



NATIONAL BOARD FOR TECHNICAL EDUCATION

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

IN COLLABORATION WITH



NATIONAL OCCUPATIONAL STANDARDS (NOS)

FISH FEED PRODUCTION LEVELS 1 - 3

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 (NSQ)



GENERAL INFORMATION

OVERVIEW

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

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

QUALIFICATION PURPOSE

This qualification is designed to produce competent entry level Fish Feed Production Assistants, with knowledge, skills, and attitude required to perform routine Fish Feed Production 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
- Interested in agricultural production and related support operations;
- Able to carry out simple practical tasks under supervision.

QUALIFICATION OBJECTIVES

To achieve this qualification, the learners should be able to:

- i. Communicate effectively in the fish feed production workplace
- ii. Work cooperatively as part of a fish feed production team
- iii. Observe occupational health, safety and hygiene requirements
- iv. Follow fish feed production workplace rules and practices
- v. Identify and use fish feed production tools and equipment
- vi. Identify, handle and store fish feed ingredients
- vii. Measure and weigh feed ingredients accurately
- viii. Assist in basic feed grinding, mixing and pelleting operations
- ix. Carry out cleaning, housekeeping and waste handling activities
- x. Assist in packaging, labelling and storage of fish feed products

NATIONAL SKILLS QUALIFICATION TABLE

MANDATORY UNITS

S/No	Unit Reference Number	Unit Title	Credit Value	Guided Learning Hours	Practice Time	Remark
1	AGR/FFP/001/L1	Communication in the Fish Feed Production Workplace	2	20	60	Mandatory
2	AGR/FFP/002/L1	Teamwork in Fish Feed Production	1	10	30	Mandatory
3	AGR/FFP/003/L1	Occupational Health, Safety and Hygiene in Fish Feed Production	2	20	60	Mandatory
4	AGR/FFP/004/L1	Fish Feed Production Workplace Practices	3	30	90	Mandatory
5	AGR/FFP/005/L1	Identification and Use of Fish Feed Production Tools and Equipment	2	20	60	Mandatory
6	AGR/FFP/006/L1	Identification and Handling of Fish Feed Raw materials	2	20	60	Mandatory
7	AGR/FFP/007/L1	Measuring and Weighing of Feed Ingredients	2	20	60	Mandatory
8	AGR/FFP/008/L1	Basic Feed Grinding, Mixing and Pelleting Support	3	30	90	Mandatory
9	AGR/FFP/009/L1	Cleaning, Housekeeping and Waste Handling in Fish Feed Production	2	20	60	Mandatory
10	AGR/FFP/010/L1	Basic Packaging, Labelling and Storage Support	2	20	60	Mandatory
TOTAL			21	210	630	

QUALIFICATION STRUCTURE

This qualification comprises a total of ten (10) Mandatory Units, with a credit value of 21 and 210 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: COMMUNICATION IN THE FISH FEED PRODUCTION WORKPLACE

Unit Reference Number: AGR/FFP/001/L1

Level: 1

Credit Value: 2

Guided Learning Hours: 20

Practice Time: 60

Unit Purpose: This unit is designed to equip the learner with knowledge and skills to communicate effectively in a fish feed production workplace, including the use of verbal and non-verbal communication, workplace signs and symbols, and basic documentation.

Unit Assessment Requirements/Evidence Requirements:

Assessment should be carried out in a workplace environment. However, simulation techniques may also be adopted to enhance real-life experiences.

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: Communication in the Fish Feed Production Workplace

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 1: <i>Identify types of communication in the fish feed production workplace</i>	1.1	Identify verbal and non-verbal communication methods used in the workplace									
	1.2	Distinguish between formal and informal communication in a production environment									
	1.3	Identify communication channels used between team members and supervisors									
LO 2: <i>Follow and relay workplace instructions</i>	2.1	Listen attentively to instructions given by supervisors									
	2.2	Confirm understanding of instructions before carrying out tasks									
	2.3	Relay information to the appropriate personnel accurately									
	2.4	Communicate work progress and challenges to the supervisor									
LO 3: <i>Interpret and use basic workplace documents</i>	3.1	Identify documents used in the fish feed production workplace									
	3.2	Read and interpret simple workplace instructions and labels									
	3.3	Complete basic workplace forms as required									
Learners Signature:			Date:								
Assessors Signature:			Date:								
IQA Signature (if sampled)			Date:								
EQA Signature (if sampled)			Date:								

UNIT 002: TEAMWORK IN FISH FEED PRODUCTION

Unit Reference Number: AGR/FFP/002/L1

Level: 1

Credit Value: 1

Guided Learning Hours: 10

Practice Time: 30

Unit Purpose: This unit is designed to equip learners with knowledge and skills required to develop team spirit and a positive working relationship with colleagues in a fish feed production environment.

Unit Assessment Requirements/Evidence Requirements:

Assessment should be carried out in a workplace environment. However, simulation techniques may also be adopted to enhance real-life experiences.

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: Teamwork in Fish Feed Production

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 1: <i>Carry out team roles and responsibilities in fish feed production</i>	1.1	Identify members of the fish feed production team and their roles									
	1.2	Describe own duties and responsibilities within the team									
	1.3	Recognize reporting lines and supervisory structures									
	1.4	Follow instructions from supervisors and senior team members									
LO 2: <i>Work cooperatively with team members</i>	2.1	Assist team members in completing assigned tasks when required									
	2.2	Share tools, equipment and resources responsibly									
	2.3	Support team efforts to achieve daily production targets									
	2.4	Demonstrate punctuality and reliability in team activities									
LO 3: <i>Maintain positive working relationships in the team</i>	3.1	Treat colleagues with courtesy and respect									
	3.2	Follow the organizational code of conduct in all team interactions									
	3.3	Communicate interpersonal challenges to the supervisor appropriately									
	3.4	Contribute to a safe and positive working environment									
Learners Signature:			Date:								
Assessors Signature:			Date:								
IQA Signature (if sampled)			Date:								
EQA Signature (if sampled)			Date:								

UNIT 003: OCCUPATIONAL HEALTH, SAFETY AND HYGIENE IN FISH FEED PRODUCTION

Unit Reference Number: AGR/FFP/003/L1

Level: 1

Credit Value 2

Guided Learning Hours: 20

Practice Time: 60

Unit Purpose: This unit is designed to equip the learner with knowledge and skills to observe occupational health, safety and hygiene requirements in a fish feed production workplace.

Unit Assessment Requirements/Evidence Requirements:

Assessment should be carried out in a workplace environment. However, simulation techniques may also be adopted to enhance real-life experiences.

