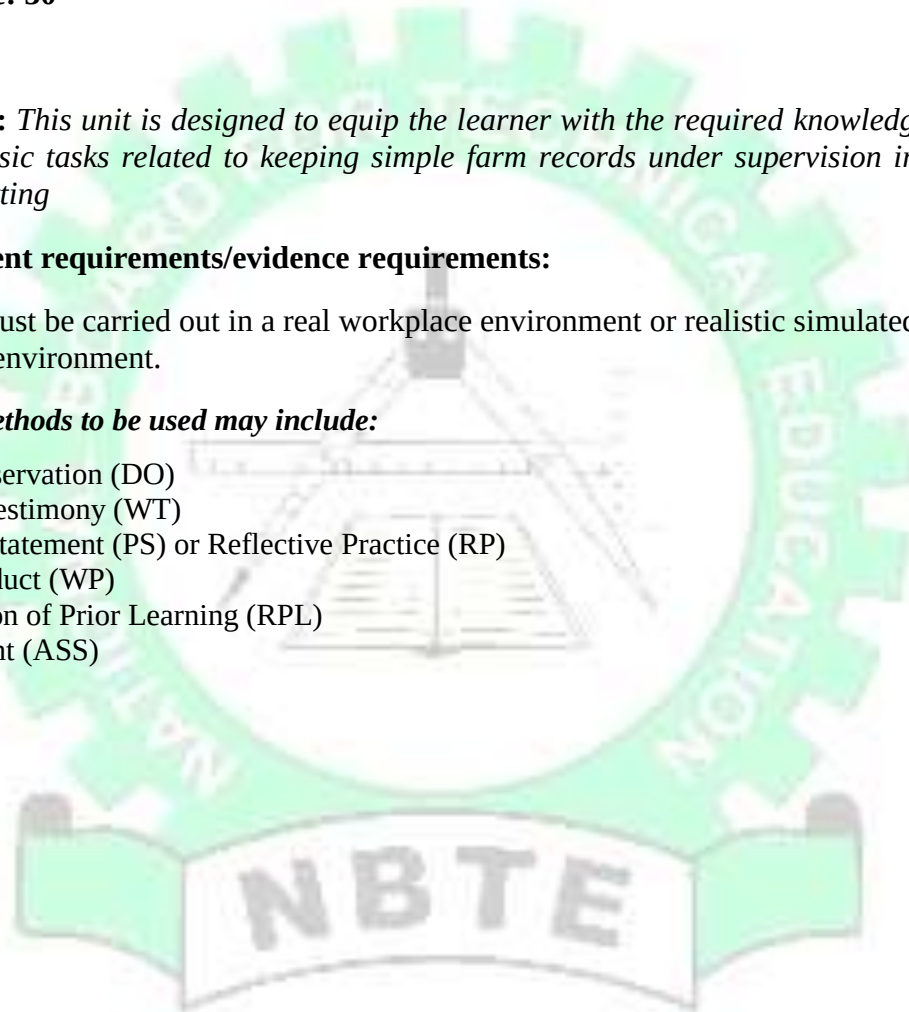
Unit Purpose: *This unit is designed to equip the learner with the required knowledge and skills to perform basic tasks related to keeping simple farm records under supervision in a climate-smart farm setting*

Unit assessment requirements/evidence requirements:

Assessment must be carried out in a real workplace environment or realistic simulated farm/training environment.

Assessment methods to be used may include:

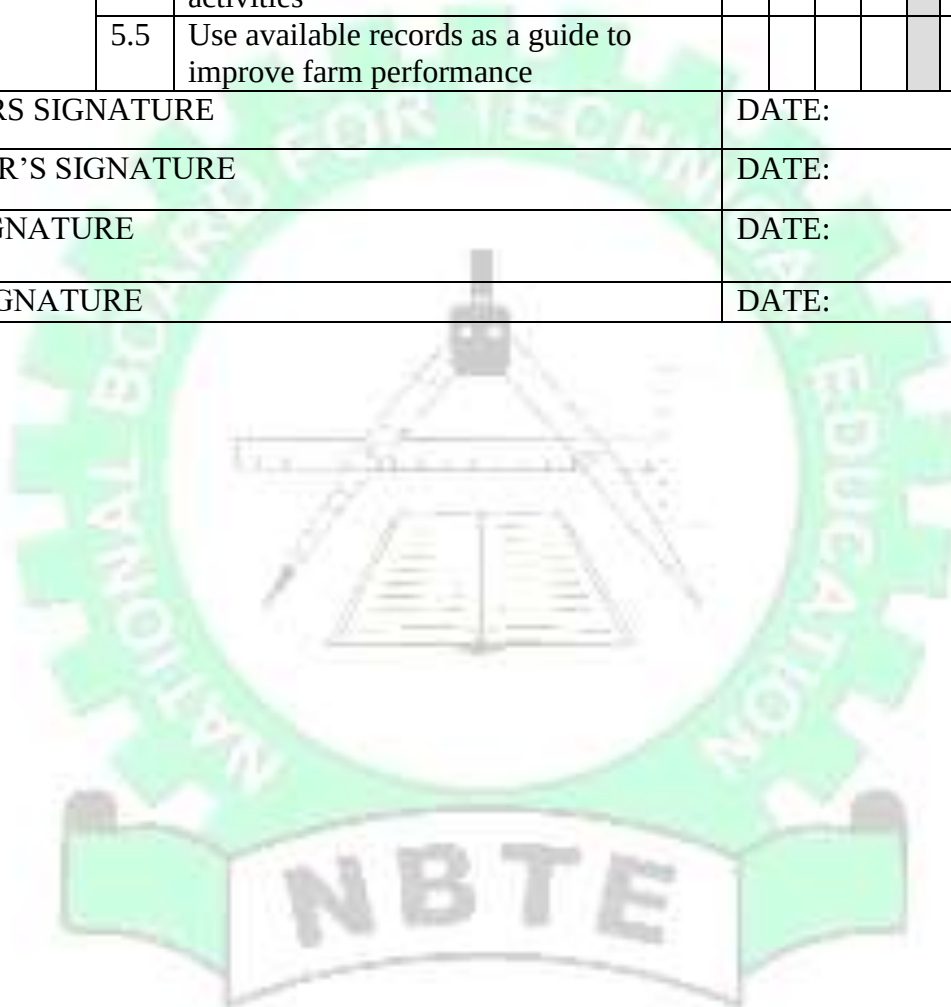
1. Direct Observation (DO)
2. Witness Testimony (WT)
3. Personal Statement (PS) or Reflective Practice (RP)
4. Work Product (WP)
5. Recognition of Prior Learning (RPL)
6. Assignment (ASS)



Unit 009: Simple Farm Records

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 1: <i>Identify Farm Records Required for Farm Operations</i>	1.1	Identify farm records according to farm activities									
	1.2	Explain the purpose of farm record keeping according to farm management requirements.									
	1.3	Identify different types of farm records									
	1.4	Select the record template according to the type of information to be captured									
	1.5	Store record-keeping materials for easy retrieval									
LO 2: <i>Record Farm Inputs and Activities</i>	2.1	Record farm inputs received, according to farm procedures.									
	2.2	Record daily farm activities in the appropriate record book or template.									
	2.3	Record climate-smart practices implemented on the farm									
LO 3: <i>Record Farm Outputs and Sales</i>	3.1	Record quantities of produce harvested according to farm procedures.									
	3.2	Record produce consumed, stored or/and sold									
	3.3	Record sales transactions with relevant details.									
	3.4	Enter income generated from farm produce in the record books.									
	3.5	Maintain output records regularly.									
LO 4: <i>Maintain Farm Records</i>	4.1	Organize farm records according to filing procedures.									
	4.2	Prevent stored records from loss or damage.									
	4.3	Check for accuracy and completeness of the record									
	4.4	Retrieve records required for reference or reporting purpose.									
	4.5	Maintain confidentiality of farm information according to farm policy.									
LO 5: <i>Use Farm Records for Simple Decision-</i>	5.1	Summarize farm Information according to reporting requirements.									
	5.2	Compare Input use and output performance using available records									

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type				Evidence Ref. Page No.			
Making	5.3	Identify simple farm problems from recorded information								
	5.4	Use Farm records to plan future farm activities								
	5.5	Use available records as a guide to improve farm performance								
LEARNERS SIGNATURE			DATE:							
ASSESSOR'S SIGNATURE			DATE:							
IQA'S SIGNATURE			DATE:							
EQA'S SIGNATURE			DATE:							



LIST OF MINIMUM EQUIPMENT

S/N	Name of Item	Quantity	Uses
1	Personal Protective Equipment (gloves, boots, goggles, masks)	10 sets	Safety during farm operations
2	First Aid Kit	2 kits	Emergency medical response
3	Fire Extinguisher	3 units	Fire hazard control
4	Safety Signage	15 signs	Indicating risks and safety zones
5	Two-way Radios / Walkie-talkies	5 units	Field communication
6	Mobile Phones	5 units	Quick coordination
7	Notice Boards	2 boards	Displaying updates and schedules
8	Logbooks / Record Books	10 books	Documentation of farm activities
9	Flip Charts / Whiteboards	2 boards	Team meetings and planning
10	Duty Register	1 book	Tracking responsibilities
11	Shared Toolkits	5 sets	Group farm tasks
12	Farm Tools (hoes, spades, rakes, cutlasses)	20 assorted	General farm work
13	Tractor	1 unit	Mechanized farming
14	Soil Testing Kit (pH meter, nutrient kit)	3 kits	Soil fertility assessment
15	Crop Calendar	5 books	Farm planning
16	Weather Monitoring Tools	2 units	Tracking climate conditions
17	Rain Gauge	2 units	Measuring rainfall
18	Compost Bin	5 bins	Organic fertilizer

			production
19	Mulching Materials	50 bundles	Soil moisture conservation
20	Terracing Tools	10 units	Soil erosion control
21	Seed Storage Containers	10 units	Preserving seeds
22	Germination Trays	20 trays	Raising seedlings
23	Greenhouse Structure	1 unit	Controlled farming
24	Rainwater Collection Tank	2 tanks	Harvesting water
25	Irrigation Kits (drip/sprinklers)	5 sets	Efficient irrigation
26	Water Pump	2 units	Pumping water
27	Moisture Meter	2 units	Soil moisture monitoring
28	Filing Cabinets	2 units	Organizing farm records
29	Digital Devices (tablet/laptop)	2 units	Electronic record keeping

NATIONAL SKILLS QUALIFICATION

FOR

CLIMATE SMART AGRICULTURE FIELD ASSISTANT I

LEVEL 2

JULY, 2026



GENERAL INFORMATION

OVERVIEW

This qualification is designed for individuals who are interested in pursuing a career in **Climate Smart Agriculture** for the award of National Skills Qualifications (NSQ)/National Occupational Standards (NOS). It is aimed at producing competencies necessary to support in climate smart agriculture **at NSQ Level 2**.

This qualification is subject to review as and when the need arises.

QUALIFICATION PURPOSE

The qualification is designed to produce competent level 2 Climate Smart Agriculture assistant with knowledge, skills, and attitude required to perform routine Climate Smart Agriculture activities under minimal supervision using basic precision agriculture principles and tools.

QUALIFICATION REQUIREMENTS

All Candidates must be:

- At least sixteen (16) years of age
- Medically fit
- Mentally fit (Mental alertness)
- Must complete climate smart agriculture level 1 or relevance experience
- A Nigerian citizen
- Other nationals should present International passport, residence permit or Parent work permit.
- Vetted
- Interest in agricultural production and related support operations;
- Ability to carry out routine practical tasks with minimal supervision.

QUALIFICATION OBJECTIVES

The learner should be able to:

- i. Apply climate-smart agriculture principles in day-to-day farm operations.
- ii. Select suitable crops, varieties and planting methods based on climate and soil conditions.
- iii. Carry out soil fertility, soil conservation and water management practices.
- iv. Manage irrigation, drainage and rainwater harvesting activities.
- v. Identify and manage pests and diseases using integrated and climate-friendly methods.
- vi. Apply basic climate smart livestock, agroforestry and biodiversity practices.
- vii. Maintain production, input and financial records for farm improvement.
- viii. Implement safety standards and communicate effectively in the workplace.
- ix. Work collaboratively in teams and contribute to organisational goals.
- x. Collect and record farm data for informed decision-making.

MANDATORY UNITS

S/N	Reference Number	Unit Title	Credit Value	Guided Learning Hours	Practice Time	Remarks
1.	AGR/CSA/001/L2	Work Safely in a Climate Smart Agriculture Environment	2	20	60	Mandatory
2.	AGR/CSA/002/L2	Effective Communication in Climate Smart Agriculture Environment	2	20	60	Mandatory
3.	AGR/CSA/003/L2	Teamwork In Climate Smart Agriculture Operations	2	20	60	Mandatory
4.	AGR/CSA/004/L2	CSA principles in farm operations	4	40	120	Mandatory
5.	AGR/CSA/005/L2	Climate-Resilient Crops, Varieties and Planting Methods	4	40	120	Mandatory
6.	AGR/CSA/006/L2	Soil Fertility, Conservation and Water Management Operation	3	30	90	Mandatory
7.	AGR/CSA/007/L2	Rainwater Harvesting and Irrigation Practices	3	30	90	Mandatory
8.	AGR/CSA/008/L2	Integrated Pests and Diseases Management	4	40	120	Mandatory
9.	AGR/CSA/009/L2	Agroforestry, Biodiversity and Livestock Practices	4	40	120	Mandatory
TOTAL			28	280	840	

QUALIFICATION STRUCTURE

This qualification comprises a total of nine (9) Mandatory Units, with a credit value of 28 and 280 Guided Learning Hours (GLH) across the full qualification. One (1) credit is equivalent to ten (10) GLH. Guided Learning Hours are the time a learner spends in the classroom, workshop and laboratory of the Skills Training Centre (STC), being taught, instructed, supervised or assessed by a qualified trainer, facilitator or assessor.

In addition to the GLH, the qualification requires at least twice or thrice the GLH as practice time. Practice time is the time a learner is expected to spend applying the skills of each unit in a real workplace environment, carrying out the same tasks repeatedly until performance becomes consistent, accurate and habitual to the standard the qualification demands. It is undertaken under

the guidance of a workplace supervisor, recorded in the learner's logbook and duly endorsed. Practice time is the principal setting where core assessment is conducted. It is through repeated performance in the workplace that a learner's achievement of the Learning Outcomes and Performance Criteria is judged and evidenced. Practice time is an additional requirement to GLH and does not replace them.

To achieve this qualification, the learner must complete all mandatory units, undertake the prescribed practice time, and accumulate the minimum credit value approved by NBTE. Credit is awarded only when a learner has been assessed as competent against all Learning Outcomes and Performance Criteria of a unit.

GENERAL GUIDE

Unit title	Provides a clear explanation of the content of the unit.
Unit number	The unique number assigned to the unit.
Unit reference	The unique reference number given to each unit at qualification approval by NBTE
Unit level	Denotes the level of the unit within the National Skill Qualification framework NSQF.
Unit credit value	The value that has been given to the unit based on the expected learning time for an average learner. 1 credit = 10 learning hours
Unit aim	Provides a brief outline of the unit content.
Learning outcome	A statement of what a learner will know, understand or be able to do, as a result of a process of learning.
Assessment criteria	A description of the requirements a learner must achieve to demonstrate that a learning outcome has been met.
Unit assessment guidance	Any additional guidance provided to support the assessment of the unit.

Unit guided learning hours	The average number of hours of supervised or directed study time or assessment required to achieve a qualification or unit of a qualification.
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UNIT 001: WORK SAFELY IN A CLIMATE SMART AGRICULTURE ENVIRONMENT

Unit Reference Number: AGR/CSA/001/L2

NSQ Level: 2

Credit Value: 2

Guided Learning Hours: 20

Practice Time: 60 hours

Unit Purpose: This unit is designed to equip learners with the knowledge and practical skills required to implement health and safety procedures, identify and manage workplace hazards, select and use appropriate personal protective equipment (PPE), and promote a safe working environment in climate smart agriculture operations with limited supervision.

Unit Assessment Requirements/Evidence Requirements

Assessment must be carried out in a real workplace environment. Learners must demonstrate the ability to independently implement safety procedures, conduct hazard assessments, select appropriate PPE, and respond to emergencies. Evidence may include observation of safe practices, completed risk assessments, safety inspection reports, and witness testimony.

Assessment methods to be used may include:

1. Direct Observation (DO)
2. Recognition of Prior Learning and experience (RPL)
3. Witness testimony (WT)
4. Personal statement (PS)/ Reflective Practice (RP).
5. Work Product (WP)
6. Assignment (ASS)

Unit 001: Work Safely in a Climate Smart Agriculture Environment

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA	Evidence Type					Evidence Ref. Page No.			
The learner will:		The learner can:									
LO 1: Implement health and safety standards in CSA operations	1.1	Explain the health and safety standards applicable to climate smart agriculture operations.									
	1.2	Identify the key components of a farm safety policy.									
	1.3	Assess hazards and basic risks in CSA farm environments, including chemical, physical, biological and climate-related hazards.									
	1.4	Display appropriate safety signs and symbols correctly in the work environment.									
	1.5	Demonstrate safe work practices in accordance with CSA farm safety requirements.									
	1.6	Maintain equipment in accordance with health and safety standards.									
	1.7	Keep accurate records of safety inspections and incident reports.									
LO 2: Use PPE correctly and maintain farm safety equipment	2.1	Identify the types of PPE required for different CSA tasks.									
	2.2	Select appropriate PPE based on the specific CSA task and associated risk level									
	2.3	Demonstrate the correct use, fitting and removal of PPE									
	2.4	Inspect PPE before and after use and report any defects to the supervisor									
	2.5	Clean, store and maintain PPE according to farm procedures									
	2.6	Maintain farm safety equipment such as fire extinguishers and first aid kits									
LO 3: Respond to accidents, injuries and emergencies in CSA settings	3.1	Locate emergency facilities and equipment on the farm, including first aid kits and fire extinguishers									
	3.2	Apply basic first aid procedures for common farm injuries, such as cuts, burns, sprains and insect bites									
	3.3	Report accidents and injuries to the appropriate supervisor promptly and accurately									

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA	Evidence Type	Evidence Ref. Page No.
The learner will:		The learner can:		
	3.4	Carry out emergency procedures in line with farm safety plans		
	3.5	Participate in emergency drills and exercises		
	3.6	Complete accident report forms accurately		
LO 4: Apply safe material handling, lifting and stacking techniques	4.1	Demonstrate correct manual lifting and loading techniques		
	4.2	Apply the principles of safe lifting (bend knees, keep back straight, hold load close)		
	4.3	Demonstrate lifting and loading with basic mechanical assistance where available, such as wheelbarrows or trolleys		
	4.4	Stack materials, inputs and equipment safely and correctly to prevent accidents		
	4.5	Identify and report unsafe stacking or storage conditions		
	4.6	Use appropriate techniques for carrying different types of materials		
LO 5: Maintain hygiene and a clean safe work environment	5.1	Carry out regular housekeeping of all work areas, including tools and equipment		
	5.2	Dispose of farm waste according to CSA environmental guidelines		
	5.3	Maintain personal hygiene appropriate to the task and environment		
	5.4	Implement basic CSA-friendly waste management and disposal practices		
	5.5	Ensure work areas are free from slip and trip hazards		
	5.6	Identify environmental hazards that could affect worker's health		
	5.7	Report environmental hazards that could affect worker's health		
LEARNERS SIGNATURE			DATE:	
ASSESSOR'S SIGNATURE			DATE:	

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA	Evidence Type	Evidence Ref. Page No.
The learner will:		The learner can:		
IQA'S SIGNATURE			DATE:	
EQA'S SIGNATURE			DATE:	



UNIT 002: EFFECTIVE COMMUNICATION IN CLIMATE SMART AGRICULTURE ENVIRONMENT

Unit Reference Number: AGR/CSA/002/L2

NSQ Level: 2

Credit Value: 2

Guided Learning Hours: 20

Practice Time: 60 hours

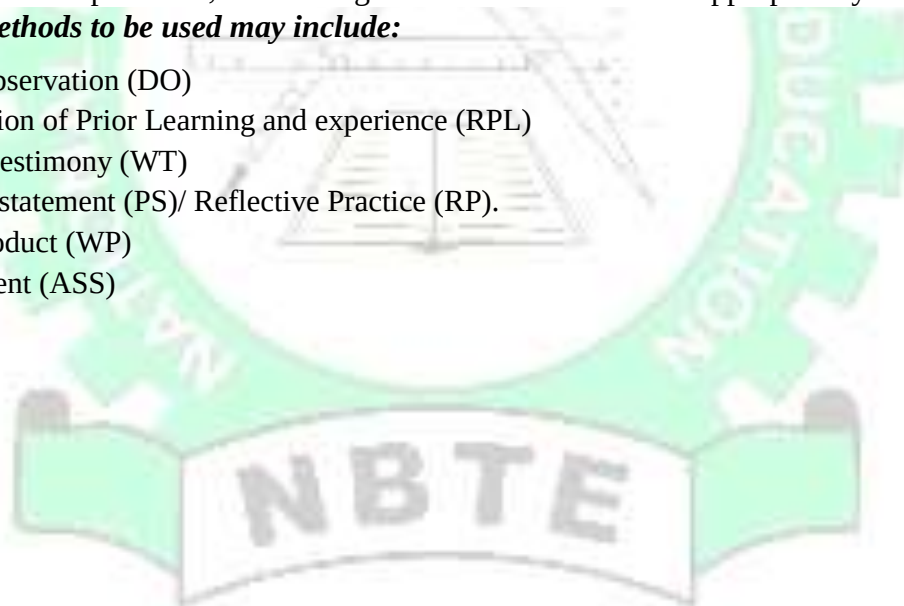
Unit Purpose: This unit is designed to equip learners with the skills and knowledge required to communicate clearly and confidently in the workplace, use various communication channels, interpret technical farm information, and pass relevant information to colleagues and supervisors in climate smart agriculture operations with limited supervision.