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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: Occupational Health, Safety and Hygiene in Fish Feed Production

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type	Evidence Ref. Page No.
LO 1: <i>Identify workplace hazards in fish feed production</i>	1.1	Identify common hazards in the fish feed production workplace		
	1.2	Distinguish between unsafe acts and unsafe conditions		
	1.3	Communicate identified hazards to the appropriate personnel		
LO 2: <i>Apply personal protective equipment (PPE) in fish feed production</i>	2.1	Identify PPE required for fish feed production activities		
	2.2	Select appropriate PPE for assigned tasks		
	2.3	Wear PPE correctly before commencing work		
	2.4	Maintain PPE in a clean and serviceable condition		
LO 3: <i>Comply with safety standards in production area</i>	3.1	Follow workplace safety procedures during production activities		
	3.2	Use tools and equipment safely under supervision		
	3.3	Avoid unsafe behaviour that may cause accidents or injuries		
	3.4	Follow emergency procedures when required		
LO 4: <i>Maintain personal hygiene in the fish feed production area</i>	4.1	Observe personal cleanliness before entering production areas		
	4.2	Sanitize hands according to workplace hygiene procedures		
	4.3	Use appropriate protective clothing in production areas		
	4.4	Follow workplace hygiene requirements consistently		
Learners Signature:			Date:	
Assessors Signature:			Date:	
IQA Signature (if sampled)			Date:	
EQA Signature (if sampled)			Date:	

Unit 004: Fish Feed Production Workplace Practices

Unit Reference Number:	AGR/FFP/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 knowledge and skills to work effectively within a fish feed production facility.

Unit Assessment Requirements/Evidence Requirements:

Assessment should be carried out in a workplace environment. However, simulation techniques may also be adopted to enhance real-life experiences.

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: Fish Feed Production Workplace Practices

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 1: <i>Comply with workplace rules and procedures</i>	1.1	Identify workplace rules, policies and procedures applicable to fish feed production									
	1.2	Adhere to the organisational code of conduct during production activities									
	1.3	Follow instructions from supervisors and senior team members									
	1.4	Report non-compliance or workplace concerns to the appropriate authority									
LO 2: <i>Demonstrate good work discipline and punctuality</i>	2.1	Report to work on time and ready for assigned tasks									
	2.2	Attend workplace briefings and team meetings as scheduled									
	2.3	Complete assigned tasks within specified timeframes									
	2.4	Use working hours productively and avoid unnecessary disruptions									
LO 3: <i>Maintain good housekeeping practices in the production area</i>	3.1	Keep work areas clean at all times									
	3.2	Keep work areas organised at all time									
	3.3	Store tools, materials and equipment in designated locations									
	3.4	Clean spills and residues from equipment and work surfaces promptly									
	3.5	Dispose of waste materials according to workplace procedures									
LO 4: <i>Carry out basic production support tasks</i>	4.1	Identify the flow of production activities in the fish feed production facility									
	4.2	Assist in loading and unloading ingredients and materials as instructed									
	4.3	Follow prescribed production procedures under supervision									
	4.4	Report irregularities or production concerns to the supervisor									
Learners Signature:			Date:								
Assessors Signature:			Date:								
IQA Signature (if sampled)			Date:								

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



UNIT 005: IDENTIFICATION AND USE OF FISH FEED PRODUCTION TOOLS AND EQUIPMENT

Unit Reference Number: AGR/FFP/005/L1

Level: 1

Credit Value: 2

Guided Learning Hours: 20

Practice Time: 60 hours

Unit Purpose: This unit is designed to equip the learner with knowledge and skills to identify, select, use, clean and store basic tools and equipment used in fish feed production.

Unit Assessment Requirements/Evidence Requirements:

Assessment should be carried out in a workplace environment. However, simulation techniques may also be adopted to enhance real-life experiences.

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: Identification and Use of Fish Feed Production Tools and Equipment

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 1: <i>Identify fish feed production tools and equipment</i>	1.1	Identify basic tools used in fish feed production									
	1.2	Identify basic equipment used in fish feed production									
	1.3	Classify tools and equipment according to their uses									
	1.4	Identify safety signs and warnings associated with tools and equipment									
LO 2: <i>Use tools and equipment for assigned tasks</i>	2.1	Select appropriate tools and equipment for assigned tasks									
	2.2	Inspect tools and equipment for defects before use									
	2.3	Use tools and equipment safely according to workplace instructions									
	2.4	Communicate faults or defects to the supervisor									
LO 3: <i>Clean fish feed production tools and equipment</i>	3.1	Identify appropriate cleaning agents for different tools and equipment									
	3.2	Clean tools and equipment before and after use									
	3.3	Maintain cleanliness of storage areas for tools and equipment									
LO 4: <i>Maintain fish feed production tools and equipment</i>	4.1	Identify storage area for tools and equipment.									
	4.2	Store equipment according to instruction.									
	4.3	Store tools and equipment in designated locations.									
Learners Signature:			Date:								
Assessors Signature:			Date:								
IQA Signature (if sampled)			Date:								
EQA Signature (if sampled)			Date								

UNIT 006: IDENTIFICATION AND HANDLING OF FISH FEED RAW MATERIALS

Unit Reference Number: AGR/FFP/006/L1

Level: 1

Credit Value: 2

Guided Learning Hours: 20

Practice Time: 60 hours

Unit Purpose: This unit is designed to equip the learner with knowledge and skills to identify, classify, handle and store basic raw materials used in fish feed production.

Unit Assessment Requirements/Evidence Requirements:

Assessment should be carried out in a workplace environment. However, simulation techniques may also be adopted to enhance real-life experiences.

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: IDENTIFICATION AND HANDLING OF FISH FEED RAW MATERIALS

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 1: <i>Identify common fish feed raw materials</i>	1.1	Identify common raw materials/ingredients used in fish feed production									
	1.2	Distinguish between plant-based and animal-based feed ingredients									
	1.3	Match raw materials to their common names and functions									
LO 2: <i>Classify raw materials according to their functions</i>	2.1	Identify raw materials as protein sources, energy sources or additives									
	2.2	Identify ingredients used as binders in fish feed production									
	2.3	Identify vitamin and mineral supplements used in feed production									
	2.4	Identify raw materials used as attractants and flavour enhancers									
LO 3: <i>Examine the quality of raw materials</i>	3.1	Identify the colour, texture and odour of acceptable feed ingredients									
	3.2	Identify spoiled or contaminated ingredients.									
	3.3	Identify signs of good-quality raw materials.									
	3.4	Identify foreign materials that may affect feed quality									
	3.5	Communicate defective or poor-quality materials to the supervisor									
LO 4: <i>Handle and store raw materials correctly</i>	4.1	Handle raw materials according to workplace instructions									
	4.2	Identify preventive measures to avoid contamination during handling activities.									
	4.3	Assist in arranging raw materials in designated storage areas									
	4.4	Use appropriate containers for transporting materials.									
	4.5	Communicate improper storage conditions to the supervisor									
Learners Signature:			Date:								

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



UNIT 007: MEASURING AND WEIGHING OF FEED INGREDIENTS

Unit Reference Number:	AGR/FFP/007/L1
Level:	1
Credit Value:	2
Guided Learning Hours:	20
Practice Time:	60 hours

Unit Purpose: This unit is designed to equip the learner with knowledge and skills to accurately measure and weigh fish feed ingredients.

Unit Assessment Requirements/Evidence Requirements:

Assessment should be carried out in a workplace environment. However, simulation techniques may also be adopted to enhance real-life experiences.

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: Measuring and Weighing of Feed Ingredients

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type	Evidence Ref. Page No.
LO 1: <i>Identify measuring and weighing equipment</i>	1.1	Identify common measuring and weighing instruments used in fish feed production		
	1.2	State the purpose of different measuring and weighing instruments		
	1.3	Distinguish between units of weight, volume and quantity used in feed production		
LO 2: <i>Prepare measuring and weighing equipment for use</i>	2.1	Carry-out cleaning of measuring and weighing equipment		
	2.2	Position weighing equipment on a stable and level surface		
	2.3	Communicate damaged or faulty equipment to the supervisor		
LO 3: <i>Identify Measuring Units used in Raw Materials/Ingredients in Fish Feed Production</i>	3.1	Define Standard International (S.I) units		
	3.2	List S.I units used in fish feed production		
	3.3	Use correct units of measurement as specified.		
LO 4: <i>Carry out measuring and weighing of feed ingredients correctly</i>	4.1	Assist in weighing feed ingredients to the quantities specified in the batch instruction		
	4.2	Assist in measuring liquid ingredients using appropriate measuring instruments		
	4.3	Apply correct units of measurement as specified		
	4.4	Prevent contamination during measuring and weighing operations		
	4.5	Report discrepancies in measured quantities to the supervisor		
LO 5: <i>Record measurement and weighing results</i>	5.1	Record weighed quantities on the appropriate workplace forms		
	5.2	Check recorded quantities against batch instructions before proceeding		
	5.3	Report any errors or discrepancies in		

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type	Evidence Ref. Page No.
		recorded measurements		
	5.4	Store completed measurement records in designated locations		
Learners Signature:			Date :	
Assessors Signature:			Date:	
IQA Signature (if sampled			Date:	
EQA Signature (if sampled)			Date:	



UNIT 008: BASIC FEED GRINDING, MIXING AND PELLETING SUPPORT

Unit Reference Number: AGR/FFP/008/L1

Level: 1

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 assist in basic feed grinding, mixing and pelleting operations in a fish feed production facility under supervision.

Unit Assessment Requirements/Evidence Requirements:

Assessment should be carried out in a workplace environment. However, simulation techniques may also be adopted to enhance real-life experiences.

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: Basic Feed Grinding, Mixing and Pelleting Support

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 1: <i>Identify grinding, mixing and pelleting equipment</i>	1.1	Identify grinding equipment used in fish feed production									
	1.2	Identify common mixing and pelleting equipment used in fish feed production									
	1.3	Describe the basic functions of grinders, mixers and pellet mills									
	1.4	Recognise safety signs and warnings associated with processing equipment									
LO 2: <i>Prepare feed ingredients for mixing</i>	2.1	Collect weighed feed ingredients according to work instructions									
	2.2	Arrange ingredients in the correct sequence for mixing									
	2.3	Separate foreign materials and contaminants from ingredients before mixing									
	2.4	Maintain cleanliness of the work area before commencing mixing									
LO 3: <i>Assist in feed mixing operations</i>	3.1	Assist in loading weighed ingredients into the mixer as instructed									
	3.2	Observe mixing time according to workplace instructions									
	3.3	Communicate irregularities during mixing to the supervisor									
	3.4	Assist in unloading mixed feed from the mixer									
LO 4: <i>Assist in pelleting, drying and packaging support</i>	4.1	Assist in transferring mixed feed to the pelleting section safely									
	4.2	Check that feed consistency is suitable for pelleting under supervision									
	4.3	Assist in collecting pellets from the pellet mill									
	4.4	Assist in drying pelleted feeds									
	4.5	Assist in basic packaging activities under supervision									
Learners Signature:			Date:								

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



UNIT 009: CLEANING, HOUSEKEEPING AND WASTE HANDLING IN FISH FEED PRODUCTION

Unit Reference Number: AGR/FFP/009/L1

Level: 1

Credit Value: 2

Guided Learning Hours: 20

Practice Time: 60 hours

Unit Purpose:

This unit is designed to equip the learner with knowledge and skills to carry out cleaning, housekeeping and waste handling activities in a fish feed production facility.

Unit Assessment Requirements/Evidence Requirements:

Assessment should be carried out in a workplace environment. However, simulation techniques may also be adopted to enhance real-life experiences.

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: Cleaning, Housekeeping and Waste Handling in Fish Feed Production

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 1: <i>Carry out routine cleaning of production areas and equipment</i>	1.1	Identify cleaning agents and materials appropriate for production areas and equipment									
	1.2	Clean production surfaces, equipment and utensils before and after use									
	1.3	Remove feed residues and debris from the production area									
	1.4	Assist in maintaining cleanliness of drains and waste collection points									
LO 2: <i>Maintain good housekeeping in the production facility</i>	2.1	Assist to arrange materials, tools and equipment in designated locations									
	2.2	Keep walkways, emergency exits and work areas clear of obstructions									
	2.3	Follow the workplace housekeeping schedule consistently									
LO 3: <i>Handle, segregate and dispose production waste safely</i>	3.1	Identify types of waste generated in fish feed production									
	3.2	Assist in segregating waste into appropriate categories according to workplace procedures									
	3.3	Assist to dispose of waste materials in accordance with workplace procedure									
	3.4	Communicate unusual or hazardous waste to the supervisor									
Learners Signature:			Date:								
Assessors Signature:			Date:								
IQA Signature (if sampled)			Date:								
EQA Signature (if sampled)			Date:								

UNIT 010: BASIC PACKAGING, LABELLING AND STORAGE SUPPORT

Unit Reference Number: AGR/FFP/010/L1

Level: 1

Credit Value: 2

Guided Learning Hours: 20

Unit Purpose: This unit is designed to equip the learner with knowledge and skills to assist in basic packaging, labelling and storage activities for fish feed products under supervision.

Unit Assessment Requirements/Evidence Requirements:

Assessment must be carried out in a real workplace environment in which learning and human development is carried out. Simulation may be permitted where direct workplace assessment of a specific Performance Criterion is not practicable.