Unit Assessment Requirements/Evidence Requirements

Assessment must be carried out in a real workplace environment. Learners must demonstrate the ability to interpret technical information, prepare basic reports, communicate effectively with team members and supervisors, and use digital communication tools appropriately.

Assessment methods to be used may include:

1. Direct Observation (DO)
2. Recognition of Prior Learning and experience (RPL)
3. Witness testimony (WT)
4. Personal statement (PS)/ Reflective Practice (RP).
5. Work Product (WP)
6. Assignment (ASS)



Unit 002: Effective Communication in Climate Smart Agriculture Environment

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA	Evidence Type	Evidence Ref. No.	Page No.
The learner will:		The learner can:			
LO 1: Apply verbal and non-verbal communication effectively in CSA farm operations	1.1	Use verbal communication to convey and receive farm-related information clearly and accurately.			
	1.2	Use non-verbal communication methods, such as body language, diagrams and signs, appropriately to reinforce verbal messages.			
	1.3	Interpret symbols, technical signs, and basic CSA-related information correctly.			
	1.4	Confirm understanding by asking questions and paraphrasing instructions.			
	1.5	Carry out tasks accurately based on verbal and written directives.			
	1.6	Adjust communication style to suit different audiences, including supervisors, colleagues and visitors.			
LO 2: Process information relevant to CSA operations	2.1	Access appropriate sources of information in the CSA work environment.			
	2.2	Access basic weather information, farm advisories and technical guidelines from sources such as NiMet and extension services.			
	2.3	Use weather information to plan assigned farm tasks.			
	2.4	Use weather information to carry out assigned farm tasks.			
	2.5	Report observations using appropriate reporting formats.			
	2.6	Use communication devices to process and share farm information.			
	2.7	Evaluate the reliability of information sources before applying information.			
LO 3: Pass information accurately and follow communication protocols	3.1	Pass clear, accurate and timely information to the right person at the right time.			
	3.2	Communicate climate-related farm observations, such as weather changes, pest sightings and crop conditions, to supervisors and colleagues promptly.			
	3.3	Obey instructions in line with the ethics and protocols of the CSA work			

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA	Evidence Type	Evidence Ref. No.	Page No.
The learner will:		The learner can:			
		environment.			
	3.4	Maintain confidentiality of sensitive farm information, such as financial data and personnel records, as required.			
	3.5	Escalate issues beyond personal responsibility to the appropriate authority.			
	3.6	Document communications for record-keeping purposes.			
LO 4: Use digital communication tools for farm information sharing	4.1	Use a mobile phone to take photographs of field conditions and share them with relevant personnel.			
	4.2	Send text messages or voice notes to report observations and receive instructions.			
	4.3	Use basic farm apps to record and access simple data, such as weather records and input usage.			
	4.4	Share information with team members using available digital tools.			
	4.5	Use digital devices to access weather forecasts and agricultural advisories.			
	4.6	Maintain digital records of communications and observations.			
LEARNERS SIGNATURE			DATE:		
ASSESSOR'S SIGNATURE			DATE:		
IQA'S SIGNATURE			DATE:		
EQA'S SIGNATURE			DATE:		

UNIT 003: TEAMWORK IN CLIMATE SMART AGRICULTURE OPERATIONS

Unit Reference Number: AGR/CSA/003/L2

NSQ Level: 2

Credit Value: 2

Guided Learning Hours: 20

Practice Time: 60 hours

Unit Purpose: This unit is designed to equip learners with skills and knowledge required to work effectively within a team, take responsibility for their own role, maintain productive working relationships, comply with organisational standards, and contribute positively to team goals in climate smart agriculture operations with limited supervision.

Unit Assessment Requirements/Evidence Requirements

Assessment must be carried out in a real workplace environment. Learners must demonstrate the ability to work cooperatively, complete assigned tasks independently, contribute positively to team activities, and resolve simple conflicts. Evidence may include observation of teamwork, witness testimony, completed team tasks, and performance feedback.

Assessment methods to be used may include:

1. Direct Observation (DO)
2. Recognition of Prior Learning and experience (RPL)
3. Witness testimony (WT)
4. Personal statement (PS)/ Reflective Practice (RP).
5. Work Product (WP)
6. Assignment (ASS)

Unit 003: Teamwork In Climate Smart Agriculture Operations

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA	Evidence Type	Evidence Ref. No.	Page No.
The learner will:		The learner can:			
LO 1: Maintain good working relationships with colleagues in CSA operations	1.1	Identify the importance of teamwork in a climate smart agriculture working environment.			
	1.2	Ensure mutual respect and discipline among team members.			
	1.3	Report matters beyond personal responsibility to the supervisor in a timely and appropriate manner.			
	1.4	Communicate timely, relevant task information to colleagues.			
	1.5	Demonstrate reliability by completing assigned tasks on time.			
	1.6	Show appreciation for the contributions of other team members.			
LO 2: Take responsibility for their own role within the team	2.1	Clarify assigned tasks and responsibilities before commencing work.			
	2.2	Carry out individual tasks in compliance with supervisor's instructions and team standards.			
	2.3	Participate actively and constructively in all team activities, including meetings and planning sessions.			
	2.4	Seek clarification when instructions are unclear.			
	2.5	Accept feedback positively.			
	2.6	Use feedback to improve performance.			
	2.7	Demonstrate initiative and take ownership of assigned tasks.			
LO 3: Work in line with organisational standards and conduct	3.1	Explain the organisational code of conduct and its importance in a CSA workplace.			
	3.2	Apply organisational standards and procedures in all assigned tasks.			
	3.3	Maintain professional conduct at all times, including punctuality and appropriate appearance.			
	3.4	Respect the property and resources of the organization.			
	3.5	Follow reporting lines and channels of communication.			

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA	Evidence Type	Evidence Ref. No.	Page No.
The learner will:		The learner can:			
	3.6	Uphold the reputation of the organization in all interactions.			
LO 4: Contribute to team goals and resolve simple conflicts	4.1	Identify the goals and objectives of the team.			
	4.2	Contribute ideas and suggestions to achieve team objectives.			
	4.3	Identify sources of conflict within the team.			
	4.4	Apply simple conflict resolution techniques, such as active listening and compromise.			
	4.5	Escalate unresolved conflicts to the appropriate supervisor.			
	4.6	Support team decisions and work towards common goals.			
LEARNERS SIGNATURE			DATE:		
ASSESSOR'S SIGNATURE			DATE:		
IQA'S SIGNATURE			DATE:		
EQA'S SIGNATURE			DATE:		

UNIT 004: CSA PRINCIPLES IN FARM OPERATIONS

Unit Reference Number: AGR/CSA/004/L2

NSQ Level: 2

Credit Value: 4

Guided Learning Hours: 40

Practice Time: 120 hours

Unit Purpose: This unit is designed to equip learners to apply climate smart principles in day-to-day farm operations, integrating the three pillars of CSA (productivity, adaptation and mitigation) into practical farm activities with limited supervision.

Unit Assessment Requirements/Evidence Requirements

Assessment must be carried out in a real workplace environment. Learners must demonstrate the ability to independently apply CSA principles, identify and assess climate risks, implement resource-efficient practices, and monitor farm activities.

Assessment methods to be used may include:

1. Direct Observation (DO)
2. Recognition of Prior Learning and experience (RPL)
3. Witness testimony (WT)
4. Personal statement (PS)/ Reflective Practice (RP).
5. Work Product (WP)
6. Assignment (ASS)

Unit 004: CSA principles in farm operations

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA	Evidence Type					Evidence Ref. Page No.			
The learner will:		The learner can:									
LO 1: Explain climate-smart principles in farm operations	1.1	Describe the three pillars of climate-smart agriculture: productivity, adaptation, mitigation and reduction of greenhouse gas emission									
	1.2	Identify climate-related challenges affecting agricultural production in the local area									
	1.3	Explain how CSA practices contribute to food security and sustainable livelihoods									
	1.4	Relate climate-smart principles to local farming systems and practices									
	1.5	Distinguish between climate-smart and conventional farming practices									
	1.6	Explain the economic benefits of adopting CSA practices									
LO 2: Identify climate risks and their impact on farm operations	2.1	Identify common climate hazards affecting agriculture, including droughts, floods, heatwaves and storms									
	2.2	Assess the impact of climate variability on crops, livestock, soil, and water resources									
	2.3	Recognise signs of climate-related stress in agricultural production systems, such as wilting, reduced yields and increased pest infestation									
	2.4	Use basic weather and climate information from sources such as NiMet to inform farm decisions									
	2.5	Identify vulnerable areas on the farm									
	2.6	Recommend appropriate interventions									
	2.7	Document climate-related observations and their effects on farm operations									
LO 3: Apply resource-efficient farming practices	3.1	Use water efficiently during farm operations									
	3.2	Apply soil conservation and fertility management practices									
	3.3	Optimise agricultural inputs to minimise waste and reduce costs									
	3.4	Implement energy-efficient farm practices where applicable, such as using renewable energy sources									

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA	Evidence Type	Evidence Ref. Page No.
The learner will:		The learner can:		
	3.5	Reduce greenhouse gas emissions from farm operations through improved management practices		
	3.6	Practice recycling and reuse of farm resources wherever possible		
LO 4: Implement climate-smart technologies in farm operations	4.1	Identify climate-smart technologies appropriate for the farm		
	4.2	Use weather information and climate forecasts to plan farm activities		
	4.3	Apply conservation agriculture principles, including minimum tillage, permanent soil cover and crop rotation		
	4.4	Use improved crop varieties that are tolerant to drought, heat, pests etc.		
	4.5	Implement integrated pest management practices to reduce reliance on chemical pesticides		
	4.6	Monitor the performance and effectiveness of climate-smart technologies		

LEARNERS SIGNATURE	DATE:
ASSESSOR'S SIGNATURE	DATE:
IQA'S SIGNATURE	DATE:
EQA'S SIGNATURE	DATE:

UNIT 005: CLIMATE-RESILIENT CROPS, VARIETIES AND PLANTING METHODS

Unit Reference Number: AGR/CSA/005/L2

NSQ Level: 2

Credit Value: 4

Guided Learning Hours: 40

Practice Time: 120 hours

Unit Purpose: This unit is designed to equip learners to apply knowledge and skills of selecting climate-resilient crops, varieties, and planting methods in climate-smart agricultural practices with limited supervision.

Unit Assessment Requirements/Evidence Requirements

Assessment must be carried out in a real workplace environment. Learners must demonstrate the ability to select appropriate climate-resilient crop varieties, implement planting methods, verify seed quality, and monitor crop establishment.

Assessment methods to be used may include:

1. Direct Observation (DO)
2. Recognition of Prior Learning and experience (RPL)
3. Witness testimony (WT)
4. Personal statement (PS)/ Reflective Practice (RP).
5. Work Product (WP)
6. Assignment (ASS)

Unit 005: Climate-Resilient Crops, Varieties and Planting Methods

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA	Evidence Type	Evidence Ref. No.	Page No.
The learner will:		The learner can:			
LO 1: Assess climate and environmental conditions for crop selection	1.1	Identify the prevailing climatic risks affecting agricultural production in the locality			
	1.2	Collect relevant weather and climate information from available sources, including NiMet forecasts			
	1.3	Interpret the collected relevant weather and climate data			
	1.4	Assess soil characteristics in different areas of the farm			
	1.5	Evaluate water availability and agroecological conditions of the farm			
	1.6	Determine the suitability of different crops for the identified environmental conditions			
	1.7	Match crop requirements to the specific conditions of different field zones			
LO 2: Select climate-resilient crops and varieties suitable for local conditions	2.1	Identify climate-resilient crop species suitable for the farming area, such as drought-tolerant maize, early-maturing sorghum and NERICA rice			
	2.2	Compare crop varieties based on their tolerance to drought, heat, flooding, pests and diseases			
	2.3	Select improved and locally adapted climate-resilient crop varieties that meet production objectives			
	2.4	Verify the quality and source of seeds and planting materials, ensuring they are certified and of high quality			
	2.5	Consider market demand and farmer preferences when selecting crop varieties			
	2.6	Document the reasons for selecting specific varieties for different field zones			
LO 3: Determine appropriate planting methods for climate resilience	3.1	Identify suitable planting methods for selected crops and prevailing climatic conditions			
	3.2	Determine appropriate planting dates using seasonal forecasts, crop calendars and local knowledge			
	3.3	Implement the recommended planting			

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA	Evidence Type	Evidence Ref. No.	Page No.
The learner will:		The learner can:			
		depth, spacing and plant population requirements for each crop			
	3.4	Select appropriate land preparation techniques that conserve soil moisture and reduce erosion, such as minimum tillage and ridging			
	3.5	Carry out cropping system to enhance resilience			
	3.6	Plan for staggered planting to spread risk and extend harvest periods			
LO 4: Implement climate-resilient crop establishment practices	4.1	Prepare the land according to recommended practices for the selected crop and climate conditions			
	4.2	Apply appropriate seed treatments, such as fungicide coating or inoculation, before planting			
	4.3	Plant seeds or transplant seedlings at the correct depth and spacing using appropriate equipment			
	4.4	Apply starter fertiliser or organic manure at planting time to support early growth			
	4.5	Apply mulch or cover crops to conserve soil moisture and suppress weeds			
	4.6	Water newly planted crops adequately to ensure good establishment			
LO 5: Verify seed quality and source	5.1	Inspect seed packets for certification labels and expiry dates			
	5.2	Conduct simple germination tests to assess seed viability			
	5.3	Identify damaged, diseased or off-type seeds			
	5.4	Remove damaged, diseased or off-type seeds			
	5.5	Maintain records of seed sources, batch numbers and quantities planted			
	5.6	Store remaining seeds properly to maintain viability			
	5.7	Report seed quality issues to the supervisor			
LO 6: Monitor crop establishment and take corrective	6.1	Monitor seed germination and seedling emergence			
	6.2	Assess plant population density			

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA	Evidence Type		Evidence Ref. No.	Page No.
The learner will:		The learner can:				
action	6.3	Carry out gap filling where necessary				
	6.4	Take corrective action for poor establishment, such as replanting gaps				
	6.5	Observe early growth performance				
	6.6	Record early growth performance				
	6.7	Identify factors affecting establishment such as pests, diseases and moisture stress				
	6.8	Address the factors identified in 6.7				
	6.9	Report establishment progress to the supervisor				

LEARNERS SIGNATURE	DATE:
ASSESSOR'S SIGNATURE	DATE:
IQA'S SIGNATURE	DATE:
EQA'S SIGNATURE	DATE:

UNIT 006: SOIL FERTILITY, CONSERVATION AND WATER MANAGEMENT OPERATION

Unit Reference Number: AGR/CSA/006/L2

NSQ Level: 2

Credit Value: 3

Guided Learning Hours: 30

Practice Time: 90 hours

Unit Purpose: This unit is designed to equip learners to plan, implement, and report activities related to soil fertility and conservation management practices in climate smart agriculture operations with limited supervision.

Unit Assessment Requirements/Evidence Requirements

Assessment must be carried out in a real workplace environment. Learners must demonstrate the ability to assess soil conditions, implement fertility and conservation practices, maintain records, and monitor soil health.

Assessment methods to be used may include:

1. Direct Observation (DO)
2. Recognition of Prior Learning and experience (RPL)
3. Witness testimony (WT)
4. Personal statement (PS)/ Reflective Practice (RP).
5. Work Product (WP)
6. Assignment (ASS)

Unit 006: Soil Fertility, Conservation and Water Management Operation

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA	Evidence Type	Evidence Ref. Page No.
The learner will:		The learner can:		
LO 1: Assess soil condition and fertility status	1.1	Collect soil samples according to standard procedures, using appropriate tools and techniques		
	1.2	Observe soil fertility and degradation indicators, such as colour, texture, structure and plant growth		
	1.3	Record the status of soil fertility and degradation accurately		
	1.4	Identify nutrient deficiencies and soil constraints affecting crop production, such as acidity, salinity and compaction		
	1.5	Use simple soil test kits to measure pH, nitrogen, phosphorus and potassium levels		
	1.6	Interpret soil test results and relate them to crop requirements		
LO 2: Apply soil fertility management practices	2.1	Select appropriate organic and inorganic soil amendments based on soil test results and crop needs		
	2.2	Apply fertilisers according to crop and soil requirements, following recommended rates and methods		
	2.3	Incorporate organic matter, such as compost and manure, into the soil to improve fertility and structure		
	2.4	Implement integrated soil fertility management practices, combining organic and inorganic sources		
	2.5	Apply lime to correct soil acidity where necessary		
	2.6	Practice green manuring and cover cropping to improve soil moisture and fertility		
LO 3: Apply soil conservation measures	3.1	Identify signs and causes of soil erosion, including sheet, rill and gully erosion		
	3.2	Establish erosion control structures and measures, such as contour bunds, terraces and check dams		
	3.3	Use contour farming and terracing		

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA	Evidence Type	Evidence Ref. Page No.
The learner will:		The learner can:		
		techniques where appropriate to reduce runoff		
	3.4	Maintain vegetative cover to protect soil surfaces from erosion		
	3.5	Establish windbreaks and shelterbelts to reduce wind erosion		
	3.6	Use grass strips and vegetative barriers on slopes		
LO 4: Practice conservation agriculture techniques	4.1	Use minimum soil disturbance practices, such as direct seeding and zero tillage		
	4.2	Maintain permanent soil cover using mulch, crop residues or cover crops		
	4.3	Carry out crop rotation and diversification systems to maintain soil health		
	4.4	Manage crop residues according to conservation agriculture principles, retaining them on the field		
	4.5	Integrate livestock into cropping systems for manure and nutrient cycling		
	4.6	Monitor the impact of conservation agriculture on soil health and crop yields		
LO 5: Record and report soil management activities	5.1	Maintain accurate records of soil management activities, including sampling dates, amendment applications and crop rotations		
	5.2	Document observations on soil health indicators, such as earthworm presence and organic matter content		
	5.3	Record changes in soil colour, structure and fertility over time		
	5.4	Report soil management activities and observations to the supervisor		
	5.5	Use records to plan future soil management strategies		
	5.6	Share soil management best practices with colleagues		
LO 6: Monitor soil health and suggest	6.1	Regularly assess soil health using visual indicators and simple tests kits		

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA	Evidence Type	Evidence Ref. Page No.
The learner will:		The learner can:		
improvements	6.2	Identify emerging soil problems and suggest corrective actions		
	6.3	Monitor the effectiveness of soil conservation and fertility practices		
	6.4	Suggest improvements based on monitoring results		
	6.5	Document lessons learned from soil management practices		
	6.6	Contribute to the development of soil management plans		

LEARNERS SIGNATURE		DATE:
ASSESSOR'S SIGNATURE		DATE:
IQA'S SIGNATURE		DATE:
EQA'S SIGNATURE		DATE:

UNIT 007: RAINWATER HARVESTING AND IRRIGATION PRACTICES

Unit Reference Number: AGR/CSA/007/L2

NSQ Level: 2

Credit Value: 3

Guided Learning Hours: 30

Practice Time: 40 hours

Unit Purpose: This unit is designed to equip learners to apply knowledge and skills of rainwater harvesting and managing water use in climate smart agriculture with limited supervision.

Unit Assessment Requirements/Evidence Requirements

Assessment must be carried out in a real workplace environment. Learners must demonstrate the ability to operate irrigation systems, implement water conservation practices, maintain rainwater harvesting structures, and monitor water use.