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: Basic Packaging, Labelling and Storage Support

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 1: <i>Identify packaging materials and storage facilities</i>	1.1	Identify packaging materials used for fish feed products									
	1.2	Identify storage facilities used for finished fish feed									
	1.3	Identify labels within storage facilities									
LO 2: <i>Assist in packaging finished fish feed products</i>	2.1	Assist in filling packaging materials with finished products									
	2.2	Weight packaged products to confirm compliance with specified quantities									
	2.3	Seal packaging materials according to workplace procedures									
	2.4	Set aside non-conforming packages for supervisor review									
LO 3: <i>Apply labels and assist in product storage</i>	3.1	Assist in pasting labelling materials on finished products									
	3.2	Assist in arranging packaged products in designated storage areas									
	3.3	Communicate improper storage conditions to the supervisor									
Learners Signature:			Date:								
Assessors Signature:			Date:								
IQA Signature (if sampled)			Date:								
EQA Signature (if sampled)			Date:								

NATIONAL SKILLS QUALIFICATION (NSQ)



GENERAL INFORMATION

OVERVIEW

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

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

QUALIFICATION PURPOSE

This qualification is designed to develop learners into competent Fish Feed Production Operators, capable of carrying out routine production tasks with limited supervision using basic precision agriculture principles and tools.

QUALIFICATION REQUIREMENTS

All Candidates must be:

- At least eighteen (18) years of age
- Be medically fit
- Be physically fit
- Be mentally fit (mental alertness)
- Have achieved the National Skills Qualification in Fish Feed Production Level 1, or demonstrate equivalent prior competence
- Be a Nigerian citizen
- Other nationals: hold a valid International Passport and residence permit
- Be vetted

QUALIFICATION OBJECTIVES/

To achieve this qualification, the learner should be able to:

- i. Apply workplace safety, hygiene and environmental practices during fish feed production
- ii. Prepare fish feed ingredients for production batches
- iii. Measure and weigh feed ingredients for production batches accurately
- iv. Carry out feed mixing operations independently
- v. Operate pelleting and extrusion equipment
- vi. Carry out drying and cooling of fish feed
- vii. Carry out packaging and labelling of fish feed products
- viii. Store and handle finished fish feed products correctly
- ix. Carry out basic quality checks in fish feed production
- x. Maintain production records and prepare basic reports

NATIONAL SKILLS QUALIFICATION TABLE

MANDATORY UNITS

S/No	Unit Reference Number	Unit Title	Credit Value	Guided Learning Hours	Practice Time	Remark
1.	AGR/FFP/001/L2	Communication in Fish Feed Production	1	10	30	Mandatory
2.	AGR/FFP/002/L2	Teamwork in Fish Feed Production Environment	2	20	60	Mandatory
3.	AGR/FFP/003/L2	Workplace Safety, Hygiene and Environmental Practices in Fish Feed Production	2	20	60	Mandatory
4.	AGR/FFP/004/L2	Preparation of Fish Feed Ingredients	3	30	90	Mandatory
5.	AGR/FFP/005/L2	Measuring and Weighing of Feed Ingredients for Production Batches	2	20	60	Mandatory
6.	AGR/FFP/006/L2	Feed Mixing Operations	4	40	120	Mandatory
7.	AGR/FFP/007/L2	Pelleting and Extrusion Operations	4	40	120	Mandatory
8.	AGR/FFP/008/L2	Drying and Cooling of Fish Feed	3	30	90	Mandatory
9.	AGR/FFP/009/L2	Packaging and Labelling of Fish Feed Products	2	20	60	Mandatory
10.	AGR/FFP/010/L2	Storage and Handling of Finished Fish Feed	3	30	90	Mandatory
11.	AGR/FFP/011/L2	Basic Quality Checks in Fish Feed Production	3	30	90	Mandatory

12.	AGR/FFP/012/L2	Production Records and Reporting	3	30	90	Mandatory
TOTAL			32	320	960	

QUALIFICATION STRUCTURE

This qualification comprises a total of twelve (12) Mandatory Units, with a credit value of 32 and 320 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.

UNIT 001: COMMUNICATION IN FISH FEED PRODUCTION

Unit Reference Number:	AGR/FFP/001/L2
NSQ Level:	2
Credit Value:	1
Guided Learning Hours:	10
Practice Time:	30 hours

Unit Purpose: This unit is designed to equip learners with the essential communication skills required to work safely, efficiently and collaboratively within a fish feed production workplace.

Unit assessment requirements/ evidence requirements:

Assessment should be carried out in a workplace environment. However, simulation techniques may also be adopted to enhance real-life experiences.

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: Communication in Fish Feed Production

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 1: Demonstrate effective workplace communication in feed production.	1.1	Use appropriate technical terms in feed production communication.									
	1.2	Respond to workplace enquiries professionally									
	1.3	Relay information to relevant personnel promptly and accurately.									
LO 2: Communicate effectively within a feed production team	2.1	Exchange appropriate work-related information with team members.									
	2.2	Participate in team discussions on feed production activities and related matters.									
	2.3	Provide feedback on assigned tasks appropriately.									
	2.4	Resolve communication challenges through appropriate procedures.									
	2.5	Observe workplace communication ethics and confidentiality requirements.									
LO 3: Apply effective listening skills in feed production operations	3.1	Listen attentively to workplace instructions.									
	3.2	Listen attentively to other team members									
	3.3	Identify key information from oral/written communications.									
	3.4	Clarify unclear information appropriately.									
	3.5	Confirm understanding of instructions/information before execution.									
	3.6	Respond appropriately to verbal/written communications.									
LO 4: Communicate emergency and safety information	4.1	Signal immediate danger to team members using designated hand signs, verbal alarms and other appropriate means during emergencies.									
	4.2	Explain safety warning signs and bio-									

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type				Evidence Ref. Page No.			
		security protocols to visitors entering the feed mill.								
	4.3	Report accidents and incidents according to procedures								
Learners Signature:			Date:							
Assessors Signature:			Date:							
IQA Signature (if sampled)			Date:							
EQA Signature (if sampled)			Date:							



UNIT 002: TEAMWORK IN FISH FEED PRODUCTION ENVIRONMENT

Unit Reference Number: AGR/FFP/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 knowledge and skills to demonstrate teamwork in Fish Feed Production Enterprises.

Unit assessment requirements/ evidence requirements:

Assessment should be carried out in a workplace environment. However, simulation techniques may also be adopted to enhance real-life experiences.

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: Teamwork in Fish Feed Production Environment

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type				Evidence Ref. Page No.			
LO 1: <i>Exhibit positive working relationships with colleagues</i>	1.1	Identify the need for developing a positive working relationship with colleagues								
	1.2	Explain the importance of maintaining good relationship with others								
	1.3	Assist team members when required								
	1.4	Communicate information timely to colleagues about one's work that might affect others								
LO 2: <i>Take responsibility within the team</i>	2.1	Recognize own role and responsibilities within the team.								
	2.2	Perform individual tasks in line with the team rules and regulations.								
	2.3	Participate effectively in teamwork.								
LO 3: Comply with organizational policies	3.1	Work in line with organizational standards								
	3.2	Explain organizational code of practice.								
	3.3	Explain organizational code of conduct								
Learners Signature:			Date:							
Assessors Signature:			Date:							
IQA Signature (if sampled)			Date:							
EQA Signature (if sampled)			Date:							

UNIT 003: WORKPLACE SAFETY, HYGIENE AND ENVIRONMENTAL PRACTICES IN FISH FEED PRODUCTION

Unit Reference Number: AGR/FFP/003/L2

Level: 2

Credit Value: 2

Guided Learning Hours: 20

Practice Time: 60 hours

Unit Purpose: This unit is designed to equip the learner with knowledge and skills to apply occupational health, safety, hygiene and environmental practices at an operator level in a fish feed production facility.

Unit Assessment Requirements/Evidence Requirements:

Assessment should be carried out in a workplace environment. However, simulation techniques may also be adopted to enhance real-life experiences.

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: Workplace Safety, Hygiene and Environmental Practices in Fish Feed Production

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type	Evidence Ref. Page No.
LO 1: <i>Carry out risk assessment of the fish feed production work area</i>	1.1	Identify hazards associated with fish feed production operations		
	1.2	Assess the level of risk associated with identified hazards		
	1.3	Select appropriate control measures for identified risks		
	1.4	Apply appropriate control measures for identified risks		
	1.5	Report risk assessment findings to the supervisor		
LO 2: <i>Apply safety and hygiene measures during production operations</i>	2.1	Use appropriate PPE for each production task		
	2.2	Apply hygiene procedures before, during and after production activities		
	2.3	Check own work area for safety compliance during operations		
	2.4	Maintain a clean and organised production area during operations		
LO 3: <i>Respond to workplace incidents according to emergency procedures</i>	3.1	Identify emergency procedures applicable to the fish feed production facility		
	3.2	Apply first aid procedures in response to minor injuries		
	3.3	Report workplace incidents to the supervisor promptly		
	3.4	Follow evacuation procedures when required		
LO 4: <i>Apply environmental protection practices in production activities</i>	4.1	Identify environmental regulations relevant to fish feed production		
	4.2	Minimise the generation of waste during production operations		
	4.3	Segregate waste in accordance with workplace procedures		
	4.4	Dispose of waste in accordance with workplace procedures		
	4.5	Report environmental concerns to the supervisor		

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



UNIT 004: PREPARATION OF FISH FEED INGREDIENTS

Unit Reference Number: AGR/FFP/004/L2

Level: 2

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 prepare fish feed ingredients for production.

Unit Assessment Requirements/Evidence Requirements:

Assessment should be carried out in a workplace environment. However, simulation techniques may also be adopted to enhance real-life experiences.

Assessment methods to be used may include:

7. Direct Observation (DO)
8. Recognition of Prior Learning and experience (RPL)
9. Witness testimony (WT)
10. Personal statement (PS)/ Reflective Practice (RP).
11. Work Product (WP)
12. Assignment (ASS)

Unit 004: Preparation of Fish Feed Ingredients

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 1: <i>Carryout Identification and Selection of feed ingredients for production batches</i>	1.1	Identify feed ingredients required for a specified production batch									
	1.2	Select ingredients from storage according to batch instructions									
	1.3	Check ingredient labels, batch numbers and expiry dates									
	1.4	Set aside damaged or substandard ingredients for supervisor's review									
LO 2: <i>Carry out pre-treatment of feed ingredients</i>	2.1	Identify ingredients that require pre-treatment before processing									
	2.2	Carry out cleaning of identified ingredients before processing									
	2.3	Carry out drying or moisture reduction of ingredients where required									
	2.4	Carry out heat treatment of ingredients according to production instructions									
	2.5	Check pre-treated ingredients before transferring to the next stage									
LO 3: <i>Carry out grinding and particle size reduction</i>	3.1	Select appropriate grinding equipment for the ingredient type									
	3.2	Operate grinding equipment according to workplace procedures									
	3.3	Check particle size after grinding against specified requirements									
	3.4	Clean grinding equipment after use									
LO 4: <i>Prepare ingredients for mixing</i>	4.1	Arrange prepared ingredients in the correct sequence for mixing									
	4.2	Remove foreign materials and contaminants from prepared ingredients									
	4.3	Report defects or discrepancies in ingredient preparation to the supervisor									
Learners Signature:			Date:								
Assessors Signature:			Date:								

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



UNIT 005: MEASURING AND WEIGHING OF FEED INGREDIENTS FOR PRODUCTION BATCHES

Unit Reference Number: AGR/FFP/005/L2

Level: 2

Credit Value: 2

Guided Learning Hours: 20

Practice Time: 60 hours

Unit Purpose: This unit is designed to equip the learner with knowledge and skills to accurately measure and weigh feed ingredients for production batches in accordance with batch instructions.

Unit Assessment Requirements/Evidence Requirements:

Assessment should be carried out in a workplace environment. However, simulation techniques may also be adopted to enhance real-life experiences.

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: MEASURING AND WEIGHING OF FEED INGREDIENTS FOR PRODUCTION BATCHES

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type	Evidence Ref. Page No.
LO 1: <i>Interpret batch instructions and formulation sheets</i>	1.1	Describe fish feed batch instructions		
	1.2	Identify the ingredients and quantities specified in the batch instruction		
	1.3	Identify the sequence of ingredient addition for the batch		
	1.4	Seek clarification from the supervisor on unclear instructions		
LO 2: <i>Measure ingredients for production batches</i>	2.1	Select appropriate weighing and measuring instruments for each ingredient		
	2.2	Weigh each ingredient to the quantity specified in the batch instruction		
	2.3	Measure liquid ingredient/additives using appropriate measuring instruments		
	2.4	Prevent cross-contamination during weighing operations		
LO 3: <i>Record weighing and measurement results</i>	3.1	Record each weighed quantity on the batch record sheet		
	3.2	Verify recorded quantities against the batch instruction before proceeding		
	3.3	Correct errors in weighing by reweighing and recording the corrected quantity		
	3.4	Submit completed batch records to the supervisor for review		
Learners Signature:			Date:	
Assessors Signature:			Date:	
IQA Signature (if sampled)			Date:	
EQA Signature (if sampled)			Date:	

UNIT 006: FEED MIXING OPERATIONS

Unit Reference Number: AGR/FFP/006/L2

Level: 2

Credit Value: 4

Guided Learning Hours: 40

Practice Time: 120 hours

Unit Purpose: This unit is designed to equip the learner with knowledge and skills to carry out feed mixing operations independently.