Assessment methods to be used may include:

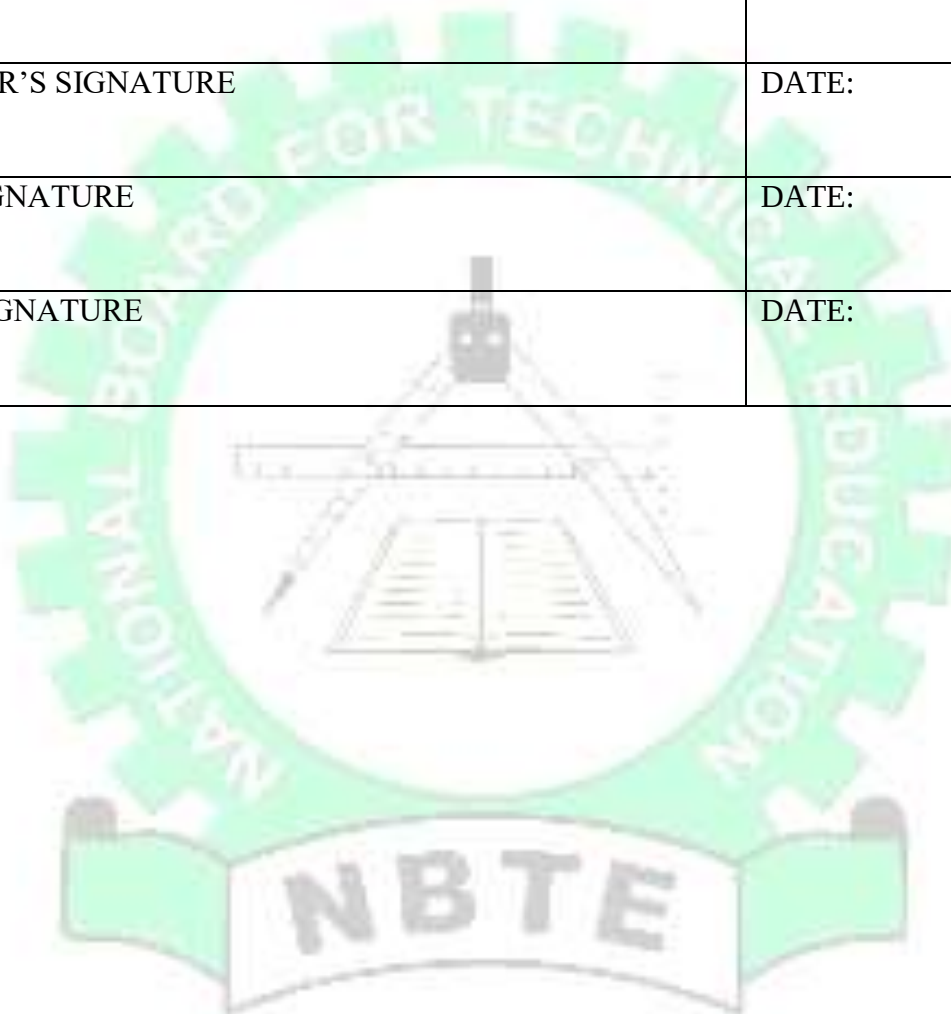
1. Direct Observation (DO)
2. Recognition of Prior Learning and experience (RPL)
3. Witness testimony (WT)
4. Personal statement (PS)/ Reflective Practice (RP).
5. Work Product (WP)
6. Assignment (ASS)

Unit 007: Rainwater Harvesting and Irrigation Practices

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA	Evidence Type	Evidence Ref. Page No.
The learner will:		The learner can:		
LO 1: Explain farm water requirements and available water resources	1.1	Identify sources of water for agricultural production		
	1.2	Identify factors affecting water demands on the farm		
	1.3	Assess water availability and quality for irrigation purposes		
	1.4	Identify crop water requirements at different growth stages, including critical periods for water stress		
	1.5	Estimate the water requirements for different crops and field zones		
	1.6	Plan water allocation based on availability and crop needs		
LO 2: Carry out operation and maintenance of irrigation systems	2.1	Identify different irrigation methods and their applications		
	2.2	Select appropriate irrigation systems based on crop, soil and site conditions		
	2.3	Operate irrigation equipment according to standard procedures and safety requirements		
	2.4	Implement irrigation activities based on crop and weather requirements		
	2.5	Perform routine maintenance of irrigation facilities and equipment		
	2.6	Report irrigation system faults to the supervisor		
LO 3: Perform water conservation and efficient irrigation practices	3.1	Use weather and climate information to optimise irrigation scheduling		
	3.2	Maintain soil moisture levels to guide irrigation decisions using simple moisture monitoring techniques		
	3.3	Perform mulching and other moisture conservation practices to reduce evaporation		
	3.4	Identify water losses from irrigation systems, such as leaks and inefficient application		
	3.5	Correct the identified water losses from irrigation systems in 3.4		
	3.6	Use irrigation water at recommended		

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA	Evidence Type	Evidence Ref. Page No.
The learner will:		The learner can:		
		rates to avoid over-irrigation and water waste		
	3.7	Apply deficit irrigation strategies where appropriate		
LO 4: Apply rainwater harvesting techniques	4.1	Identify suitable rainwater harvesting methods for different farming systems, such as roof catchment, runoff harvesting and in-situ conservation		
	4.2	Indicate storage requirements based on farm water needs and rainfall patterns		
	4.3	Install rainwater collection and storage structures, such as tanks, ponds and catchment surfaces		
	4.4	Maintain rainwater harvesting facilities to ensure they remain functional and free from contamination		
	4.5	Utilise harvested rainwater efficiently during dry periods for irrigation and other uses		
	4.6	Protect catchment areas from contamination and erosion		
LO 5: Monitor water use and conservation activities	5.1	Monitor water usage		
	5.2	Maintain water use records		
	5.3	Document rainfall amounts and irrigation applications		
	5.4	Assess the effectiveness of water conservation measures		
	5.5	Report water use and conservation activities to the supervisor		
	5.6	Contribute to water management planning and improvement		
LO 6: Address water-related challenges on the farm	6.1	Identify signs of water stress in crops and take corrective action		
	6.2	Identify waterlogging and salinity issues		
	6.3	Address waterlogging and salinity issues		
	6.4	Identify leaks in irrigation systems		
	6.5	Repair leaks identified in irrigation systems		
	6.6	Address drainage problems that affect crop growth		

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA	Evidence Type				Evidence Ref. Page No.			
The learner will:		The learner can:								
	6.7	Report major water-related issues to the supervisor								
	6.8	Suggest improvements to water management practices								
LEARNERS SIGNATURE			DATE:							
ASSESSOR'S SIGNATURE			DATE:							
IQA'S SIGNATURE			DATE:							
EQA'S SIGNATURE			DATE:							



UNIT 008: INTEGRATED PESTS AND DISEASES MANAGEMENT**Unit Reference Number: AGR/CSA/008/L2****NSQ Level: 2****Credit Value: 4****Guided Learning Hours: 40****Practice Time: 120 hours**

Unit Purpose: This unit is designed to equip learners with practical skills and knowledge to identify procedures for carrying out integrated pest and disease management using climate-friendly methods in climate-smart agriculture with limited supervision.

Unit Assessment Requirements/Evidence Requirements

Assessment must be carried out in a real workplace environment. Learners must demonstrate the ability to identify pests and diseases, implement IPM strategies, apply pesticides safely when required, and maintain records.

Assessment methods to be used may include:

1. Direct Observation (DO)
2. Recognition of Prior Learning and experience (RPL)
3. Witness testimony (WT)
4. Personal statement (PS)/ Reflective Practice (RP).
5. Work Product (WP)
6. Assignment (ASS)

Unit 008: Integrated Pests and Diseases Management

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA	Evidence Type	Evidence Ref. Page No.
The learner will:		The learner can:		
LO 1: Identify common crop pests and diseases	1.1	Differentiate between pest damage and nutrient deficiency symptoms		
	1.2	Identify signs and symptoms of pest infestations and plant diseases		
	1.3	Identify common insect pests, weeds, and disease-causing organisms affecting resilient crops		
	1.4	Record pest and disease observations accurately		
	1.5	Use pest identification charts and mobile apps for identification		
	1.6	Distinguish between beneficial organisms and pests		

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA	Evidence Type	Evidence Ref. Page No.
The learner will:		The learner can:		
LO 2: Assess pest and disease incidence	2.1	Perform routine field scouting and inspections using a systematic pattern		
	2.2	Assess the extent of pest and disease occurrence		
	2.3	Identify environmental factors that influence pest and disease outbreaks		
	2.4	Use monitoring tools and traps where applicable		
	2.5	Determine when pest populations reach economic thresholds		
	2.6	Report pest and disease incidence data		
LO 3: Use Integrated Pest Management (IPM) principles	3.1	Explain the principles of Integrated Pest Management		
	3.2	Select appropriate preventive measures to reduce pest and disease risks		
	3.3	Use cultural control methods such as crop rotation, intercropping and sanitation		
	3.4	Use biological control agents where appropriate		
	3.5	Apply physical and mechanical control methods, such as traps and barriers		
	3.6	Use chemical control only when necessary and as a last resort		
LO 4: Use climate-friendly pest and disease control methods	4.1	Select climate-smart pest and disease management practices		
	4.2	Promote biodiversity to enhance natural pest control		
	4.3	Use resistant or tolerant crop varieties where available		
	4.4	Apply botanical and biopesticide products according to recommendations		
	4.5	Use neem-based products and other plant-derived pesticides		
	4.6	Implement agroecological approaches to pest management		
LO 5: Use pesticides safely and responsibly when required	5.1	Identify approved pesticides for specific pest problems		
	5.2	Explain pesticide uses, labels and application instructions		
	5.3	Explain the effect of residual pesticide		

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA	Evidence Type	Evidence Ref. Page No.
The learner will:		The learner can:		
		on crops, animals and the environment		
	5.4	Prepare pesticide mixtures correctly and safely		
	5.5	Apply pesticides using appropriate equipment and techniques		
	5.6	Follow safety protocols, including wearing appropriate PPE		
LO 6: Report pest and disease management activities	6.1	Maintain accurate records of pest and disease observations		
	6.2	Record pesticide application details, including type, rate, date and location		
	6.3	Document pest and disease control measures applied		
	6.4	Monitor the effectiveness of pest and disease management		
	6.5	Record effectiveness of pest and disease management		
	6.6	Report pest and disease management activities to the supervisor		
	6.7	Use records to plan future pest and disease management strategies		
LEARNERS SIGNATURE			DATE:	
ASSESSOR'S SIGNATURE			DATE:	
IQA'S SIGNATURE			DATE:	
EQA'S SIGNATURE			DATE:	

UNIT 009: AGROFORESTRY, BIODIVERSITY AND LIVESTOCK PRACTICES

Unit Reference Number: AGR/CSA/009/L2

NSQ Level: 2

Credit Value: 4

Guided Learning Hours: 40

Practice Time: 120 hours

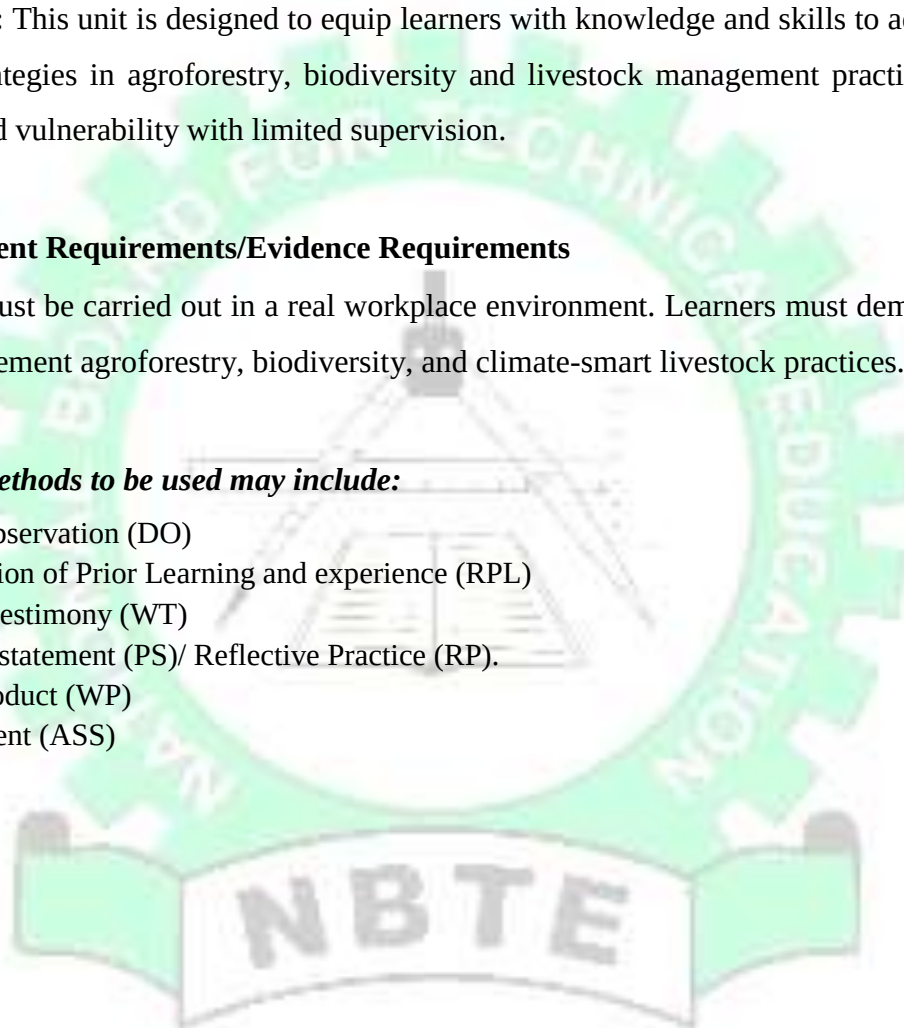
Unit Purpose: This unit is designed to equip learners with knowledge and skills to adopt climate mitigation strategies in agroforestry, biodiversity and livestock management practices to build resilience amid vulnerability with limited supervision.

Unit Assessment Requirements/Evidence Requirements

Assessment must be carried out in a real workplace environment. Learners must demonstrate the ability to implement agroforestry, biodiversity, and climate-smart livestock practices.

Assessment methods to be used may include:

1. Direct Observation (DO)
2. Recognition of Prior Learning and experience (RPL)
3. Witness testimony (WT)
4. Personal statement (PS)/ Reflective Practice (RP).
5. Work Product (WP)
6. Assignment (ASS)



Unit 009: Agroforestry, Biodiversity and Livestock Practices

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 1: Identify climate-smart livestock management practices	1.1	Identify livestock species and breeds suitable for local climatic conditions									
	1.2	Perform appropriate feeding and watering practices for livestock									
	1.3	Maintain animal health and welfare measures									
	1.4	Construct livestock housing that reduces heat stress and disease risks									
	1.5	Carry out rotational grazing and pasture management practices									
	1.6	Identify climate-related stress in livestock									
	1.7	Address the identified climate-related stress in livestock									
LO 2: Carry out sustainable livestock waste management practices	2.1	Identify different types of livestock waste and their uses									
	2.2	Collect livestock waste safely									
	2.3	Handle livestock waste safely									
	2.4	Utilise organic manure from livestock waste to improve soil fertility									
	2.5	Apply measures that minimise greenhouse gas emissions from livestock operations									
	2.6	Process livestock waste into compost and/or biogas									
	2.7	Dispose of livestock waste safely where it cannot be used									
LO 3: Manage agroforestry systems	3.1	Identify suitable tree species for agroforestry systems, such as Gliricidia, Leucaena, Moringa and Faidherbia albida									
	3.2	Select appropriate agroforestry practices for different farming systems, including alley cropping, parkland and windbreaks									
	3.3	Plant trees according to recommended procedures									
	3.4	Maintain trees according to									

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
		recommended procedures									
	3.5	Integrate trees with crops and livestock without affecting productivity									
	3.6	Prune trees to reduce competition with crops and provide mulch									
	3.7	Assess tree survival and growth regularly									
LO 4: Apply agroforestry practices to enhance climate resilience	4.1	Use agroforestry to improve soil fertility and moisture conservation									
	4.2	Establish windbreaks, shelterbelts, or live fences where appropriate									
	4.3	Promote carbon sequestration through tree planting activities									
	4.4	Assess the benefits of agroforestry to farm productivity and resilience									
	4.5	Use agroforestry to diversify farm income through timber, fruit and fuelwood									
	4.6	Enhance microclimate through tree cover									
LO 5: Promote biodiversity conservation in farming systems	5.1	Identify beneficial plants, insects and animals in the farm ecosystem									
	5.2	Explain the role of beneficial soil microbes in the farm ecosystem									
	5.3	Protect natural habitats and biodiversity within the farm environment									
	5.4	Perform practices that conserve pollinators and natural enemies of pests									
	5.5	Carry out diversification of crops and livestock species									
	5.6	Avoid practices that harm beneficial organisms and biodiversity									
LO 6: Report on agroforestry, livestock and biodiversity activities	6.1	Maintain records of agroforestry, livestock and biodiversity activities									
	6.2	Monitor tree growth and survival rates									
	6.3	Record livestock performance and									

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA	Evidence Type	Evidence Ref. No.	Page No.
The learner will:		The learner can:			
		health indicators			
	6.4	Observe changes in biodiversity on the farm			
	6.5	Document changes in biodiversity on the farm			
	6.6	Report activities and observations to the supervisor			
	6.7	Use monitoring data to improve management practices			
LEARNERS SIGNATURE			DATE:		
ASSESSOR'S SIGNATURE			DATE:		
IQA'S SIGNATURE			DATE:		
EQA'S SIGNATURE			DATE:		

LIST OF MINIMUM EQUIPMENT

S/N	Name of Item	Quantity (Suggested)	Used For
1.	Personal Protective Equipment (gloves, boots, goggles, masks)	10 sets	Worker safety in operations
2.	First Aid Kit	2 kits	Emergency medical response
3.	Fire Extinguisher	3 units	Fire safety and hazard control
4.	Safety Signage & Hazard Markers	15 signs	Indicating risks and safety zones
5.	Two-way Radios / Walkie-talkies	5 units	Effective communication in field
6.	Mobile Phones	5 units	Quick communication and coordination
7.	Notice Boards / Bulletin Boards	2 boards	Displaying schedules and updates
8.	Flip Charts / Whiteboards	2 boards	Team meetings and planning
9.	Rotational Duty Register	1 book	Tracking teamwork and responsibilities
10.	Farm Tools (hoes, spades, rakes, cutlasses)	20 assorted	General farm operations
11.	Tractor	1 unit	Mechanized farm operations
12.	Storage Facilities (silos, barns)	2 units	Crop storage and preservation
13.	Soil Testing Kit (pH meter, nutrient kit)	3 kits	Soil fertility assessment
14.	Crop Calendar & Record Book	5 books	Farm planning and record keeping
15.	Seed Storage Containers	10 units	Preserving improved seed

			varieties
16.	Germination Trays / Nursery Beds	20 trays	Raising seedlings
17.	Greenhouse Structure	1 unit	Controlled crop production
18.	Compost Bin	5 bins	Organic fertilizer production
19.	Manure Spreader	1 unit	Distributing organic manure
20.	Mulching Materials	50 bundles	Soil moisture conservation
21.	Rainwater Collection Tank	2 tanks	Harvesting rainwater
22.	Irrigation System (drip kits, sprinklers, hoses)	5 sets	Efficient water use
23.	Water Pump	2 units	Pumping water for irrigation
24.	Moisture Meter	2 units	Monitoring soil moisture
25.	Knapsack Sprayer	5 units	Applying pesticides and bio-controls
26.	Pest Traps (pheromone, light traps)	10 traps	Monitoring pest populations
27.	Biological Control Agents	As required	Eco-friendly pest management
28.	Protective Clothing for Spraying	10 sets	Safety during pesticide application
29.	Magnifying Lens / Pest Chart	5 units	Identifying pests and diseases
30.	Tree Seedlings & Nursery Equipment	200 seedlings	Agroforestry practices
31.	Planting Tools (diggers, augers)	10 units	Tree planting
32.	Fencing Materials	100 meters	Protecting biodiversity plots
33.	Pruning Tools (shears, saws)	10 units	Maintaining agroforestry systems
34.	Biodiversity Monitoring Kits	2 kits	Tracking species diversity

NATIONAL SKILLS QUALIFICATION

LEVEL 3

TITLE:

LEVEL: 3 - CLIMATE SMART AGRICULTURE (TECHNICIAN)



GENERAL INFORMATION

OVERVIEW

This qualification is designed for individuals who are interested in pursuing a career in **Climate Smart Agriculture** for the award of National Skills Qualifications (NSQ)/National Occupational Standards (NOS). It is aimed at producing competencies necessary to support in **Climate Smart Agriculture at NSQ Level 3**.

This qualification is subject to review as and when the need arises.

QUALIFICATION PURPOSE

The qualification is designed to produce competent manpower with knowledge, skills, and attitude required to perform routine Climate Smart Agriculture activities using precision agriculture principles and tools.

QUALIFICATION REQUIREMENTS

All Candidates must be:

- At least sixteen (16) years of age
- Medically fit
- Mentally fit (Mental alertness)
- A Nigerian citizen
- Must complete climate smart agriculture level 2 or other relevant course
- Other nationals should present International passport, residence permit or Parent work permit.
- Vetted
- Interest in agricultural production and related support operations;
- Ability to carry out practical tasks independently and to guide the work of others.

QUALIFICATION OBJECTIVES

The learner should be able to:

1. Apply climate-smart agriculture principles in day-to-day farm operations.
2. Select suitable crops, varieties and planting methods based on climate and soil conditions.
3. Carry out soil fertility, soil conservation and water management practices.
4. Manage irrigation, drainage and rainwater harvesting activities.
5. Identify and manage pests and diseases using integrated and climate-friendly methods.
6. Apply basic climate smart livestock, agroforestry and biodiversity practices.
7. Maintain production, input and financial records for farm improvement.
8. Implement safety standards and communicate effectively in the workplace.
9. Work collaboratively in teams and contribute to organisational goals.
10. Collect and record farm data for informed decision-making.