Unit Assessment Requirements/Evidence Requirements:

Assessment should be carried out in a workplace environment. However, simulation techniques may also be adopted to enhance real-life experiences.

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: Feed Mixing Operations

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 1: <i>Prepare the mixer for operation</i>	1.1	Check the mixer for cleanliness and functionality before commencing operation									
	1.2	Check that the mixer is set up correctly for the batch									
	1.3	Confirm availability of all required ingredients in the right form									
	1.4	Follow pre-start safety checks before operating the mixer									
LO 2: <i>Load ingredients into the mixer in the correct sequence</i>	2.1	Load ingredients into the mixer in the sequence specified in the batch instruction									
	2.2	Add liquid ingredients at the appropriate stage of mixing									
	2.3	Confirm that all specified ingredients have been added at the appropriate stage of mixing									
	2.4	Follow workplace safety procedures during loading operations									
LO 3: <i>Operate the mixer according to production instructions</i>	3.1	Operate the mixer at the speed and duration specified in the batch instruction									
	3.2	Observe the mixing process for uniformity and consistency									
	3.3	Report irregularities during mixing to the supervisor									
	3.4	Stop the mixer safely if a fault or irregularity is detected									
LO 4: <i>Carry out checks and transfer the mixed product</i>	4.1	Observe the mixed product for colour, texture and uniformity									
	4.2	Report non-conforming batches to the supervisor									
	4.3	Unload the mixed product safely from the mixer									
	4.4	Transfer the mixed product to the pelleting or extrusion section									
	4.5	Clean the mixer after completing the batch									
Learners Signature:			Date:								

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



UNIT 007: PELLETING AND EXTRUSION OPERATIONS

Unit Reference Number: AGR/FFP/007/L2

Level: 2

Credit Value: 4

Guided Learning Hours: 40

Practice Time: 120 hours

Unit Purpose: This unit is designed to equip the learner with knowledge and skills to carry out pelleting and extrusion operations in fish feed production, including machine preparation, operation, monitoring and post-operation procedures.

Unit Assessment Requirements/Evidence Requirements:

Assessment should be carried out in a workplace environment. However, simulation techniques may also be adopted to enhance real-life experiences.

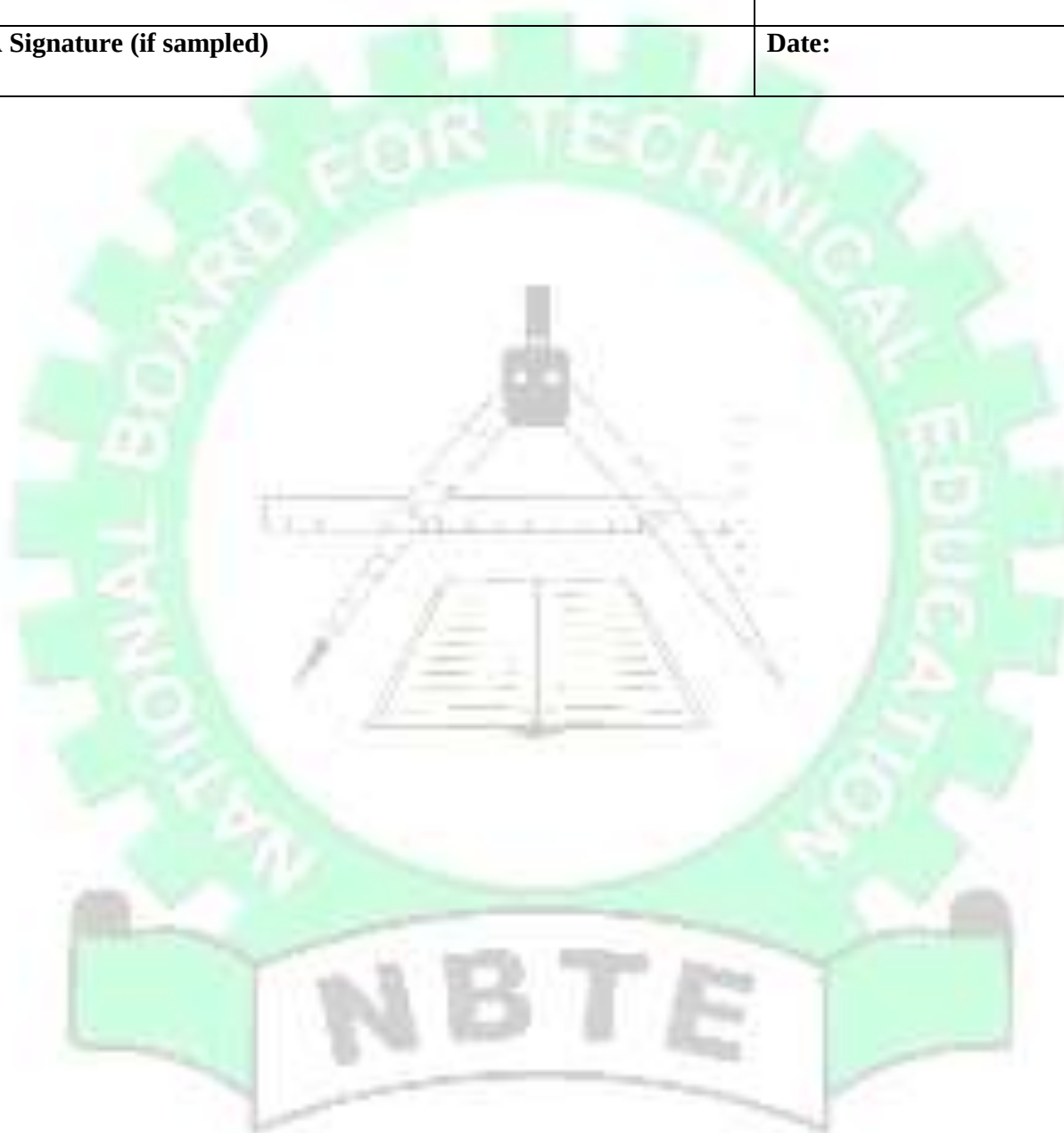
Assessment methods to be used may include:

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: Pelleting and Extrusion Operations

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 1: <i>Prepare pelleting or extrusion equipment for operation</i>	1.1	Check the pellet mill or extruder for cleanliness and functionality									
	1.2	Select the appropriate die size for the specified pellet diameter									
	1.3	Carry out pre-start checks according to workplace procedures									
	1.4	Follow safety procedures before starting the machine									
LO 2: <i>Operate the pellet mill or extruder</i>	2.1	Start the pellet mill or extruder according to operating procedures									
	2.2	Feed the mixed product into the machine at the correct rate									
	2.3	Observe machine parameters including temperature, moisture, pressure, feed rate and cutter									
	2.4	Adjust operating parameters to maintain product quality									
LO 3: <i>Monitor pellet or extrudate quality during production</i>	3.1	Check pellet size, shape and hardness against specified standards									
	3.2	Identify pellets that do not meet specified quality requirements									
	3.3	Set aside non-conforming pellets and report to the supervisor									
	3.4	Record production output during pelleting or extrusion operations									
LO 4: <i>Carry out post-operation procedures</i>	4.1	Stop the machine safely at the end of the production run									
	4.2	Purge and clean the machine after completing the batch									
	4.3	Report machine faults or maintenance requirements to the supervisor									
	4.4	Complete production records for the pelleting or extrusion run									
Learners Signature:			Date:								
Assessors Signature:			Date:								

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



UNIT 008: DRYING AND COOLING OF FISH FEED

Unit Reference Number: AGR/FFP/008/L2

Level: 2

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 carry out drying and cooling of fish feed pellets or extrudates.

Unit Assessment Requirements/Evidence Requirements:

Assessment should be carried out in a workplace environment. However, simulation techniques may also be adopted to enhance real-life experiences.

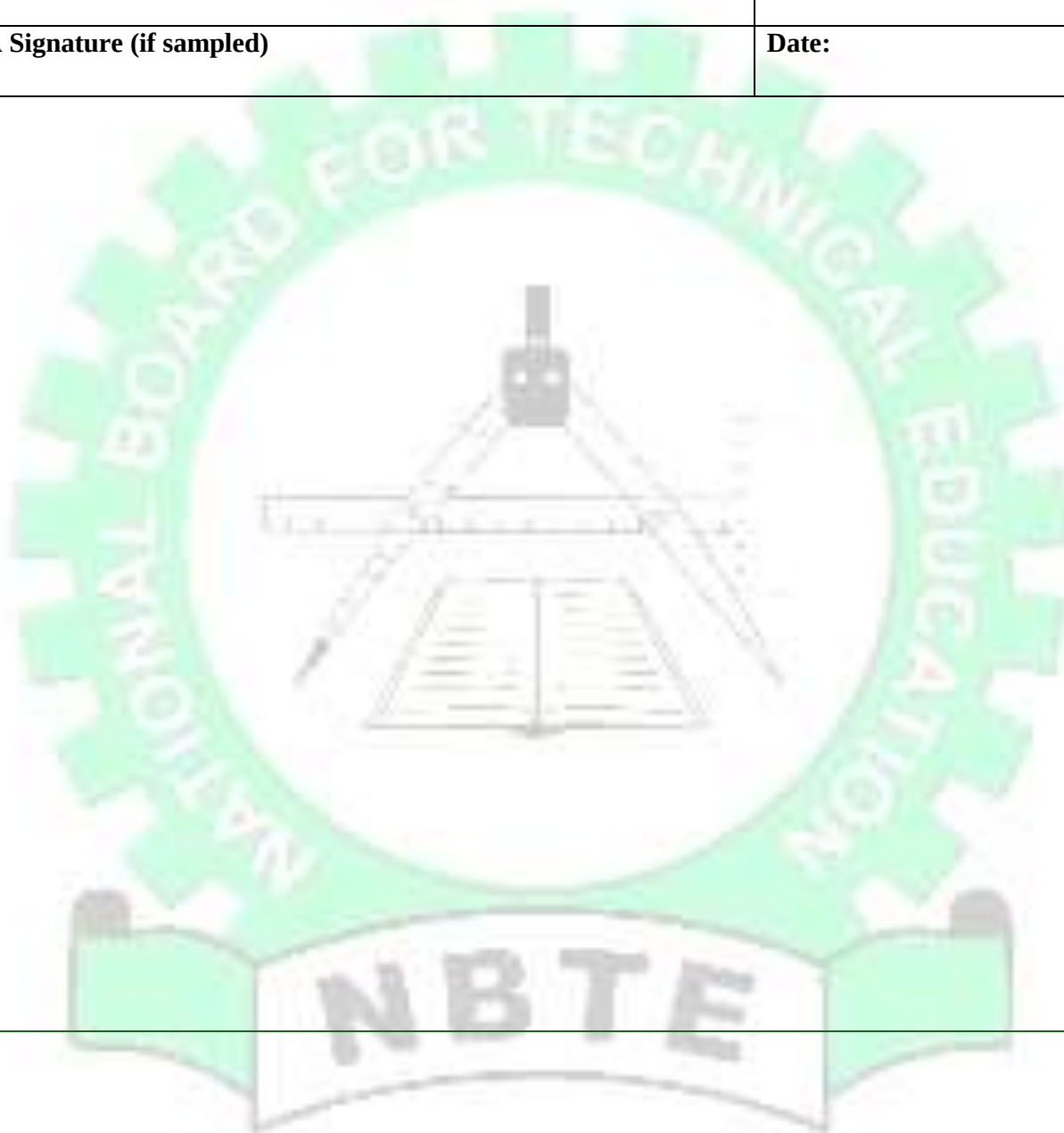
Assessment methods to be used may include:

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: Drying and Cooling of Fish Feed

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 1: <i>Identify drying and cooling methods used in fish feed production</i>	1.1	Identify types of drying methods used in fish feed production									
	1.2	Identify drying and cooling equipment used in the facility									
	1.3	Describe the effects of inadequate drying on feed quality									
	1.4	Identify target moisture content for dried fish feed products									
LO 2: <i>Operate drying equipment according to production instructions</i>	2.1	Set up drying equipment in accordance with workplace procedures									
	2.2	Load pellets or extrudates into the dryer at the correct rate									
	2.3	Set drying temperature and time according to batch instructions									
	2.4	Observe drying equipment during operation									
LO 3: <i>Monitor and control the drying process</i>	3.1	Check moisture content of feed during and after drying									
	3.2	Adjust drying parameters to achieve target moisture content									
	3.3	Observe product temperature during the cooling stage									
	3.4	Report abnormalities in the drying or cooling process to the supervisor									
LO 4: <i>Inspect dried and cooled feed before packaging</i>	4.1	Check moisture content of the dried product against specified requirements									
	4.2	Check the dried product for colour, texture and dust content									
	4.3	Set aside non-conforming batches for supervisor review									
	4.4	Record drying and cooling results on the batch record									
Learners Signature:			Date:								
Assessors Signature:			Date:								

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



UNIT 009: PACKAGING AND LABELLING OF FISH FEED PRODUCTS

Unit Reference Number: AGR/FFP/009/L2

Level: 2

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 carry out packaging and labelling of fish feed products.

Unit Assessment Requirements/Evidence Requirements:

Assessment should be carried out in a workplace environment. However, simulation techniques may also be adopted to enhance real-life experiences.