Mandatory Units

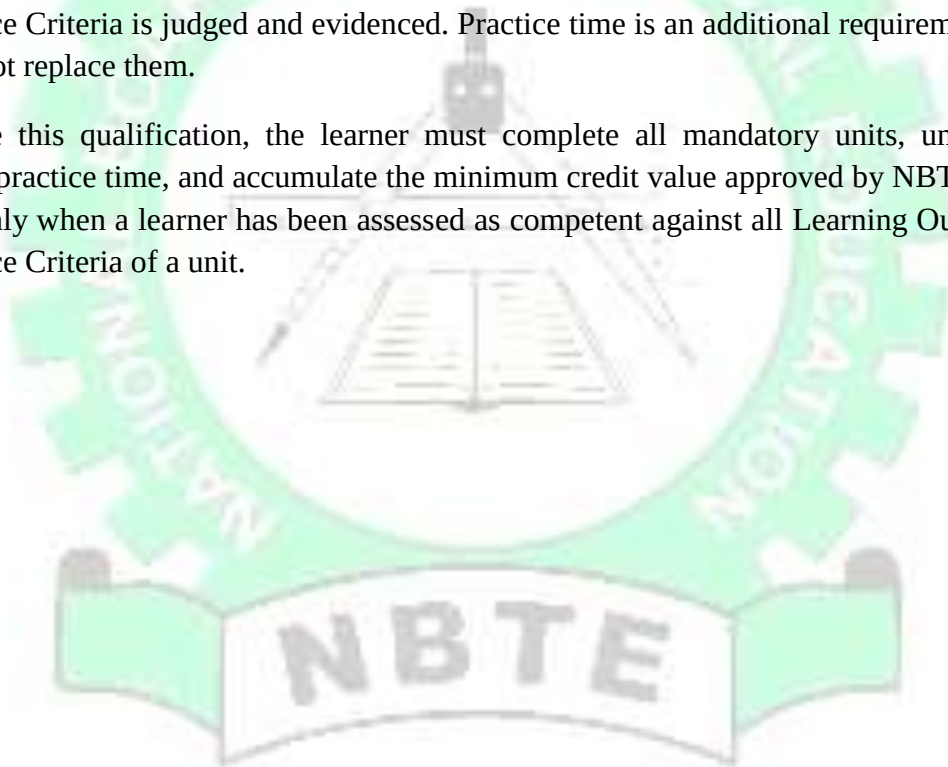
S/N	Reference Number	Unit Title	Credit Value	Guided Learning Hours	Practice Time	Remarks
1.	AGR/CSA/001/L3	Health and Safety in Climate Smart Agriculture Operations	2	20	60	Mandatory
2.	AGR/CSA/002/L3	Communication in Climate Smart Agriculture Operations	2	20	60	Mandatory
3.	AGR/CSA/003/L3	Teamwork in Climate Smart Agriculture Operations	2	20	60	Mandatory
4.	AGR/CSA/004/L3	Climate Smart Crop Adaptability	4	40	120	Mandatory
5.	AGR/CSA/005/L3	Assess Climate Risks and Farm Vulnerability	4	40	120	Mandatory
6.	AGR/CSA/006/L3	Soil, Water and Land Management Practices	4	40	120	Mandatory
7.	AGR/CSA/007/L3	Climate Smart Crop Production	5	50	150	Mandatory
8.	AGR/CSA/008/L3	Climate Smart Livestock and Integrated Farming Systems	4	40	120	Mandatory
9.	AGR/CSA/009/L3	Promote Post-Harvest Handling and Climate Smart Value Addition	4	40	120	Mandatory
10.	AGR/CSA/010/L3	Monitor Productivity, Adaptation and Environmental Performance	4	40	120	Mandatory
TOTAL			35	350	1050	

QUALIFICATION STRUCTURE

This qualification comprises a total of ten (10) Mandatory Units, with a credit value of 35 and 350 Guided Learning Hours (GLH) across the full qualification. One (1) credit is equivalent to ten (10) GLH. Guided Learning Hours are the time a learner spends in the classroom, workshop and laboratory of the Skills Training Centre (STC), being taught, instructed, supervised or assessed by a qualified trainer, facilitator or assessor.

In addition to the GLH, the qualification requires at least twice or thrice the GLH as practice time. Practice time is the time a learner is expected to spend applying the skills of each unit in a real workplace environment, carrying out the same tasks repeatedly until performance becomes consistent, accurate and habitual to the standard the qualification demands. It is undertaken under the guidance of a workplace supervisor, recorded in the learner's logbook and duly endorsed. Practice time is the principal setting where core assessment is conducted. It is through repeated performance in the workplace that a learner's achievement of the Learning Outcomes and Performance Criteria is judged and evidenced. Practice time is an additional requirement to GLH and does not replace them.

To achieve this qualification, the learner must complete all mandatory units, undertake the prescribed practice time, and accumulate the minimum credit value approved by NBTE. Credit is awarded only when a learner has been assessed as competent against all Learning Outcomes and Performance Criteria of a unit.



UNIT 001: HEALTH AND SAFETY IN CLIMATE SMART AGRICULTURE OPERATIONS

Unit Reference Number: AGR/CSA/001/L3

NSQ Level: 3

Credit Value: 2

Guided Learning Hours: 20

Practice Time: 60

Unit Purpose: This unit is designed to equip the learner with knowledge and practical skills to plan, implement, monitor and report on health & safety practices in climate smart agricultural operations.

Unit assessment requirements/ evidence requirements:

Assessment must be carried out in real workplace environment where in which learning and human development is carried out.

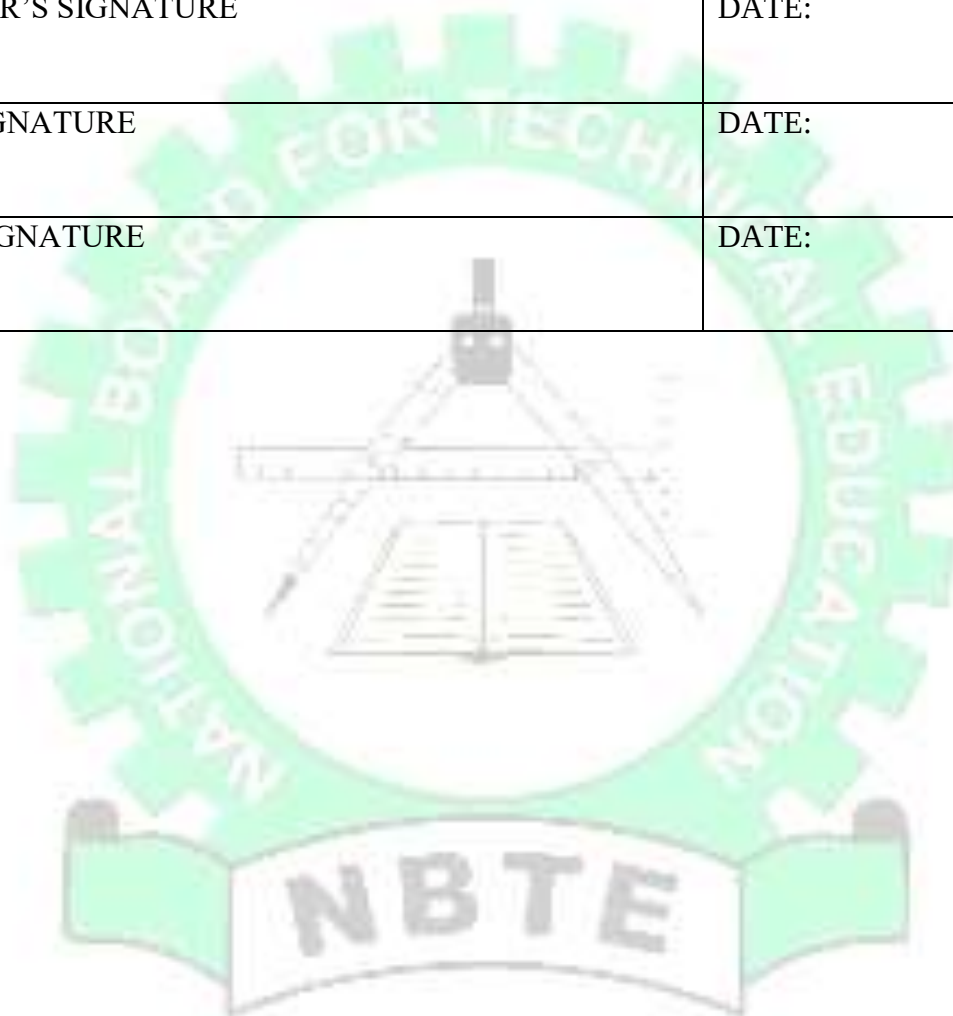
Assessment methods to be used may include:

1. Direct Observation (DO)
2. Recognition of Prior Learning and experience (RPL)
3. Witness testimony (WT)
4. Personal statement (PS)/ Reflective Practice (RP).
5. Work Product (WP)
6. Assignment (ASS)

Unit 001: Health and Safety in Climate Smart Agriculture Operations

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 1: Promote health and safety standards in CSA farm operations	1.1	Explain relevant health and safety regulations applicable to climate smart agriculture.									
	1.2	Conduct regular workplace hazard identification and risk assessments.									
	1.3	Comply with safety standards.									
	1.4	Address unsafe work practices during farm operations.									
	1.5	Maintain proper records of health and safety inspections and incidents.									
LO 2: Use PPE and safety equipment correctly	2.1	Ensure adequate and appropriate PPE is available for all farm workers									
	2.2	Ensure correct use of PPE by workers									
	2.3	Maintain safety equipment									
	2.4	Train workers on PPE selection and use relevant to specific CSA tasks									
LO 3: Manage accident response and emergency preparedness	3.1	Communicate emergency response procedures to all farm workers									
	3.2	Investigate accidents, incidents and prepare written reports for management.									
	3.3	Coordinate first aid response and ensure first aid supplies are maintained									
	3.4	Identify root causes of accidents and recommend control and preventive measures									
LO 4: Ensure compliance with CSA environmental and safety regulations	4.1	Monitor adherence to environmental health and safety regulations on the farm									
	4.2	Supervise safe handling, storage and disposal of chemical inputs and farm waste									
	4.3	Implement climate-responsive safety measures for extreme weather conditions (heat, floods, storms)									
	4.4	Report safety compliance status and deviations to management with recommended corrective actions									

LEARNING OUTCOME (LO) The learner will:	PERFORMANCE CRITERIA The learner can:	Evidence Type	Evidence Ref. No.	Page No.
LEARNERS SIGNATURE		DATE:		
ASSESSOR'S SIGNATURE		DATE:		
IQA'S SIGNATURE		DATE:		
EQA'S SIGNATURE		DATE:		



UNIT 002: COMMUNICATION IN CLIMATE SMART AGRICULTURE OPERATIONS

Unit Reference Number: AGR/CSA/002/L3

NSQ Level: 3

Credit Value: 2

Guided Learning Hours: 20

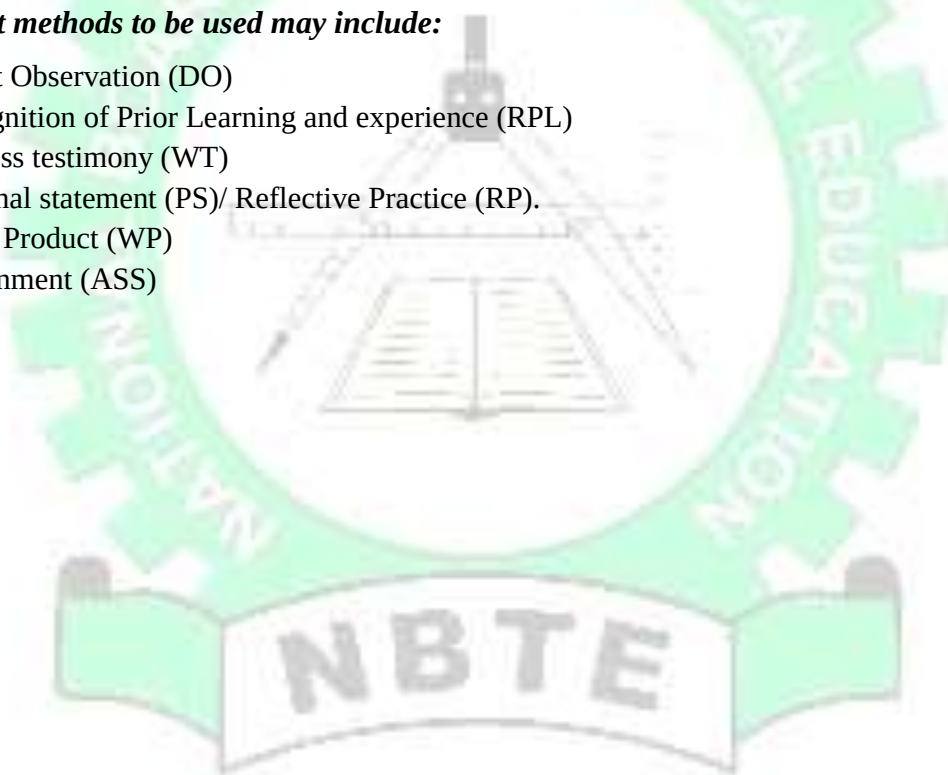
Practice Time: 60

Unit Purpose: This unit is designed to equip the learner with knowledge and practical skills to coordinate and manage information flow, prepare written reports and briefings, present farm findings to stakeholders and ensure effective communication across teams in climate smart agriculture operations without supervision.

Unit assessment requirements/ evidence requirements:

Assessment methods to be used may include:

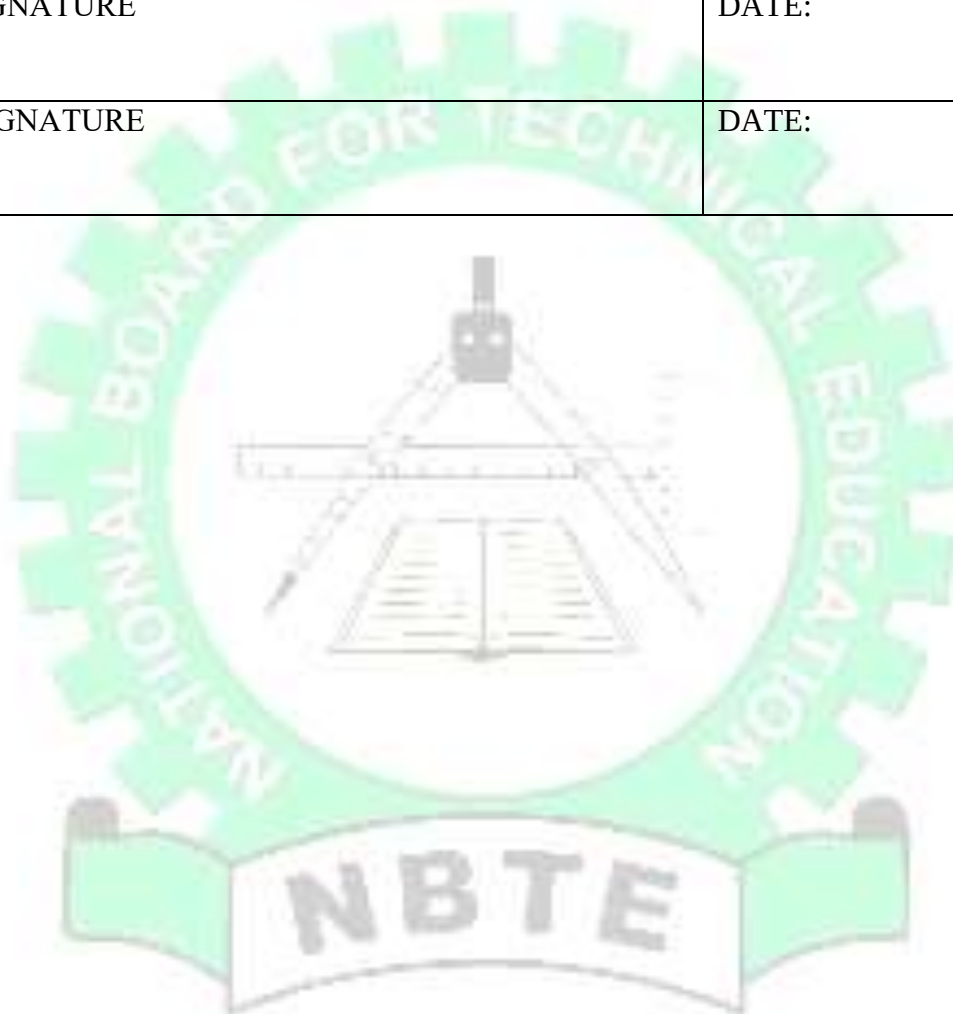
1. Direct Observation (DO)
2. Recognition of Prior Learning and experience (RPL)
3. Witness testimony (WT)
4. Personal statement (PS)/ Reflective Practice (RP).
5. Work Product (WP)
6. Assignment (ASS)



Unit 002: Communication in Climate Smart Agriculture Operations

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type	Evidence Ref. Page No.
LO 1: Coordinate information flow in CSA farm operations	1.1	Maintain effective communication channels between farm workers, supervisors and management		
	1.2	Ensure timely sharing of relevant weather, soil and crop information across the team		
	1.3	Interpret technical CSA advisories and guidelines from relevant authorities (e.g. NiMet, NASC, ADP)		
	1.4	Resolve communication breakdowns within the team promptly and professionally		
LO 2: Present farm reports and briefings	2.1	Compile farm activity reports using appropriate templates and formats		
	2.2	Present farm performance findings, climate observations and CSA outcomes to supervisors and stakeholders		
	2.3	Prepare written briefs, notices and instructions for distribution to farm workers		
	2.4	Maintain records of all official communications, decisions and instructions related to farm operations		
LO 3: Apply professional communication standards in a CSA supervisory role	3.1	Ensure professional communication in all farm interactions		
	3.2	Use appropriate communication tools (written, digital, face-to-face) for different audiences and purposes		
	3.3	Ensure confidentiality of sensitive farm, business and personnel information		
	3.4	Follow the organization's communication protocols and reporting lines at all times		
LEARNERS SIGNATURE			DATE:	

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type	Evidence Ref. Page No.
ASSESSOR'S SIGNATURE			DATE:	
IQA'S SIGNATURE			DATE:	
EQA'S SIGNATURE			DATE:	



UNIT 003: TEAMWORK IN CLIMATE SMART AGRICULTURE OPERATIONS

Unit Reference Number: AGR/CSA/003/L3

NSQ Level: 3

Credit Value: 2

Guided Learning Hours: 20

Practice Time: 60

Unit Purpose: This unit is designed to equip the learner with knowledge and practical skills to lead farm work teams, delegate responsibilities, resolve workplace conflicts, build team capacity and ensure compliance with organisational policies and climate smart agriculture standards at supervisory level.

Unit assessment requirements/ evidence requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out.

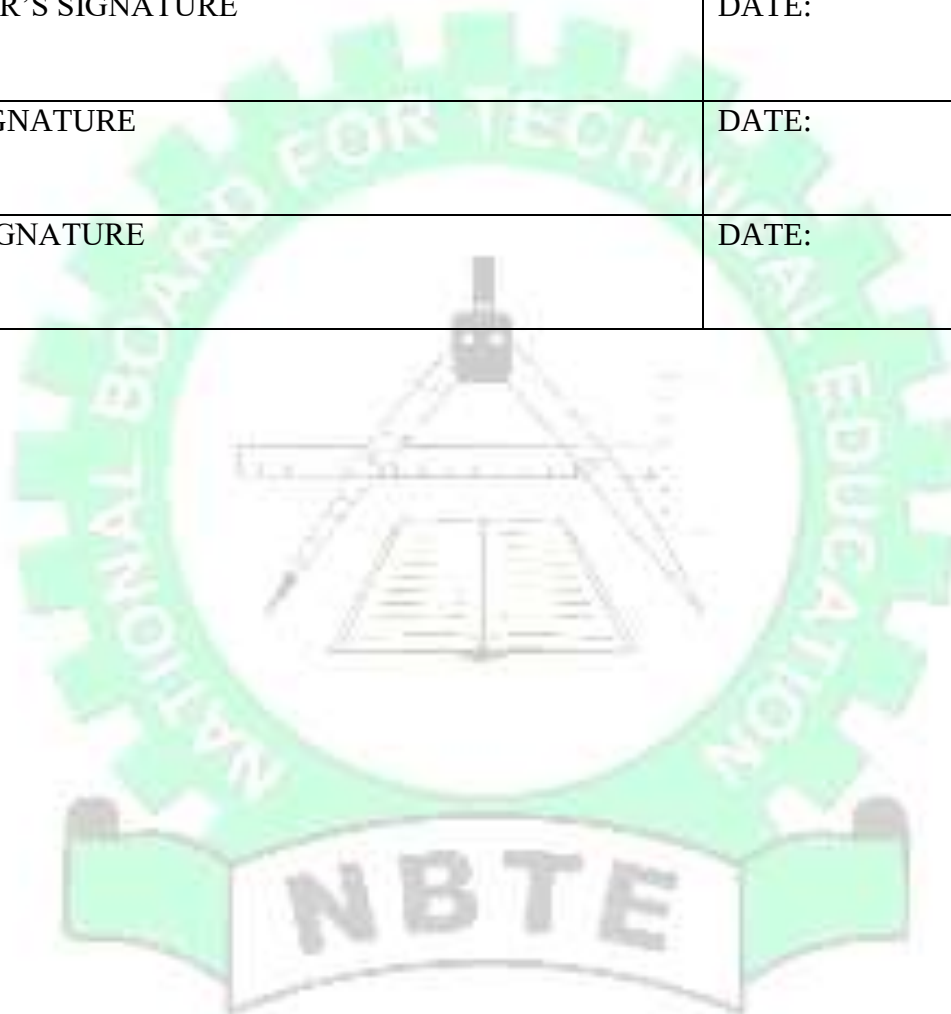
Assessment methods to be used may include:

1. Direct Observation (DO)
2. Recognition of Prior Learning and experience (RPL)
3. Witness testimony (WT)
4. Personal statement (PS)/ Reflective Practice (RP).
5. Work Product (WP)
6. Assignment (ASS)

Unit 003: Teamwork in Climate Smart Agriculture Operations

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 1: Coordinate farm work teams in CSA operations	1.1	Assign tasks and responsibilities to team members based on skills, competence and farm requirements									
	1.2	Develop team work schedules for CSA activities									
	1.3	Communicate team work schedules for CSA activities									
	1.4	Monitor team progress and provide guidance to ensure tasks are completed on time and to standard									
	1.5	Motivate team members to achieve high performance in CSA operations									
	1.6	Promote a culture of collaboration, accountability and climate awareness within the team									
LO 2: Conflict management and team performance	2.1	Identify sources of conflict and poor performance within the team									
	2.2	Apply appropriate conflict resolution techniques in the farm work environment									
	2.3	Provide constructive feedback to team members to improve individual and team performance									
	2.4	Escalate unresolved conflicts or conduct issues to management following organizational procedures									
LO 3: Ensure compliance with organisational policies and CSA standards	3.1	Communicate the organisation's code of conduct and farm policies to all team members									
	3.2	Ensure all activities comply with CSA principles and regulatory requirements									
	3.3	Monitor team adherence to organisational standards and CSA guidelines during farm operations									
	3.4	Prepare reports on team performance, compliance and recommended improvements									

LEARNING OUTCOME (LO) The learner will:	PERFORMANCE CRITERIA The learner can:	Evidence Type	Evidence Ref. No.	Page No.
LEARNERS SIGNATURE		DATE:		
ASSESSOR'S SIGNATURE		DATE:		
IQA'S SIGNATURE		DATE:		
EQA'S SIGNATURE		DATE:		



UNIT 004: CLIMATE SMART CROP ADAPTABILITY

Unit Reference Number: AGR/CSA/004/L3

NSQ Level: 3

Credit Value: 4

Guided Learning Hours: 40

Practice Time: 120

Unit Purpose: This unit is designed to equip learners with the required knowledge and practical skills on climate smart crop adaptability techniques, precision water management, and integrated pest management (IPM) are being executed accurately in accordance with environmental policies and farm standard operating procedures (SOPs).

Unit assessment requirements/evidence requirements:

Assessment must be carried out in a real workplace environment in which learning and human development is carried out.

Assessment methods to be used may include:

1. Direct Observation (DO)
2. Recognition of Prior Learning and experience (RPL)
3. Witness testimony (WT)
4. Personal statement (PS)/ Reflective Practice (RP).
5. Work Product (WP)
6. Assignment (ASS)

Unit 004: Climate Smart Crop Adaptability

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type	Evidence Ref. Page No.
LO 1: Coordinate Climate-Resilient Land Preparation	1.1	Monitor minimum or zero-tillage practices especially on fragile soil.		
	1.2	Monitor the implementation of permanent soil cover (e.g., retention of crop residues, mulching etc.)		
	1.3	Supervise the establishment of mitigating measures against extreme weather conditions.		
	1.4	Ensure soil test results are strictly aligned with fertilizer type and applications.		
LO 2: Supervise Crop Variety Selection in Planting Operations	2.1	Observe meteorological data to determine optimal, adaptive planting windows.		
	2.2	Ensure that certified climate-resilient seed varieties (tolerant, and resistant and early maturing) are well treated before sowing.		
	2.3	Supervise planting density and rooting depth according to anticipated soil moisture levels		
LO 3: Manage Water and Nutrient Supply Systems	3.1	Oversee the scheduling and maintenance of micro-irrigation systems to optimize water use efficiency		
	3.2	Supervise the implementation of fertilizer type, rates and methods of application.		
	3.3	Maintain farm water-harvesting infrastructures to guarantee secondary supply readiness during dry spells.		
LO 4: Coordinate Ecosystem-Based Pest, Disease, and Weed Management	4.1	Ensure an Integrated Pest Management (IPM) compliance		
	4.2	Carry out a regular field inspection and remove any pest and disease showing symptoms.		
	4.3	Ensure safety protocols by making sure workers utilize appropriate PPE and		

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type				Evidence Ref. Page No.			
		dispose of chemical containers according to national environmental regulations.								
	4.4	Ensure weed management prevention, eradication, control and management methods.								
LO 5: Monitor Climate-Smart Metrics and Yield Outcomes	5.1	Maintain precise records of all farm inputs used throughout the production cycle								
	5.2	Supervise post-harvest activities to ensure the reduction greenhouse gases								
	5.3	Present a final seasonal performance report comparing achieved yields against climate anomalies encountered								
LEARNERS SIGNATURE			DATE:							
ASSESSOR'S SIGNATURE			DATE:							
IQA'S SIGNATURE			DATE:							
EQA'S SIGNATURE			DATE:							

UNIT 005: ASSESS CLIMATE RISKS AND FARM VULNERABILITY

Unit Reference Number: AGR/CSA/005/L3

NSQ Level: 3

Credit Value: 4

Guided Learning Hours: 40

Practice Time: 120

Unit Purpose: This unit is designed to equip the learner with the required knowledge and practical skills to plan, coordinate, supervise and report activities related to climate risks and vulnerability in CSA farm operations.

Unit assessment requirements/evidence requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used may include:

1. Direct Observation (DO)
2. Recognition of Prior Learning and experience (RPL)
3. Witness testimony (WT)
4. Personal statement (PS)/ Reflective Practice (RP).
5. Work Product (WP)
6. Assignment (ASS)

Unit 005: Assess Climate Risks and Farm Vulnerability

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 1: Identify climatic risks in CSA farm operations	1.1	Ecological identification of local weather patterns and climate trends.									
	1.2	Monitor frequency and intensity of extreme events such as droughts, floods, storms and heatwaves.									
	1.3	Assess seasonal variability affecting crop cycles.									
	1.4	Document potential hazards to soil, water and crops.									
LO 2: Evaluate farm vulnerability	2.1	Map vulnerable areas within the farm settlement.									
	2.2	Identify the socio-economic factors influencing vulnerability within the farm settlement.									
	2.3	Evaluate infrastructural resilience such as irrigation, storage, and housing.									
	2.4	Assess sensitivity of crops and livestock to climatic stress.									
LO 3: Analyse climatic risk impacts and vulnerability	3.1	Evaluate potential yield losses under climatic conditions.									
	3.2	Assess climatic risk impacts on soil fertility and water availability.									
	3.3	Evaluate economic consequences of climate risks in farm settlements.									
LO 4: Develop adaptation strategies	4.1	Recommend diversification strategies to build resilience.									
	4.2	Recommend water-saving technologies, drought tolerant and early maturing crops and soil conservation methods									
	4.3	Promote agroforestry with leguminous trees and integrated farming systems									
	4.4	Design contingency plans for extreme events.									
LO 5: Monitor	5.1	Maintain records of climatic risk									

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA	Evidence Type	Evidence Ref. No.	Page No.
The learner will:		The learner can:			
climatic risks and vulnerability		observations and farm vulnerabilities.			
	5.2	Prepare risk assessment reports for stakeholders.			
	5.3	Communicate risk assessment findings to local farmers and relevant authorities.			
	5.4	Update risk profiles regularly based on new data.			
LEARNERS SIGNATURE			DATE:		
ASSESSOR'S SIGNATURE			DATE:		
IQA'S SIGNATURE			DATE:		
EQA'S SIGNATURE			DATE:		

UNIT 006: SOIL, WATER AND LAND MANAGEMENT PRACTICES

Unit Reference Number: AGR/CSA/006/L3

NSQ Level: 3

Credit Value: 4

Guided Learning Hours: 40

Practice Time: 120

Unit Purpose: This unit is designed to equip the learner with knowledge and practical skills to plan, coordinate, supervise and report activities related to soil, water and land management practices in climate smart agricultural operations.

Unit assessment requirements/ evidence requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used may include:

1. Direct Observation (DO)
2. Recognition of Prior Learning and experience (RPL)
3. Witness testimony (WT)
4. Personal statement (PS)/ Reflective Practice (RP).
5. Work Product (WP)
6. Assignment (ASS)

Unit 006: Soil, Water and Land Management Practices

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 1: Soil fertility management	1.1	Supervise soil testing and analysis.									
	1.2	Ensure crop rotation, fallow period, intercropping with legumes and organic amendments are applied where necessary									
	1.3	Evaluate soil health regularly and recommend improvements									
	1.4	Monitor erosion control measures through mulching, contour farming and use of deep-rooted crop etc.									
LO 2: Water conservation practices	2.1	Supervise irrigation scheduling based on crop requirements									
	2.2	Monitor rainwater harvesting systems.									
	2.3	Ensure efficient water-use technologies									
	2.4	Prevent waterlogging and salinity issues.									
LO 3: Land use planning	3.1	Monitor indicators of land degradation									
	3.2	Coordinate land use for crops and livestock production									
	3.3	Understand the application basic GIS/mapping tools for land management									
LO 4: Monitoring and compliance	4.1	Monitor adherence to environmental regulations.									
	4.2	Maintain records of soil, water, and land management									
	4.3	Report deviations for corrective actions.									
	4.4	Liaise with communities and relevant authorities for compliance									
LEARNERS SIGNATURE			DATE:								
ASSESSOR'S SIGNATURE			DATE:								

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type	Evidence Ref. Page No.
IQA'S SIGNATURE			DATE:	
EQA'S SIGNATURE			DATE:	



UNIT 007: CLIMATE SMART CROP PRODUCTION

Unit Reference Number: AGR/CSA/007/L3

NSQ Level: 3

Credit Value: 5

Guided Learning Hours: 50

Practice Time: 150

Unit Purpose: This unit is designed to equip the learner with knowledge and practical skills to plan, coordinate, supervise and report activities related to climate smart crop production in agricultural operations.

Unit assessment requirements/ evidence requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used may include:

1. Direct Observation (DO)
2. Recognition of Prior Learning and experience (RPL)
3. Witness testimony (WT)
4. Personal statement (PS)/ Reflective Practice (RP).
5. Work Product (WP)
6. Assignment (ASS)

Unit 007: Climate Smart Crop Production

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA	Evidence Type					Evidence Ref. Page No.			
The learner will:		The learner can:									
LO 1: Plan and organize climate-smart crop production activities	1.1	Supervise the climate-smart crop production activities									
	1.2	Identify climate-related risks and opportunities affecting crop production.									
	1.3	Develop work schedules for good agronomic practices (GAPs).									
	1.4	Allocate labour, equipment, inputs, and other resources according to production requirements.									
	1.5	Ensure planned activities comply with climate-smart agriculture principles and organizational procedures.									
LO 2: Supervise land preparation and crop establishment operations	2.1	Ensure land preparation activities are carried out according to recommended agronomic practices of that area.									
	2.2	Ensure soil and water conservation measures are incorporated during field preparation.									
	2.3	Monitor the use of climate-resilient crop varieties and quality planting materials.									
	2.4	Ensure that planting activities are conducted under good agronomic practices.									
LO 3: Monitor Soil fertility and water management practices	3.1	Monitor soil fertility management activities according to crop requirements.									
	3.2	Ensure the efficient use of organic and inorganic fertilizers where necessary.									
	3.3	Supervise water conservation and irrigation practices to optimize water use efficiency									
	3.4	Ensure soil health improvement practices are consistently applied.									
LO 4: Monitor crop growth and climate-related risks	4.1	Monitor crop performance throughout the production cycle.									
	4.2	Collect and interpret weather and climate information relevant to crop									

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
		production									
	4.3	Identify signs of climate stress affecting crops.									
	4.4	Ensure adaptation measures are implemented									
LO 5: Supervise harvesting and post-harvest operations	5.1	Determine crop maturity and readiness for harvest.									
	5.2	Supervise harvesting activities to minimize crop losses and quality deterioration									
	5.3	Ensure harvested produce is handled, transported, and stored appropriately.									
	5.4	Verify that post-harvest practices maintain product quality and safety.									

LEARNERS SIGNATURE		DATE:
ASSESSOR'S SIGNATURE		DATE:
IQA'S SIGNATURE		DATE:
EQA'S SIGNATURE		DATE:

UNIT 008: CLIMATE SMART LIVESTOCK AND INTEGRATED FARMING SYSTEMS

Unit Reference Number: AGR/CSA/008/L3

NSQ Level: 3

Credit Value: 4

Guided Learning Hours: 40

Practice Time: 120

Unit Purpose: This unit is designed to equip the learner with the required knowledge and practical skills to plan, coordinate, supervise and report activities related to climate smart livestock production and integrated farming systems in CSA operations.

Unit assessment requirements/ evidence requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used may include:

1. Direct Observation (DO)
2. Recognition of Prior Learning and experience (RPL)
3. Witness testimony (WT)
4. Personal statement (PS)/ Reflective Practice (RP).
5. Work Product (WP)
6. Assignment (ASS)



Unit 008: Climate Smart Livestock and Integrated Farming Systems

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA The learner can:	Evidence Type		Evidence Ref. Page No.
LO 1: Climate-smart livestock production activities	1.1	Implement livestock production plans according to farm objectives.			
	1.2	Supervise animal housing, feeding, watering, health and welfare practices to enhance resilience.			
	1.3	Identify climate-related risks affecting livestock production and implement adaptation measures.			
	1.4	Monitor feeding, breeding, stocking rate and herd management practices			
	1.5	Monitor animal health, welfare, and biosecurity measures according to standards and regulations.			
	1.6	Review livestock performance, mortality, disease, and productivity records.			
LO 2: Supervise integrated crop-livestock farming operations	2.1	Coordinate crop and livestock farming to optimize resource utilization and productivity.			
	2.2	Supervise livestock manure management and utilization			
	2.3	Ensure effective utilization of crop residues and by-products			
	2.4	Monitor resource flows for efficiency and sustainability in production.			
	2.5	Supervise integrated farming activities in compliance with CSA practices			
	2.6	Communicate opportunities for diversification and integration to management.			
LO 3: Supervise climate-smart pasture and forage management	3.1	Manage pasture and forage production activities according to seasonal and climatic conditions.			
	3.2	Implement grazing plans to maintain pasture productivity,			

UNIT 009: PROMOTE POST-HARVEST HANDLING AND CLIMATE SMART VALUE ADDITION

Unit Reference Number: AGR/CSA/009/L3

NSQ Level: 3

Credit Value: 4

Guided Learning Hours: 40

Practice Time: 120

Unit Purpose: This unit is designed to equip the learner with the required knowledge and practical skills in post-harvest handling, storage, processing and value addition without supervision

Unit assessment requirements/evidence requirements.

Assessment shall be conducted in areal field demonstrated workplace. The learner must demonstrate competence in supervising post-harvest performance criteria duly highlighted within the unit.

Assessment methods to be used may include:

1. Direct Observation (DO)
2. Recognition of Prior Learning and experience (RPL)
3. Witness testimony (WT)
4. Personal statement (PS)/ Reflective Practice (RP).
5. Work Product (WP)
6. Assignment (ASS)

Unit 009: Promote Post-Harvest Handling and Climate Smart Value Addition

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.		
LO 1: Supervise Post-Harvest Handling Operations	1.1	Assess crop maturity period and harvesting requirements on the farm.								
	1.2	Supervise harvesting, sorting, grading, cleaning and packaging activities.								
	1.3	Ensure post-harvest losses are minimized through proper handling techniques.								
	1.4	Monitor compliance with food safety, hygiene and quality standards.								
LO 2: Coordinate Storage and Value Addition Activities	2.1	Supervise drying, packaging and preservation operations.								
	2.2	Select suitable storage methods for different agricultural commodities.								
	2.3	Coordinate climate-smart processing and value addition activities.								
	2.4	Ensure efficient utilization of post-harvest equipment and resources.								
LO 3: Monitor Product Quality and Market Readiness	3.1	Evaluate quality characteristics of processed and stored products.								
	3.2	Identify causes of post-harvest losses and quality deterioration.								
	3.3	Maintain records of storage, processing and value addition activities.								
	3.4	Make suggestions for improved product quality and market competitiveness								
LEARNERS SIGNATURE			DATE:							
ASSESSOR'S SIGNATURE			DATE:							
IQA'S SIGNATURE			DATE:							
EQA'S SIGNATURE			DATE:							

Unit 010: Monitor Productivity, Adaptation and Environmental Performance

Unit Reference Number: AGR/CSA/010/L3

NSQ Level: 3

Credit Value: 4

Guided Learning Hours: 40

Practice Time: 120

Unit Purpose: This unit is designed to equip the learner with knowledge and practical skills to monitor farm productivity, evaluate climate adaptation measures, assess environmental performance and prepare reports for continuous improvement of CSA farm operations without supervision.

Unit assessment requirements/evidence requirements

Assessment shall be conducted in a real or simulated agricultural workplace.

Assessment methods to be used may include:

1. Direct Observation (DO)
2. Recognition of Prior Learning and experience (RPL)
3. Witness testimony (WT)
4. Personal statement (PS)/ Reflective Practice (RP).
5. Work Product (WP)
6. Assignment (ASS)



Unit 010: Monitor Productivity, Adaptation and Environmental Performance

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA	Evidence Type	Evidence Ref. No.	Page No.
The learner will:		The learner can:			
LO 1: Monitor Farm Productivity Indicators	1.1	Establish productivity indicators for crops, livestock and farm enterprises.			
	1.2	Process farm production data			
	1.3	Compare actual performance against targets and benchmarks.			
	1.4	Maintain accurate productivity records and reports.			
LO 2: Assess Climate Adaptation Performance	2.1	Monitor implementation of climate adaptation measures.			
	2.2	Evaluate effectiveness of climate-smart technologies.			
	2.3	Identify climate-related risks affecting farm performance.			
	2.4	Suggest corrective actions to improve resilience and adaptation outcomes.			
LO 3: Evaluate Environmental Performance and Reporting	3.1	Monitor soil, water, biodiversity and resource-use indicators.			
	3.2	Assess environmental impacts of farm activities.			
	3.3	Prepare environmental and sustainability performance reports.			
	3.4	Suggest continuous improvement measures for environmental-friendly CSA operations			
LEARNERS SIGNATURE			DATE:		
ASSESSOR'S SIGNATURE			DATE:		
IQA'S SIGNATURE			DATE:		
EQA'S SIGNATURE			DATE:		

LIST OF MINIMUM EQUIPMENT

S/N	Name of Item	Quantity	Uses
1	Personal Protective Equipment (gloves, boots, goggles, masks)	10 sets	Safety in farm operations
2	First Aid Kit	2 kits	Emergency medical response
3	Fire Extinguisher	3 units	Fire hazard control
4	Safety Signage	15 signs	Indicating risks and safety zones
5	Two-way Radios / Walkie-talkies	5 units	Effective communication
6	Mobile Phones	5 units	Quick coordination
7	Notice Boards	2 boards	Displaying updates and schedules
8	Logbooks / Record Books	10 books	Documentation of farm activities
9	Flip Charts / Whiteboards	2 boards	Team meetings and planning
10	Duty Register	1 book	Tracking responsibilities
11	Shared Toolkits	5 sets	Group farm tasks
12	Farm Tools (hoes, spades, rakes, cutlasses)	20 assorted	General farm work
13	Tractor	1 unit	Mechanized farming
14	Soil Testing Kit (pH meter, nutrient kit)	3 kits	Soil fertility assessment
15	Crop Calendar	5 books	Farm planning
16	Weather Monitoring Tools	2 units	Assessing climate risks
17	Rain Gauge	2 units	Measuring rainfall
18	Compost Bin	5 bins	Organic fertilizer production
19	Mulching Materials	50 bundles	Soil moisture conservation
20	Terracing Tools	10 units	Soil erosion control
21	Seed Storage Containers	10 units	Preserving seeds
22	Germination Trays	20 trays	Raising seedlings
23	Greenhouse Structure	1 unit	Controlled crop production
24	Rainwater Collection Tank	2 tanks	Harvesting water
25	Irrigation Kits (drip/sprinklers)	5 sets	Efficient irrigation
26	Water Pump	2 units	Pumping water
27	Moisture Meter	2 units	Soil moisture monitoring
28	Livestock Housing Structures	2 units	Climate-smart livestock management
29	Animal Feeding Equipment	5 sets	Integrated farming systems
30	Post-Harvest Storage Facilities (silos, barns)	2 units	Value addition and preservation
31	Drying Mats / Solar Dryers	5 units	Post-harvest handling
32	Weighing Scales	2 units	Measuring productivity
33	Biodiversity Monitoring Kits	2 kits	Tracking environmental performance
34	Digital Devices (tablet/laptop)	2 units	Electronic record keeping

35	Filing Cabinets	2 units	Organizing farm records
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NATIONAL SKILLS QUALIFICATION

FOR

CLIMATE SMART AGRICULTURE SUPERVISOR

LEVEL 4



JULY, 2026

GENERAL INFORMATION

OVERVIEW

This qualification is designed for individuals who are interested in pursuing a career in **Climate Smart Agriculture** for the award of National Skills Qualifications (NSQ)/National Occupational Standards (NOS). It is aimed at producing competencies necessary to support in **Climate Smart Agriculture** at **NSQ Level 1**.

This qualification is subject to review as and when the need arises.

QUALIFICATION PURPOSE

The qualification is designed to produce competent entry level beef production assistant with knowledge, skills, and attitude required to perform routine Climate Smart Agriculture activities under supervision using basic precision agriculture principles and tools

QUALIFICATION REQUIREMENTS

All Candidates must be:

- At least twenty (20) years of age
- Medically fit
- Mentally fit (Mental alertness)
- Completion of NSQ level 3 or equivalent experience in agricultural supervision and management
- A Nigerian citizen
- Other nationals should present International passport, residence permit or Parent work permit.
- Vetted
- Interest in agricultural production and related support operations;
- Ability to plan, supervise and evaluate practical work carried out by others.

QUALIFICATION OBJECTIVES

The learner should be able to:

1. Ensure occupational health and safety standards in agricultural workplaces.
2. Coordinate communication and reporting systems within agricultural operations.
3. Lead and manage agricultural teams effectively.
4. Supervise Climate Smart Agriculture operations in crop, livestock and forestry systems.
5. Coordinate post-harvest handling and value addition activities.
6. Monitor soil, water, crop, livestock, pest and disease management activities.
7. Manage agribusiness performance and production efficiency.
8. Oversee farm tools, equipment and resource management.

Mandatory Units

S/N	Reference Number	Unit Title	Credit Value	Guided Learning Hours	Practice Time	Remarks
1.	AGR/CSA/001/L4	Health, Safety and Environmental Compliance in CSA Operations	3	30	90	Mandatory
2.	AGR/CSA/002/L4	Communication and Reporting in CSA Operations	3	30	90	Mandatory
3.	AGR/CSA/003/L4	Teamwork in Climate Smart Agriculture Operations	3	30	90	Mandatory
4.	AGR/CSA/004/L4	Integrated Crop-Livestock-Forestry Systems	7	70	210	Mandatory
5.	AGR/CSA/005/L4	Soil, Water and Crop Production Systems	7	70	210	Mandatory
6.	AGR/CSA/006/L4	Integrated Pest and Disease Control Supervision	8	80	240	Mandatory
7.	AGR/CSA/007/L4	Livestock Production Systems	8	80	240	Mandatory
8.	AGR/CSA/008/L4	Post-Harvest Handling and Value Addition	7	70	210	Mandatory
9.	AGR/CSA/009/L4	Agribusiness Performances and Production Efficiency Improvement	5	50	150	Mandatory
10.	AGR/CSA/010/L4	Farm Equipment and Resource Management	5	50	150	Mandatory
TOTAL			56	560	1680	

QUALIFICATION STRUCTURE

This qualification comprises a total of ten (10) Mandatory Units, with a credit value of 56 and 560 Guided Learning Hours (GLH) across the full qualification. One (1) credit is equivalent to ten (10) GLH. Guided Learning Hours are the time a learner spends in the classroom, workshop and laboratory of the Skills Training Centre (STC), being taught, instructed, supervised or assessed by a qualified trainer, facilitator or assessor.

In addition to the GLH, the qualification requires at least twice or thrice the GLH as practice time. Practice time is the time a learner is expected to spend applying the skills of each unit in a real workplace environment, carrying out the same tasks repeatedly until performance becomes consistent, accurate and habitual to the standard the qualification demands. It is undertaken under

the guidance of a workplace supervisor, recorded in the learner's logbook and duly endorsed. Practice time is the principal setting where core assessment is conducted. It is through repeated performance in the workplace that a learner's achievement of the Learning Outcomes and Performance Criteria is judged and evidenced. Practice time is an additional requirement to GLH and does not replace them.

To achieve this qualification, the learner must complete all mandatory units, undertake the prescribed practice time, and accumulate the minimum credit value approved by NBTE. Credit is awarded only when a learner has been assessed as competent against all Learning Outcomes and Performance Criteria of a unit.



GENERAL GUIDE

Unit title	Provides a clear explanation of the content of the unit.
Unit number	The unique number assigned to the unit.
Unit reference	The unique reference number given to each unit at qualification approval by NBTE.
Unit level	Denotes the level of the unit within the National Skills Qualification Framework (NSQF).
Unit credit value	The value that has been given to the unit based on the expected learning time for an average learner. 1 credit = 10 learning hours.
Unit aim	Provides a brief outline of the unit content.
Learning outcome	A statement of what a learner will know, understand or be able to do as a result of a process of learning.
Assessment criteria	A description of the requirements a learner must achieve to demonstrate that a learning outcome has been met.
Unit assessment guidance	Any additional guidance provided to support the assessment of the unit.
Unit guided learning hours	The average number of hours of supervised or directed study time or assessment required to achieve a qualification or unit of a qualification.

UNIT 001: HEALTH, SAFETY AND ENVIRONMENTAL COMPLIANCE IN CSA OPERATIONS

Unit Reference Number: AGR/CSA/001/L4

NSQ Level: 4

Credit Value: 3

Guided Learning Hours: 30

Practice Time: 90 hours

Unit Purpose: This unit is designed to equip the learner with skills and knowledge to ensure occupational health and safety standards across all climate smart agriculture operations at supervisory level.

Unit Assessment Requirements/Evidence Requirements

Assessment must be carried out in a real workplace environment. Learners must demonstrate the ability to enforce safety standards, manage emergencies, ensure regulatory compliance, and investigate incidents. Evidence may include safety inspection reports, incident investigation reports, compliance audit records, and witness testimony.

Assessment methods to be used may include:

1. Direct Observation (DO)
2. Witness Testimony (WT)
3. Personal Statement (PS) or Reflective Practice (RP)
4. Work Product (WP)
5. Recognition of Prior Learning (RPL)
6. Assignment (ASS)

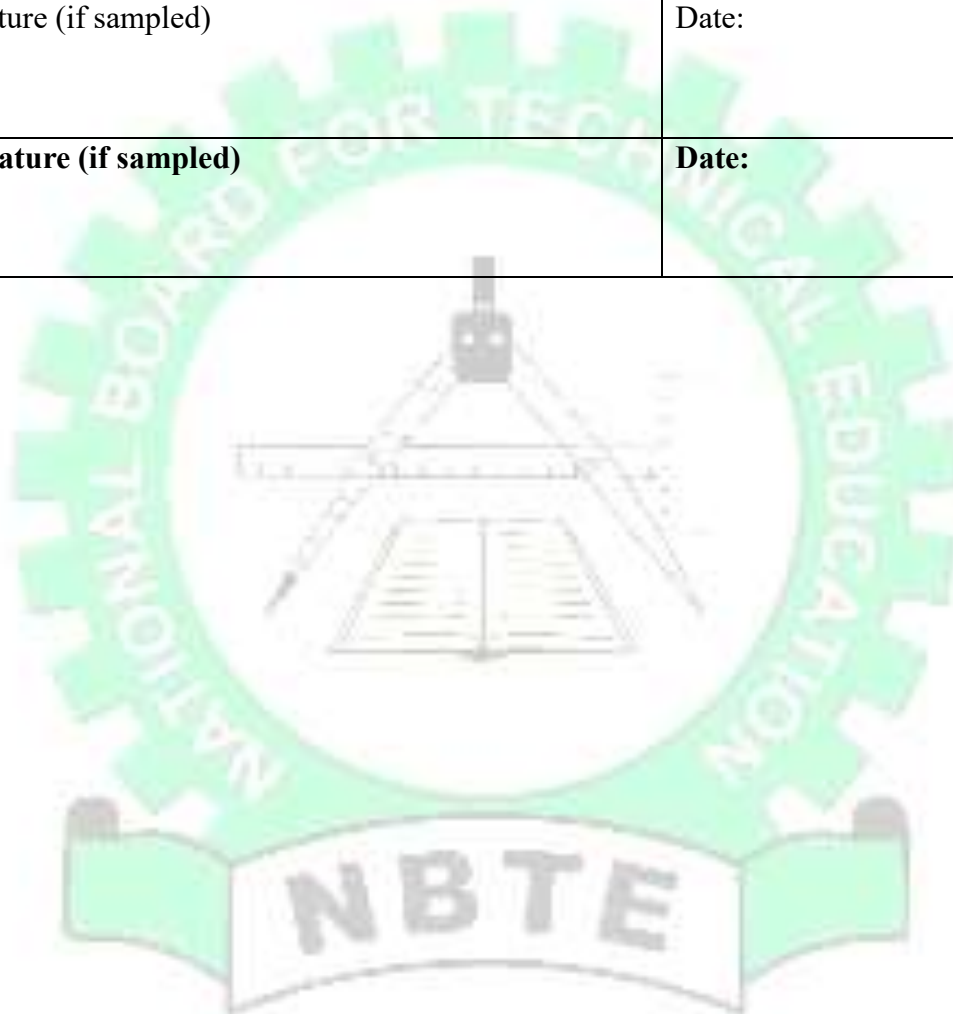
Unit 001: Health, Safety and Environmental Compliance in CSA Operations

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA	Evidence Type					Evidence Ref. No.			
The learner will:		The learner can:									
LO 1: <i>Ensure occupational health and safety standards across CSA operations</i>	1.1	Explain the relevant occupational health and safety regulations applicable to CSA supervisory operations									
	1.2	Conduct comprehensive workplace hazard identification and risk assessments across all CSA farm settings									
	1.3	Ensure all farm personnel comply with health and safety standards and approved safe work procedures									
	1.4	Take corrective action against unsafe practices observed during field and farm operations									
	1.5	Maintain up-to-date records of all health and safety inspections, audits and incidents									
	1.6	Review safety procedures regularly to reflect changing operational conditions									
LO 2: <i>Supervise correct selection and maintenance of PPE</i>	2.1	Ensure appropriate PPE is available and accessible to all farm personnel at all times									
	2.2	Supervise correct use, fitting and maintenance of PPE by all workers across CSA activities									
	2.3	Coordinate periodic inspection, replacement and proper storage									

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA	Evidence Type	Evidence Ref. No.
The learner will:		The learner can:		
		of all PPE and safety equipment		
	2.4	Train farm workers on PPE selection and correct use for specific CSA tasks and hazard types		
	2.5	Maintain PPE inventory		
	2.6	Issue records for accountability		
	2.7	Ensure PPE is appropriate for the specific climate and working conditions		
LO 3: <i>Manage incident response and emergency preparedness</i>	3.1	Develop and rehearse emergency response procedures with all farm personnel		
	3.2	Investigate accidents and near-miss incidents		
	3.3	Prepare comprehensive written reports for management		
	3.4	Coordinate first aid response		
	3.5	Verify that first aid supplies and facilities are adequately maintained		
	3.6	Conduct root cause analysis of incidents and implement recommended preventive measures		
	3.7	Review emergency response plans in line with evolving farm operations and climate risks		

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA	Evidence Type					Evidence Ref. No.			
The learner will:		The learner can:									
	3.8	Conduct regular emergency drills and exercises to test preparedness									
LO 4: Ensure environmental and regulatory compliance in CSA operations	4.1.	Monitor farm compliance with environmental regulations governing land use, water, waste and chemical inputs									
	4.2.	Supervise safe handling, storage and disposal of agrochemicals, fertilisers and farm waste in compliance with regulatory standards									
	4.3.	Implement climate-responsive safety measures to protect workers during extreme weather events (heat, flooding, storms)									
	4.4.	Submit environmental and safety compliance reports to management with recommendations for corrective action where required									
	4.5.	Maintain environmental compliance records and documentation									
	4.6.	Liaise with regulatory authorities on compliance matters as required									
Learners Signature:			Date:								
Assessors Signature:			Date:								

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA	Evidence Type	Evidence Ref. No.
The learner will:		The learner can:		
IQA Signature (if sampled)			Date:	
EQA Signature (if sampled)			Date:	



UNIT 002: COMMUNICATION AND REPORTING IN CSA OPERATIONS

Unit Reference Number: AGR/CSA/002/L4

NSQ Level: 4

Credit Value: 3

Guided Learning Hours: 30

Practice Time: 90

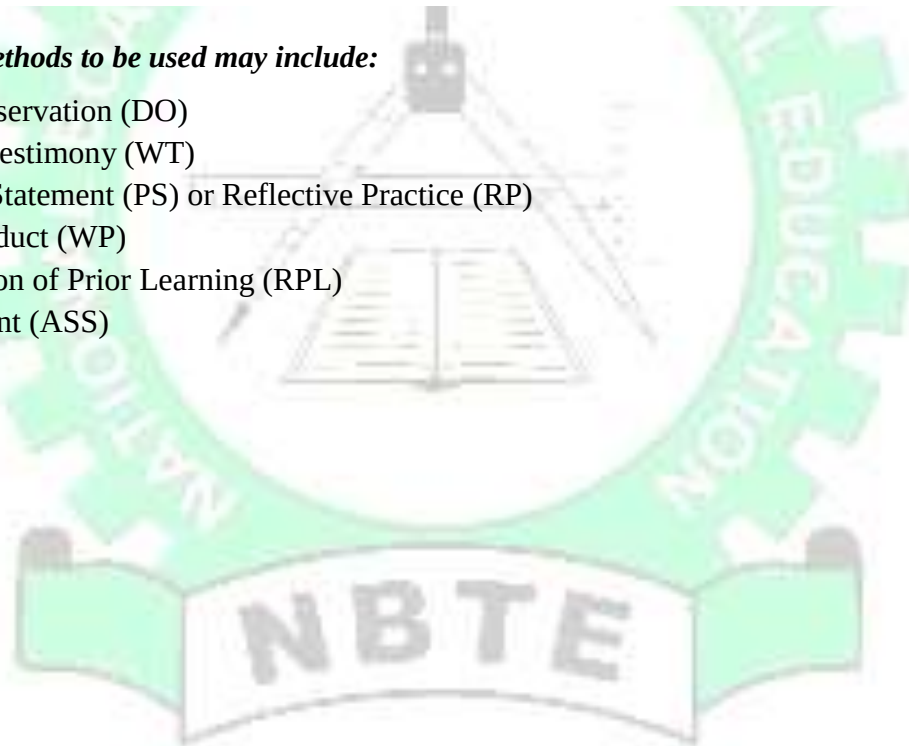
Unit Purpose: This unit is designed to equip the learner with knowledge and skills to coordinate information flow, manage reporting systems, liaise with stakeholders and maintain professional communication standards across climate smart agriculture operations at supervisory level.

Unit Assessment Requirements/Evidence Requirements

Assessment must be carried out in a real workplace environment. Learners must demonstrate the ability to coordinate communication, prepare reports, engage stakeholders, and maintain professional communication standards.

Assessment methods to be used may include:

1. Direct Observation (DO)
2. Witness Testimony (WT)
3. Personal Statement (PS) or Reflective Practice (RP)
4. Work Product (WP)
5. Recognition of Prior Learning (RPL)
6. Assignment (ASS)



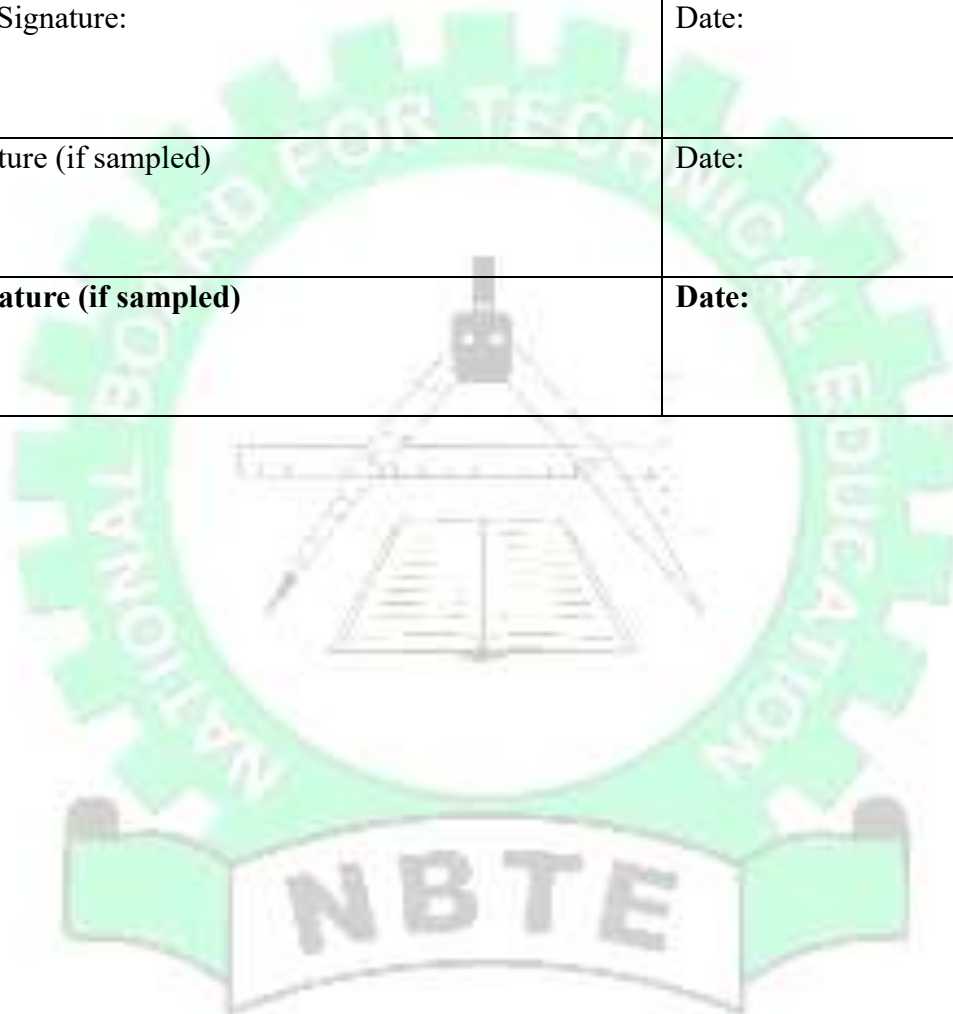
Unit 002: Communication and Reporting in CSA Operations

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA	Evidence Type					Evidence Ref. No.			
The learner will:		The learner can:									
LO 1: <i>Coordinate information flow across CSA farm operations</i>	1.1	Establish effective communication channels between farm workers, supervisors, management and external stakeholders									
	1.2	Ensure timely and accurate sharing of critical farm information (weather alerts, production updates, compliance issues) across all relevant personnel									
	1.3	Relay technical advisories, regulatory updates and CSA guidelines from relevant authorities (NiMet, NASC, FMAFS, ADP) to farm teams									
	1.4	Resolve communication breakdowns within the team or between departments promptly and professionally									
	1.5	Establish feedback mechanisms to ensure information is understood and acted upon									
	1.6	Maintain communication logs and records for accountability									
LO 2: <i>Present supervisory reports and operational</i>	2.1	Compile accurate, timely and comprehensive farm operational reports using approved formats and templates									

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA	Evidence Type					Evidence Ref. No.			
The learner will:		The learner can:									
briefings	2.2	Present supervisory findings, production performance and compliance status to management and relevant stakeholders									
	2.3	Prepare written instructions, notices and briefings for distribution to farm personnel									
	2.4	Maintain systematic records of all official communications, decisions and instructions relating to farm operations									
	2.5	Use digital tools and platforms for reporting and communication where available									
	2.6	Ensure reports are submitted within required timeframes									
LO 3: Liaise with internal and external stakeholders in CSA operations	3.1	Engage relevant internal and external stakeholders involved in or affected by farm operations									
	3.2	Maintain professional and productive relationships with suppliers, extension agents, regulatory officers and buyers									
	3.3	Represent the farm organisation professionally in meetings, site visits and external engagements									
	3.4	Communicate farm CSA performance outcomes and sustainability commitments to									

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA	Evidence Type	Evidence Ref. No.
The learner will:		The learner can:		
		stakeholders as required		
	3.5	Address stakeholder concerns and inquiries promptly and professionally		
	3.6	Document stakeholder engagement activities and outcomes		
LO 4: Apply professional communication standards at supervisory level	4.1.	Model professional communication in all workplace interactions		
	4.2.	Use appropriate communication tools (written, digital, verbal, face-to-face) for different audiences and contexts		
	4.3.	Ensure information confidentiality of sensitive farm business, personnel and production information at all times		
	4.4.	Follow the organization's communication protocols, reporting lines and escalation procedures		
	4.5.	Adapt communication style to suit diverse audiences and cultural contexts		
	4.6.	Demonstrate active listening and empathy in all communications		
Learners Signature:			Date:	

LEARNING OUTCOME (LO)	PERFORMANCE CRITERIA	Evidence Type	Evidence Ref. No.
The learner will:	The learner can:		
Assessors Signature:		Date:	
IQA Signature (if sampled)		Date:	
EQA Signature (if sampled)		Date:	



UNIT 003: TEAMWORK IN CLIMATE SMART AGRICULTURE OPERATIONS

Unit Reference Number: AGR/CSA/003/L4

NSQ Level: 4

Credit Value: 3

Guided Learning Hours: 30

Practice Time: 90 hours

Unit Purpose: This unit is designed to equip the learner with knowledge and skills to lead farm work teams, plan and allocate work, manage team performance, resolve workplace conflicts and ensure full compliance with organizational policies and climate smart agriculture standards at supervisory level.

Unit Assessment Requirements/Evidence Requirements

Assessment must be carried out in a real workplace environment. Learners must demonstrate the ability to lead teams, manage performance, resolve conflicts, and ensure organisational compliance.

Assessment methods to be used may include:

1. Direct Observation (DO)
2. Witness Testimony (WT)
3. Personal Statement (PS) or Reflective Practice (RP)
4. Work Product (WP)
5. Recognition of Prior Learning (RPL)
6. Assignment (ASS)

Unit 003: Teamwork in Climate Smart Agriculture Operations

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA	Evidence Type					Evidence Ref. No.			
The learner will:		The learner can:									
LO 1: <i>Coordinate farm work teams in CSA operations</i>	1.1	Develop team work plans and activity schedules for all CSA operations									
	1.2	Assign tasks and responsibilities to team members based on competence, skills and operational requirements									
	1.3	Monitor team progress against work plans									
	1.4	Intervene to maintain quality, efficiency and timeliness									
	1.5	Allocate resources, equipment and inputs to teams in line with production plans and organisational procedures									
	1.6	Promote a culture of accountability, climate awareness, sustainability and continuous improvement within the team									
LO 2: <i>Supervise team performance</i>	2.1	Set clear individual and team performance expectations in line with organisational objectives and CSA standards									
	2.2	Monitor individual and team performance continuously									
	2.3	Provide timely constructive feedback									

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA	Evidence Type					Evidence Ref. No.			
The learner will:		The learner can:									
	2.4	Identify training, mentoring and development needs of team members and provide appropriate support									
	2.5	Encourage good performance to motivate and retain skilled farm workers									
	2.6	Document performance observations and prepare supervisory appraisal reports for management review									
LO 3: <i>Manage workplace conflicts and disciplinary issues</i>	3.1	Identify early signs of conflict, grievance or poor conduct within the team									
	3.2	Apply appropriate and fair conflict resolution strategies in line with organizational procedures									
	3.3	Address minor disciplinary issues promptly at supervisory level using established procedures									
	3.4	Escalate unresolved conflicts, serious misconduct or grievances to management in accordance with organizational policy									
	3.5	Document conflict resolution and disciplinary actions taken									
	3.6	Promote a harmonious and inclusive workplace culture									

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA	Evidence Type	Evidence Ref. No.
The learner will:		The learner can:		
LO 4: <i>Ensure compliance with organisational policies and CSA standards</i>	4.1.	Communicate the organization's code of conduct, farm policies and CSA operational standards to all team members		
	4.2.	Verify that all farm activities comply with CSA principles and relevant regulatory requirements		
	4.3.	Ensure team adherence to health and safety requirements, environmental guidelines and biosecurity protocols during all operations		
	4.4.	Prepare supervisory compliance and team performance reports with recommendations for improvement		
	4.5.	Conduct regular team briefings on policy updates and compliance requirements		
	4.6.	Address non-compliance issues promptly and appropriately		
Learners Signature:			Date:	
Assessors Signature:			Date:	
IQA Signature (if sampled)			Date:	
EQA Signature (if sampled)			Date:	

UNIT 004: INTEGRATED CROP-LIVESTOCK-FORESTRY SYSTEMS

Unit Reference Number: AGR/CSA/004/L4

NSQ Level: 4

Credit Value: 7

Guided Learning Hours: 70

Practice Time: 210 hours

Unit Purpose: This unit is designed to equip learners with the competencies required to supervise integrated crop-livestock-forestry systems that improve productivity, strengthen resilience to climate change, enhance resource-use efficiency, and promote environmental sustainability at supervisory level.

Unit Assessment Requirements/Evidence Requirements

Assessment must be carried out in a real workplace environment. Learners must demonstrate the ability to supervise integrated crop-livestock-forestry systems, manage resource flows, and ensure compliance with CSA principles.

Assessment methods to be used may include:

1. Direct Observation (DO)
2. Witness Testimony (WT)
3. Personal Statement (PS) or Reflective Practice (RP)
4. Work Product (WP)
5. Recognition of Prior Learning (RPL)
6. Assignment (ASS)

Unit 004: Integrated Crop-Livestock-Forestry Systems

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA	Evidence Type	Evidence Ref. Page No.
The learner will:		The learner can:		
LO 1: Coordinate integrated crop-livestock-forestry systems	1.1	Develop integrated farm plans that optimise synergies between crops, livestock and trees		
	1.2	Identify suitable crop, livestock and tree combinations for local conditions		
	1.3	Plan spatial arrangement of system components for maximum resource efficiency		
	1.4	Develop work schedules for integrated system operations		
	1.5	Allocate resources across system components based on production plans		
	1.6	Ensure integrated plans comply with CSA principles and environmental standards		
LO 2: Supervise crop production within integrated systems	2.1	Supervise climate-resilient crop establishment and management		
	2.2	Coordinate crop rotations and intercropping within the integrated system		
	2.3	Ensure efficient use of crop residues as livestock feed and soil amendments		
	2.4	Supervise crop management practices that enhance system resilience		
	2.5	Monitor crop performance and adjust management as needed		
	2.6	Record crop production data for system evaluation		
LO 3: Supervise livestock production within integrated systems	3.1	Supervise livestock production activities in line with integrated system plans		
	3.2	Coordinate livestock feeding using crop residues and fodder from the system		
	3.3	Supervise manure management and utilisation for soil fertility		

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA	Evidence Type	Evidence Ref. Page No.
The learner will:		The learner can:		
	3.4	Ensure livestock grazing is managed to prevent overgrazing		
	3.5	Monitor livestock health and welfare within the integrated system		
	3.6	Record livestock production data for system evaluation		
LO 4: Supervise agroforestry and its components	4.1	Supervise tree planting and establishment within the integrated system		
	4.2	Coordinate tree management practices including pruning and thinning		
	4.3	Ensure trees are integrated without compromising crop productivity		
	4.4	Supervise use of tree products (timber, fuelwood, fruits, fodder)		
	4.5	Monitor tree growth and survival rates		
	4.6	Record tree-related data for system evaluation		
LO 5: Supervise resource flow and nutrient cycling	5.1	Coordinate nutrient cycling between system components		
	5.2	Supervise composting and manure application		
	5.3	Coordinate water harvesting and distribution across system components		
	5.4	Ensure efficient use of crop residues and by-products		
	5.5	Monitor resource flows and identify inefficiencies		
	5.6	Adjust management practices to optimise resource use		
LO 6: Evaluate integrated system performance	6.1	Monitor key performance indicators for the integrated system		
	6.2	Evaluate synergies and trade-offs between system components		

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA	Evidence Type	Evidence Ref. Page No.
The learner will:		The learner can:		
	6.3	Assess system productivity, resilience and sustainability		
	6.4	Identify opportunities for system improvement		
	6.5	Prepare integrated system performance reports		
	6.6	Recommend improvements based on system evaluation		
LO 7: Ensure compliance with CSA principles and environmental standards	7.1.	Ensure all integrated system activities comply with CSA principles		
	7.2.	Monitor environmental impacts of integrated system operations		
	7.3.	Ensure compliance with environmental regulations and standards		
	7.4.	Promote biodiversity conservation within the integrated system		
	7.5.	Document carbon sequestration benefits		
	7.6.	Prepare compliance reports for management		
LEARNERS SIGNATURE			DATE:	
ASSESSOR'S SIGNATURE			DATE:	
IQA'S SIGNATURE			DATE:	
EQA'S SIGNATURE			DATE:	

UNIT 005: SOIL, WATER AND CROP PRODUCTION SYSTEMS**Unit Reference Number: AGR/CSA/005/L4****NSQ Level: 4****Credit Value: 7****Guided Learning Hours: 70****Practice Time: 210 hours**

Unit Purpose: This unit is designed to equip the learners with knowledge and skills to supervise soil, water and crop management activities to ensure productivity and sustainability.

Unit Assessment Requirements/Evidence Requirements

Assessment must be carried out in a real workplace environment. Learners must demonstrate the ability to supervise soil, water and crop management activities.

Assessment methods to be used may include:

1. Direct Observation (DO)
2. Witness Testimony (WT)
3. Personal Statement (PS) or Reflective Practice (RP)
4. Work Product (WP)
5. Recognition of Prior Learning (RPL)
6. Assignment (ASS)

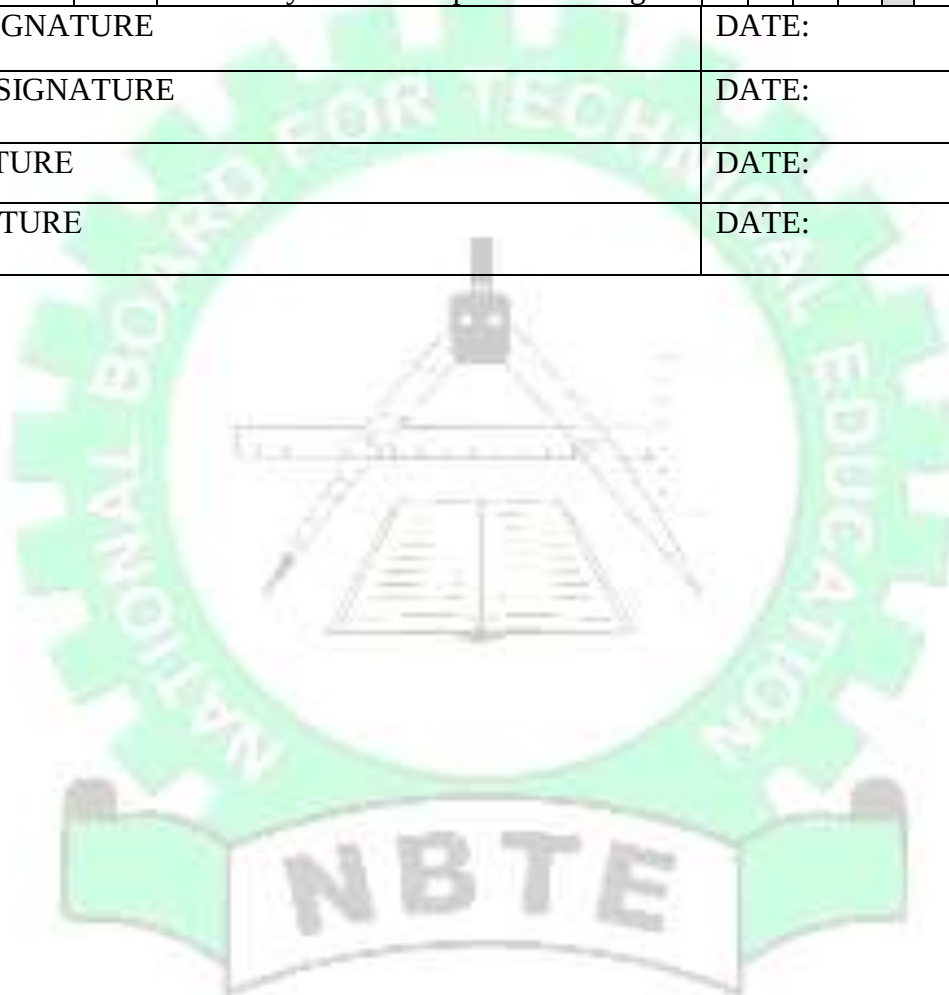


Unit 005: Soil, Water and Crop Production Systems

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA	Evidence Type	Evidence Ref. Page No.
The learner will:		The learner can:		
LO 1: Supervise climate-smart soil management practices	1.1	Coordinate regular soil sampling and testing procedures to monitor nutrient levels, pH, and organic matter content		
	1.2	Oversee the implementation of conservation tillage practices		
	1.3	Manage the application schedules for organic amendments, compost, and biofertilisers		
	1.4	Monitor the implementation of crop rotation and cover cropping strategies		
	1.5	Assess soil health indicators and recommend improvements		
	1.6	Document soil management activities and outcomes		
LO 2: Oversee efficient water harvesting and irrigation systems	2.1	Supervise the operation and maintenance of micro-irrigation systems (such as drip or sprinkler systems) to optimise water-use efficiency		
	2.2	Coordinate the maintenance of farm-level water harvesting structures (e.g., farm ponds, contour furrows)		
	2.3	Monitor soil moisture levels using sensor data or field indicators to schedule precise irrigation intervals, preventing both water logging and water stress		
	2.4	Implement drainage management protocols to control salinity and recycle runoff water safely within the production system		
	2.5	Monitor the efficiency of water use		
	2.6	Identify efficiency improvements		
	2.7	Document water management activities and outcomes		
LO 3: Manage climate-resilient crop establishment and production	3.1	Coordinate the sourcing of high-quality, certified climate-resilient crop varieties (e.g., drought-tolerant, flood-tolerant, or early-maturing varieties)		
	3.2	Implement crop planting calendars		

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA	Evidence Type		Evidence Ref. No.	Page No.
The learner will:		The learner can:				
		based on real-time agrometeorological data and seasonal weather forecasts				
	3.3	Execute precision sowing and transplanting techniques				
	3.4	Supervise crop maintenance activities including nutrition, irrigation and pest management				
	3.5	Monitor crop growth and development				
	3.6	Take corrective action as needed				
	3.7	Document crop production activities and outcomes				
LO 4: Coordinate integrated pest, disease and weed management	4.1	Monitor routine scouting programme to detect early signs of pests, diseases, and weeds				
	4.2	Use biological control agents and cultural practices as the primary line of defence				
	4.3	Supervise the safe, calibrated, and targeted application of approved biopesticides or chemical pesticides only when economic injury thresholds are breached				
	4.4	Coordinate weed management using integrated approaches				
	4.5	Evaluate the effectiveness of pest, disease and weed management programmes				
	4.6	Document pest, disease and weed management activities				
LO 5: Monitor agro-ecosystem data and compliance	5.1	Analyse field data regarding fuel consumption, fertiliser inputs, and crop yields				
	5.2	Coordinate field teams to ensure total compliance with local environmental laws, water-use permits, and safety regulations				
	5.3	Conduct regular risk assessments regarding climate hazards (e.g., heat waves, unexpected frosts)				
	5.4	Update farm emergency response plans				
	5.5	Prepare comprehensive supervisory report on resource utilization efficiency				

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA	Evidence Type		Evidence Ref. No.	Page No.
The learner will:		The learner can:				
		and overall system productivity for management review				
	5.6	Monitor environmental indicators				
	5.7	Report on compliance status				
	5.8	Recommend improvements based on data analysis and compliance findings				
LEARNERS SIGNATURE			DATE:			
ASSESSOR'S SIGNATURE			DATE:			
IQA'S SIGNATURE			DATE:			
EQA'S SIGNATURE			DATE:			



UNIT 006: INTEGRATED PEST AND DISEASE CONTROL SUPERVISION

Unit Reference Number: AGR/CSA/006/L4

NSQ Level: 4

Credit Value: 8

Guided Learning Hours: 80

Practice Time: 240 hours

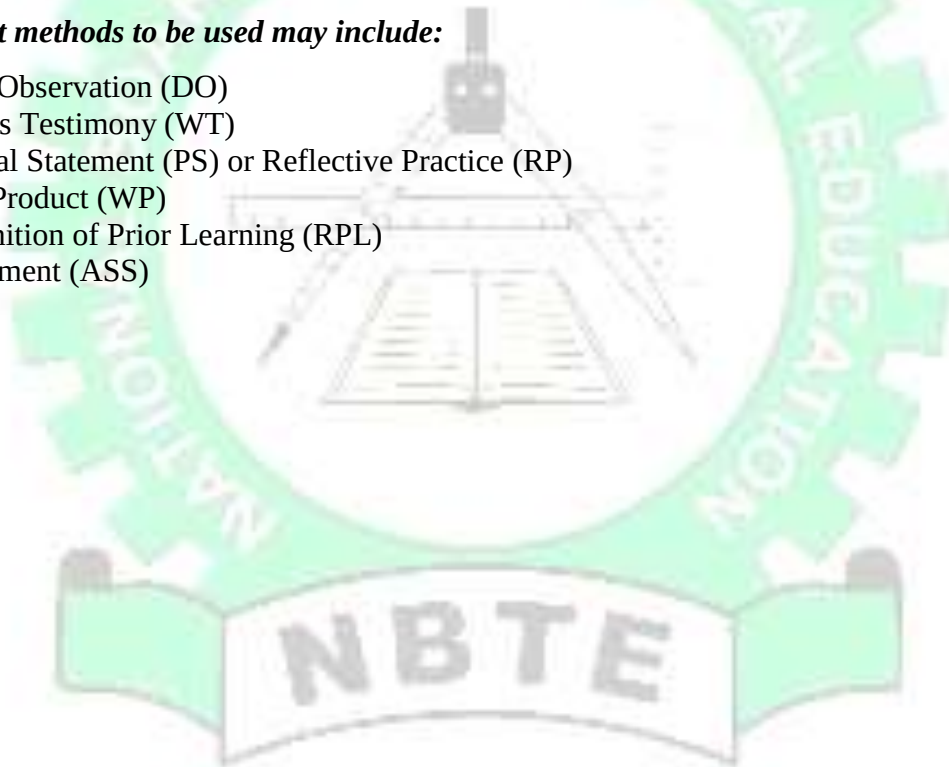
Unit Purpose: This unit is designed to equip the learner with competences required to plan, coordinate, supervise and report activities related to integrated pest and disease management in climate smart agricultural operations

Unit Assessment Requirements/Evidence Requirements

Assessment must be carried out in a real workplace environment. Learners must demonstrate the ability to plan, supervise and evaluate integrated pest and disease management programmes.

Assessment methods to be used may include:

1. Direct Observation (DO)
2. Witness Testimony (WT)
3. Personal Statement (PS) or Reflective Practice (RP)
4. Work Product (WP)
5. Recognition of Prior Learning (RPL)
6. Assignment (ASS)



Unit 006: Integrated Pest and Disease Control Supervision

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA The learner can:	Evidence Type				Evidence Ref. Page No.			
LO 1: Plan integrated pest and disease control activities	1.1	Identify major pests and diseases affecting crops within the production area								
	1.2	Assess climatic and environmental factors influencing pest and disease occurrence								
	1.3	Develop pest and disease management work plans based on crop production schedules								
	1.4	Allocate personnel, equipment, and materials required for control activities								
	1.5	Ensure planned control measures comply with CSA principles and regulatory requirements								
	1.6	Establish economic thresholds for pest and disease intervention								
LO 2: Supervise pest and disease surveillance and monitoring	2.1	Organise routine field scouting and monitoring activities								
	2.2	Ensure accurate identification of pests, diseases, and beneficial organisms								
	2.3	Verify that pest and disease incidence and severity data are properly recorded								
	2.4	Monitor environmental conditions that may influence outbreaks								
	2.5	Ensure surveillance findings are communicated to relevant personnel for timely action								
	2.6	Analyse surveillance data to forecast potential outbreaks								
LO 3: Supervise implementation of integrated pest and disease management strategies	3.1	Ensure cultural control measures are implemented accordingly								
	3.2	Ensure proper biological control practices where applicable								
	3.3	Implement the use of resistant and climate-resilient crop varieties								
	3.4	Ensure mechanical and physical control methods are correctly applied								
	3.5	Coordinate the timing of control measures for maximum effectiveness								

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA The learner can:	Evidence Type				Evidence Ref. Page No.			
The learner will:										
	3.6	Evaluate the effectiveness of control measures and adjust as needed								
LO 4: Supervise safe and responsible use of crop protection products	4.1	Ensure pesticide selection is based on identified pest and disease problems								
	4.2	Ensure pesticides are used only when economic thresholds justify application								
	4.3	Supervise proper mixing, calibration, and application procedures								
	4.4	Monitor compliance with pesticide label instructions and regulatory requirements								
	4.5	Ensure safe storage and disposal of pesticides and containers								
	4.6	Report pesticide use and compliance								
LO 5: Implement climate-smart approaches to pest and disease management	5.1	Assess the impact of climate variability on pest and disease dynamics								
	5.2	Promote preventive pest and disease management practices								
	5.3	Encourage biodiversity and ecosystem-based management approaches								
	5.4	Adjust pest and disease management strategies based on climate forecasts and field observations								
	5.5	Promote the use of biopesticides and botanical products								
	5.6	Report on climate adaptation outcomes								
LEARNERS SIGNATURE			DATE:							
ASSESSOR'S SIGNATURE			DATE:							
IQA'S SIGNATURE			DATE:							
EQA'S SIGNATURE			DATE:							

UNIT 007: LIVESTOCK PRODUCTION SYSTEMS

Unit Reference Number: AGR/CSA/007/L4

NSQ Level: 4

Credit Value: 8

Guided Learning Hours: 80

Practice Time: 240 hours

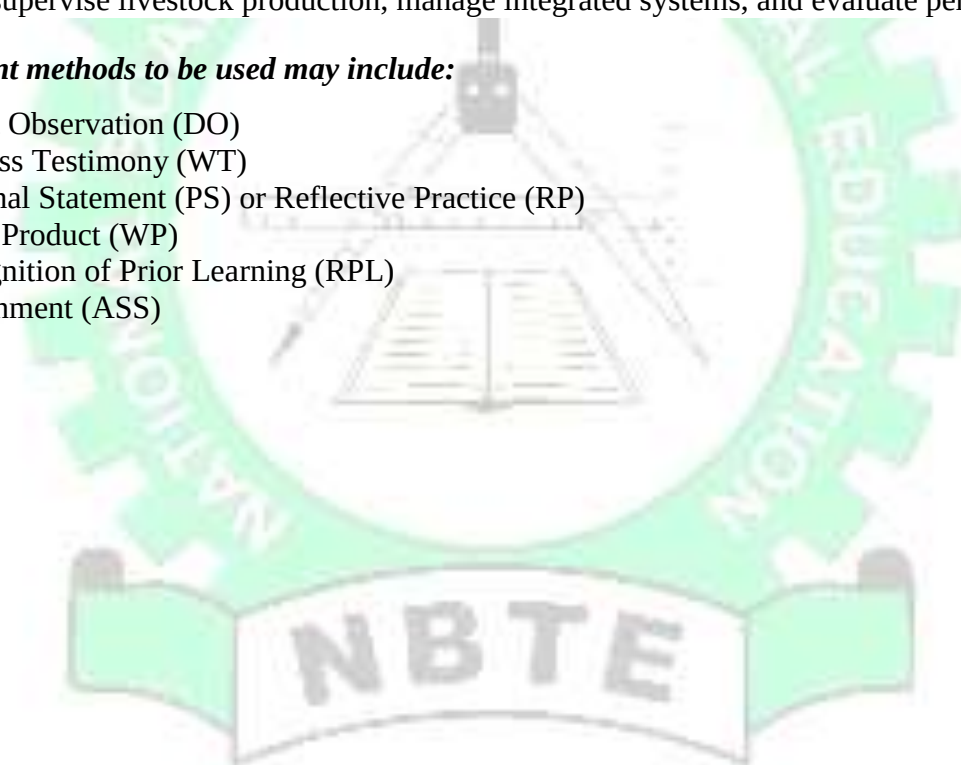
Unit Purpose: This unit is designed to equip learners with the competencies required to supervise climate-smart livestock production and integrated farming systems that improve productivity, strengthen resilience to climate change, enhance resource-use efficiency, and promote environmental sustainability.

Unit Assessment Requirements/Evidence Requirements

Assessment must be carried out in a real workplace environment. Learners must demonstrate the ability to supervise livestock production, manage integrated systems, and evaluate performance.

Assessment methods to be used may include:

1. Direct Observation (DO)
2. Witness Testimony (WT)
3. Personal Statement (PS) or Reflective Practice (RP)
4. Work Product (WP)
5. Recognition of Prior Learning (RPL)
6. Assignment (ASS)



Unit 007: Livestock Production Systems

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 1: Supervise livestock production activities under CSA	1.1	Implement livestock production plans according to CSA principles and farm objectives									
	1.2	Supervise animal housing, feeding, watering, and welfare practices to enhance productivity and resilience									
	1.3	Identify climate-related risks affecting livestock production and implement adaptation measures									
	1.4	Monitor feeding, breeding, and herd management practices									
	1.5	Review livestock performance, mortality, disease, and productivity records									
	1.6	Ensure compliance with animal welfare standards and regulations									
LO 2: Supervise integrated crop-livestock farming operations	2.1	Coordinate crop and livestock enterprises to optimize resource utilization and productivity									
	2.2	Supervise livestock manure management and utilization									
	2.3	Ensure effective utilization of crop residues and by-products as livestock feed where appropriate									
	2.4	Monitor resource flows between crop and livestock enterprises for efficiency and sustainability									
	2.5	Communicate opportunities for diversification and integration to relevant stakeholders									
	2.6	Ensure integrated practices comply with CSA principles									
LO 3: Supervise climate-smart pasture and forage management	3.1	Supervise pasture and forage production activities according to climatic conditions									
	3.2	Implement grazing plans to maintain pasture productivity and prevent land degradation									
	3.3	Supervise forage conservation practices									
	3.4	Monitor pasture conditions									
	3.5	Initiate corrective actions when required									

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA	Evidence Type					Evidence Ref. Page No.				
The learner will:		The learner can:										
	3.6	Promote drought-tolerant and climate-resilient forage species										
	3.7	Document pasture and forage management activities										
LO 4: Supervise efficient use of natural resources in integrated farming systems	4.1	Ensure efficient utilization of water resources for crop and livestock production										
	4.2	Supervise implementation of soil conservation and improvement measures										
	4.3	Utilize farm waste according to environmental and CSA requirements										
	4.4	Guide farm workers on sustainable resource management practices										
	4.5	Monitor resource use efficiency										
	4.6	Identify improvement opportunities										
	4.7	Promote renewable energy use where applicable										
LO 5: Supervise farm personnel implementing climate-smart livestock and integrated farming activities	5.1	Communicate work plans and schedules clearly to farm personnel										
	5.2	Assign tasks according to competency, workload, and operational requirements										
	5.3	Guide workers on livestock and integrated farming practices that are CSA oriented										
	5.4	Monitor compliance with occupational health, safety, and environmental requirements										
	5.5	Monitor staff performance and provide constructive feedback										
	5.6	Identify training and mentoring needs										
	5.7	Provide appropriate training and mentoring support										
LO 6: Evaluate performance of climate-smart livestock and integrated farming systems	6.1	Monitor key production, environmental, and financial indicators										
	6.2	Evaluate farm records relating to livestock, crops, inputs, outputs, and resource use										
	6.3	Review performance against production targets and CSA objectives										
	6.4	Identify inefficiencies, risks, and opportunities for improvement										

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA	Evidence Type	Evidence Ref. Page No.
The learner will:		The learner can:		
	6.5	Recommend corrective actions where required		
	6.6	Report on livestock and integrated farming performance to management		
LEARNERS SIGNATURE			DATE:	
ASSESSOR'S SIGNATURE			DATE:	
IQA'S SIGNATURE			DATE:	
EQA'S SIGNATURE			DATE:	



UNIT 008: POST-HARVEST HANDLING AND VALUE ADDITION

Unit Reference Number: AGR/CSA/008/L4

NSQ Level: 4

Credit Value: 7

Guided Learning Hours: 70

Practice Time: 210 hours

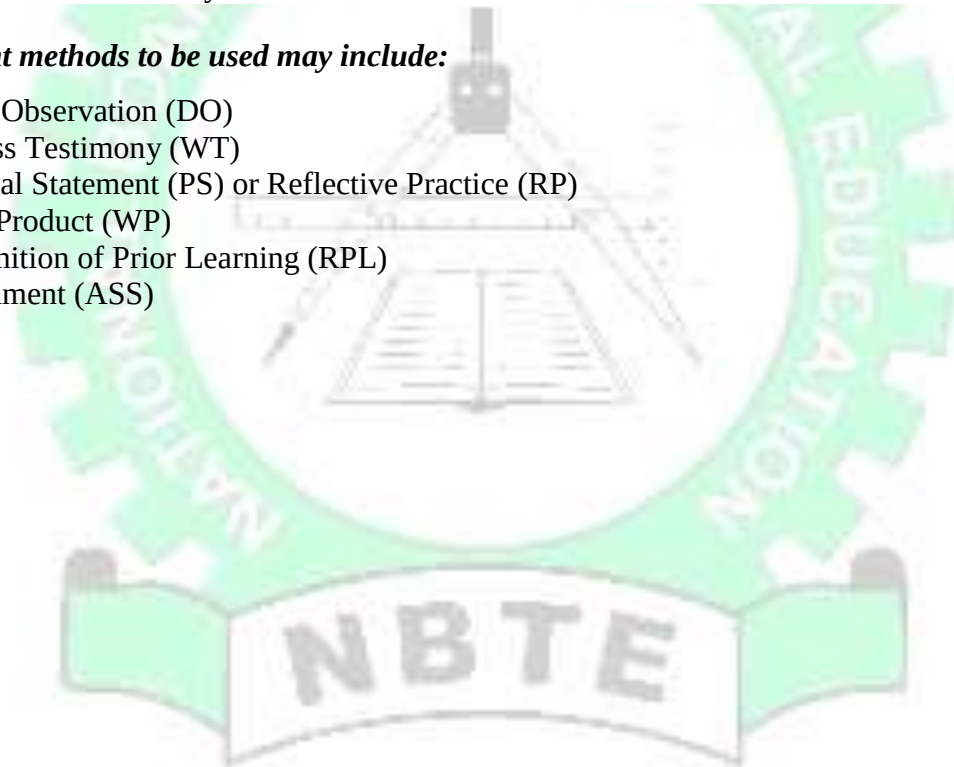
Unit Purpose: This unit is designed to equip the learners with the competences required to coordinate post-harvest activities that reduce losses, protect quality and support value addition in climate smart agriculture.

Unit Assessment Requirements/Evidence Requirements

Assessment must be carried out in a real workplace environment. Learners must demonstrate the ability to coordinate post-harvest operations, manage storage, direct packaging and logistics, and implement circular waste systems.

Assessment methods to be used may include:

1. Direct Observation (DO)
2. Witness Testimony (WT)
3. Personal Statement (PS) or Reflective Practice (RP)
4. Work Product (WP)
5. Recognition of Prior Learning (RPL)
6. Assignment (ASS)



Unit 008: Post-Harvest Handling and Value Addition

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA	Evidence Type					Evidence Ref. Page No.			
The learner will:		The learner can:									
LO 1: <i>Coordinate eco-efficient post-harvest processes</i>	1.1	Establish harvesting schedules strictly aligned with crop maturity indices									
	1.2	Ensure quality grading and sorting protocols using zero-emission or low-energy automated/manual sorting systems									
	1.3	Implement water-recycling and filtration systems during the primary crop washing and cleaning phases									
	1.4	Supervise compliance with organic, non-chemical phytosanitary treatments									
	1.5	Minimise post-harvest losses during handling									
	1.6	Report on post-harvest processing efficiency									
LO 2: <i>Manage low-carbon storage and cold chain infrastructures</i>	2.1	Supervise daily power cycling and operation of solar-assisted or evaporative cooling systems									
	2.2	Audit ambient conditions such as micro-climate, humidity and CO ₂ level via data loggers to protect crop respiration profiles									
	2.3	Carry out preventive maintenance programs on refrigeration units									
	2.4	Conduct energy efficiency audits on storage units									
	2.5	Monitor storage conditions to prevent spoilage and quality deterioration									
	2.6	Maintain cold chain integrity throughout the storage and distribution process									
LO 3: <i>Coordinate eco-friendly packaging and logistics operations</i>	3.1	Procure verified biodegradable and eco-friendly reusable packaging materials									
	3.2	Coordinate high-density vehicle space-loading patterns to eliminate structural crop compression and maximise fuel payload									
	3.3	Design consolidated logistical route planning to minimise greenhouse gas emissions per mile travelled									

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA The learner can:	Evidence Type				Evidence Ref. Page No.			
The learner will:	3.4	Implement the designed consolidated logistical route planning								
	3.5	Monitor passive cooling infrastructures (e.g., thermal reflective wrap) during transit to maintain cold chain continuity								
	3.6	Ensure packaging meets quality and safety standards								
	3.7	Coordinate delivery schedules to minimise storage time and maintain freshness								
LO 4: Coordinate the use of renewable energy in post-harvest operations	4.1	Coordinate commercial crop-drying, milling, or fermentation units powered primarily by solar energy systems or sustainable biomass								
	4.2	Monitor raw input-to-output ratios to optimise resource conversion efficiency and reduce water footprints per metric ton								
	4.3	Ensure national green manufacturing compliance standards and bio-safety protocols throughout processing lines								
LO 5: Coordinate farm-level circular waste systems	5.1	Establish waste segregation frameworks at source to separate organic structural waste from hazardous or non-organic streams								
	5.2	Supervise the biochemical conversion of fibrous biomass waste into soil-conditioning biochar, high-nutrient compost, or silage								
	5.3	Direct on-site wastewater reclamation loops to safely route grey water back into restricted irrigation or facility maintenance								
	5.4	Report total greenhouse gas mitigation values derived from circular by-product recycling systems for sustainability carbon audits								
LEARNERS SIGNATURE						DATE:				
ASSESSOR'S SIGNATURE						DATE:				

LEARNING OUTCOME (LO)	PERFORMANCE CRITERIA	Evidence Type	Evidence Ref. Page No.
The learner will:	The learner can:		
IQA'S SIGNATURE		DATE:	
EQA'S SIGNATURE		DATE:	



UNIT 009: AGRIBUSINESS PERFORMANCES AND PRODUCTION EFFICIENCY IMPROVEMENT

Unit Reference Number: AGR/CSA/009/L4

NSQ Level: 4

Credit Value: 5

Guided Learning Hours: 50

Practice Time: 150 hours

Unit Purpose: This unit is designed to equip learners with the competencies required to manage agribusiness enterprises through planning, resource-based optimization, financial management approaches and workplace practices.

Unit Assessment Requirements/Evidence Requirements

Assessment must be carried out in a real workplace environment. Learners must demonstrate the ability to plan, manage, evaluate and improve agribusiness performance.

Assessment methods to be used may include:

1. Direct Observation (DO)
2. Witness Testimony (WT)
3. Personal Statement (PS) or Reflective Practice (RP)
4. Work Product (WP)
5. Recognition of Prior Learning (RPL)
6. Assignment (ASS)



Unit 009: Agribusiness Performances and Production Efficiency Improvement

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 1: Develop agribusiness production plans	1.1	Analyse enterprise production requirements and market opportunities									
	1.2	Establish realistic production targets									
	1.3	Develop detailed production schedules									
	1.4	Prepare resource budgets (labour, inputs, equipment)									
	1.5	Incorporate business risk management in production plans									
	1.6	Adjust production plans as conditions change									
LO 2: Optimise resource utilization	2.1	Assess current resource efficiency across enterprises									
	2.2	Implement strategies to improve labour productivity									
	2.3	Optimise input use (seeds, fertilisers, water, chemicals)									
	2.4	Improve equipment and machinery utilization									
	2.5	Monitor efficiency indicators									
	2.6	Document resource use and efficiency improvements									
LO 3: Conduct financial and cost analysis	3.1	Prepare enterprise budgets and cash flow projections									
	3.2	Analyse costs and returns for each enterprise									
	3.3	Manage cash flow throughout the farming season									
	3.4	Interpret financial reports (profit and loss, balance sheet)									
	3.5	Implement cost reduction opportunities									
	3.6	Prepare financial analysis reports for management									
LO 4: Monitor enterprise performance	4.1	Develop appropriate Key Performance Indicators (KPIs) for enterprises									
	4.2	Analyse operational data systematically									
	4.3	Assess enterprise-based productivity and profitability									

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA	Evidence Type					Evidence Ref. Page No.				
The learner will:		The learner can:										
	4.4	Prepare regular performance reports										
	4.5	Recommend corrective actions based on performance analysis										
	4.6	Benchmark performance against industry standards										
LO 5: <i>Manage risk and sustainability</i>	5.1	Identify enterprise-specific risks										
	5.2	Assess potential impacts of identified risks										
	5.3	Implement mitigation strategies										
	5.4	Monitor sustainability indicators (economic, social, environmental)										
	5.5	Improve business continuity measures										
	5.6	Prepare risk management and sustainability reports										
LO 6: <i>Lead continuous improvement</i>	6.1	Identify improvement opportunities across enterprises										
	6.2	Conduct root cause analysis for identified problems										
	6.3	Implement improvement plans										
	6.4	Coordinate implementation with team members										
	6.5	Evaluate outcomes of improvement initiatives										
	6.6	Document lessons learned and best practices										
LO 7: <i>Facilitate stakeholder engagement</i>	7.1.	Identify key stakeholders in the agribusiness value chain										
	7.2.	Develop communication strategies for different stakeholders										
	7.3.	Facilitate stakeholder meetings and engagements										
	7.4.	Maintain positive relationships with stakeholders										
	7.5.	Report on stakeholder engagement outcomes										
	7.6.	Address stakeholder concerns and feedback appropriately										
LEARNERS SIGNATURE						DATE:						
ASSESSOR’S SIGNATURE						DATE:						

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA	Evidence Type	Evidence Ref. Page No.
The learner will:		The learner can:		
IQA'S SIGNATURE			DATE:	
EQA'S SIGNATURE			DATE:	



UNIT 010: FARM EQUIPMENT AND RESOURCE MANAGEMENT

Unit Reference Number: AGR/CSA/010/L4

NSQ Level: 4

Credit Value: 5

Guided Learning Hours: 50

Practice Time: 150 hours

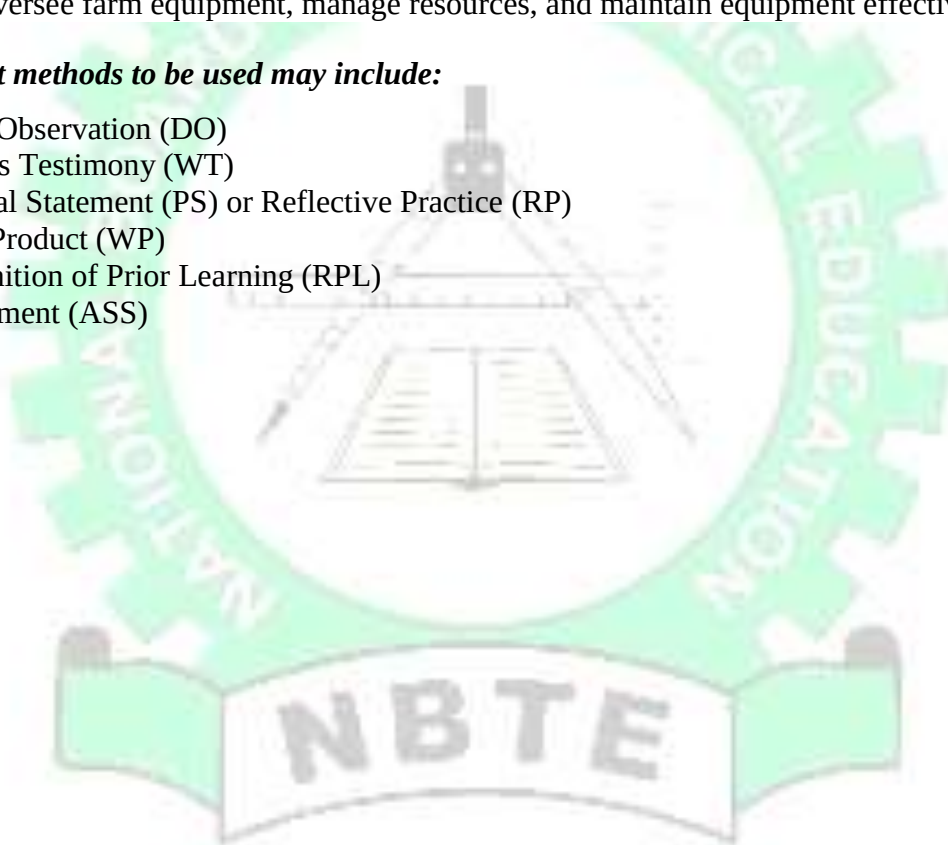
Unit Purpose: This unit is designed to equip the learner with the competencies required to plan, operate, and maintain agricultural machinery while managing essential farm input resources (water, fuel, materials) effectively on a day-to-day basis.

Unit Assessment Requirements/Evidence Requirements

Assessment must be carried out in a real workplace environment. Learners must demonstrate the ability to oversee farm equipment, manage resources, and maintain equipment effectively.

Assessment methods to be used may include:

1. Direct Observation (DO)
2. Witness Testimony (WT)
3. Personal Statement (PS) or Reflective Practice (RP)
4. Work Product (WP)
5. Recognition of Prior Learning (RPL)
6. Assignment (ASS)



Unit 010: Farm Equipment and Resource Management

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 1: <i>Perform routine machinery inspections</i>	1.1	Conduct daily pre-start checks (engine oil, coolant, hydraulic fluids, tire pressure, and brake systems) according to manufacturers' manuals									
	1.2	Report mechanical faults and structural wear for maintenance purpose									
	1.3	Ensure PPE usage correctly for safety purposes									
	1.4	Maintain inspection records for all equipment									
	1.5	Identify signs of equipment failure									
	1.6	Take preventive actions									
	1.7	Ensure equipment is clean and ready for operation									
LO 2: <i>Execute safe and efficient equipment operations</i>	2.1	Calibrate farm implements such as plows, harrows, seeders, sprayers safely									
	2.2	Follow farm safety regulations on operation of farm machinery									
	2.3	Adjust operational parameters (speed, depth, flow rate) in real-time to match soil and crop conditions									
	2.4	Operate equipment efficiently to minimise fuel consumption and wear									
	2.5	Maintain communication with team members during operations									
	2.6	Document equipment operation and performance									
LO 3: <i>Manage farm inputs and resources</i>	3.1	Report the consumption rates of fuel, lubricants, water, and agrochemicals									
	3.2	Implement water conservation and efficient irrigation tracking methods to eliminate resource waste									
	3.3	Maintain inventory ledgers for all equipment spare parts and workshop consumables									
	3.4	Forecast resource requirements for									

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA The learner can:	Evidence Type		Evidence Ref. No.	Page No.
The learner will:		upcoming operations				
	3.5	Address resource waste and inefficiency				
	3.6	Prepare resource use reports for management				
LO 4: Carry out post-operational care and storage protocols	4.1	Clean machinery and implements after-operation				
	4.2	Perform routine field maintenance				
	4.3	Secure equipment in designated storage bays				
	4.4	Ensure equipment is stored safely and securely				
	4.5	Maintain storage records				
	4.6	Monitor storage conditions				
	4.7	Report any damage or issues observed during post-operational checks				
LO 5: Manage equipment inventory and procurement	5.1	Maintain accurate equipment inventory records				
	5.2	Identify equipment needs and				
	5.3	Prepare procurement requests				
	5.4	Evaluate equipment options for procurement				
	5.5	Manage spare parts inventory and procurement				
	5.6	Ensure equipment is properly insured and registered				
	5.7	Review equipment performance and lifecycle costs				
LEARNERS SIGNATURE			DATE:			
ASSESSOR'S SIGNATURE			DATE:			
IQA'S SIGNATURE			DATE:			
EQA'S SIGNATURE			DATE:			

LIST OF MINIMUM EQUIPMENT

S/N	Name of Item	Quantity	Uses
1	Personal Protective Equipment (gloves, boots, goggles, masks)	15 sets	Health, safety, and environmental compliance
2	First Aid Kit	3 kits	Emergency medical response
3	Fire Extinguisher	5 units	Fire hazard control
4	Safety Signage	20 signs	Indicating risks and safety zones
5	Two-way Radios / Walkie-talkies	10 units	Communication and reporting
6	Mobile Phones	5 units	Quick coordination
7	Logbooks / Record Books	15 books	Documentation and reporting
8	Flip Charts / Whiteboards	3 boards	Team meetings and planning
9	Shared Toolkits	10 sets	Group farm tasks
10	Farm Tools (hoes, spades, rakes, cutlasses)	30 assorted	General farm work
11	Tractor	2 units	Mechanized farming
12	Soil Testing Kit (pH meter, nutrient kit)	5 kits	Soil fertility assessment
13	Crop Calendar	10 books	Farm planning
14	Weather Monitoring Tools	3 units	Assessing climate risks
15	Rain Gauge	3 units	Measuring rainfall
16	Compost Bin	10 bins	Organic fertilizer production
17	Mulching Materials	100 bundles	Soil moisture conservation
18	Terracing Tools	15 units	Soil erosion control
19	Seed Storage Containers	20 units	Preserving seeds
20	Germination Trays	30 trays	Raising seedlings
21	Greenhouse Structure	2 units	Controlled crop production
22	Rainwater Collection Tank	3 tanks	Harvesting water
23	Irrigation Kits (drip/sprinklers)	10 sets	Efficient irrigation
24	Water Pump	3 units	Pumping water
25	Moisture Meter	3 units	Soil moisture monitoring
26	Livestock Housing Structures	3 units	Climate-smart livestock management
27	Animal Feeding Equipment	10 sets	Livestock production systems
28	Veterinary Kits	3 kits	Animal health management
29	Post-Harvest Storage Facilities (silos, barns)	3 units	Value addition and preservation
30	Drying Mats / Solar Dryers	10 units	Post-harvest handling
31	Weighing Scales	3 units	Measuring productivity
32	Biodiversity Monitoring Kits	3 kits	Tracking environmental performance
33	Digital Devices (tablet/laptop)	3 units	Electronic record keeping
34	Filing Cabinets	3 units	Organizing farm records
35	Farm Equipment Maintenance Tools	10 sets	Resource and equipment management

LIST OF WORKSHOP PARTICIPANTS FOR ZERO DRAFT

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