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: Packaging and Labelling of Fish Feed Products

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 1: <i>Select appropriate packaging materials for fish feed products</i>	1.1	Identify types of packaging materials used for fish feed products									
	1.2	Select packaging materials appropriate for the product type and size									
	1.3	Check packaging materials for defects before use									
	1.4	Prepare packaging materials and labelling supplies for use									
LO 2: <i>Fill and seal packaging materials correctly</i>	2.1	Fill packaging materials with the specified quantity of fish feed									
	2.2	Weigh filled packages to confirm compliance with specified weight									
	2.3	Seal packaging materials according to workplace procedures									
	2.4	Set aside non-conforming packages for supervisor review									
LO 3: <i>Label finished fish feed products accurately</i>	3.1	Identify information required on fish feed product labels									
	3.2	Apply labels to packaged products according to workplace procedures									
	3.3	Check that label information is accurate and legible									
	3.4	Report labelling errors or discrepancies to the supervisor									
LO 4: <i>Carry out final inspection of packaged products</i>	4.1	Re-check packaged products for correct weight, sealing and labelling									
	4.2	Set aside non-conforming packaged products									
	4.3	Record packaging and labelling outcomes on the batch record									
	4.4	Report packaging defects or irregularities to the supervisor									
Learners Signature:			Date:								
Assessors Signature:			Date:								
IQA Signature (if sampled			Date:								

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



UNIT 010: HANDLING AND STORAGE OF FINISHED FISH FEED

Unit Reference Number: AGR/FFP/010/L2

Level: 2

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 handle and store finished fish feed products correctly.

Unit Assessment Requirements/Evidence Requirements:

Assessment must be carried out in a real workplace environment in which learning and human development is carried out. Simulation may be permitted where direct workplace assessment of a specific Performance Criterion is not practicable.

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: Handling and Storage of Finished Fish Feed

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 1: <i>Identify storage requirements for finished fish feed products</i>	1.1	Identify the conditions required for proper storage of finished fish feed									
	1.2	Identify factors that affect the shelf-life of stored fish feed									
	1.3	Observe signs of deterioration or contamination in stored products									
	1.4	Report signs of deterioration or contamination in stored products									
	1.5	Identify labelling and traceability requirements for stored products									
LO 2: <i>Arrange finished products in storage</i>	2.1	Arrange finished products in designated storage areas									
	2.2	Stack packaged products safely according to workplace procedures									
	2.3	Apply first-in-first-out (FIFO) stock rotation principles									
	2.4	Clean the fish feed storage area									
	2.5	Ventilate the fish feed storage area									
	2.6	Check the storage area for pests									
	2.7	Remove waste and spilled feed from the storage area									
LO 3: <i>Monitor storage conditions for finished fish feed</i>	3.1	Check temperature and humidity levels in the storage area									
	3.2	Observe stored products regularly for signs of deterioration									
	3.3	Report storage condition problems to the supervisor									
	3.4	Record storage observation findings on the appropriate forms									
Learners Signature:			Date:								
Assessors Signature:			Date:								
IQA Signature (if sampled)			Date:								
EQA Signature (if sampled)			Date:								

UNIT 011: BASIC QUALITY CHECKS IN FISH FEED PRODUCTION

Unit Reference Number: AGR/FFP/011/L2

Level: 2

Credit Value: 3

Guided Learning Hours: 30

Practice Time: 60 hours

Unit Purpose:

This unit is designed to equip the learner with knowledge and skills to carry out basic quality checks on raw materials, in-process materials and finished fish feed products.

Objectives:

At the end of this unit, the learner should be able to:

1. Identify quality parameters for fish feed production
2. Carry out quality checks on raw materials
3. Carry out in-process quality checks during production
4. Carry out quality checks on finished fish feed products

Unit Assessment Requirements/Evidence Requirements:

Assessment must be carried out in a real workplace environment in which learning and human development is carried out. Simulation may be permitted where direct workplace assessment of a specific Performance Criterion is not practicable.

Assessment Methods to be Used Include:

1. Direct Observation (DO)
2. Question and Answer (QA)
3. Professional Discussion (PD)
4. Reflective Journal (RJ)
5. Personal Statement (PS)
6. Work Product (WP)
7. Witness Testimony (WT)

The combination of methods applied depends on the unit and the nature of the task being assessed.

Unit 011: Basic Quality Checks in Fish Feed Production

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 1: <i>Identify basic quality parameters for fish feed production</i>	1.1	Identify quality parameters applicable to fish feed raw materials									
	1.2	Identify in-process quality parameters during feed production									
	1.3	Identify quality parameters for finished fish feed products									
	1.4	Describe the consequences of producing substandard fish feed									
LO 2: <i>Carry out quality checks on raw materials</i>	2.1	Check raw materials for colour, texture, odour and moisture content									
	2.2	Identify signs of spoilage, contamination or infestation in raw materials									
	2.3	Record raw material quality check findings on the appropriate forms									
	2.4	Report non-conforming raw materials to the supervisor									
LO 3: <i>Carry out in-process quality checks during production</i>	3.1	Check ingredient weights against batch instructions during production									
	3.2	Check mix homogeneity after the mixing stage									
	3.3	Check pellet size during pelleting or extrusion									
	3.4	Check the pellet shape during pelleting or extrusion									
	3.5	Check pellet hardness during pelleting or extrusion									
	3.6	Report in-process quality deviations to the supervisor									
LO 4: <i>Carry out quality checks on finished fish feed products</i>	4.1	Check moisture content of dried fish feed against specified limits									
	4.2	Check pellet size of finished products									
	4.3	Check pellet colour of finished products									
	4.4	Check pellet texture of finished products									
	4.5	Inspect packaging of finished products									

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
	4.6	Inspect labelling of finished products									
	4.7	Record finished product quality check results on the batch record form									
Learners Signature:			Date:								
Assessors Signature:			Date:								
IQA Signature (if sampled)			Date:								
EQA Signature (if sampled)			Date:								

UNIT 012: PRODUCTION RECORDS AND REPORTING

Unit Reference Number: AGR/FFP/012/L2

Level: 2

Credit Value: 2

Guided Learning Hours: 20

Unit Purpose: This unit is designed to equip the learner with knowledge and skills to maintain accurate production records and prepare basic reports in a fish feed production facility.

Unit Assessment Requirements/Evidence Requirements:

Assessment must be carried out in a real workplace environment in which learning and human development is carried out. Simulation may be permitted where direct workplace assessment of a specific Performance Criterion is not practicable.

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 012: Production Records and Reporting

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type	Evidence Ref. Page No.
LO 1: <i>Identify types of production records used in fish feed production</i>	1.1	Identify types of records maintained in a fish feed production facility		
	1.2	State the purpose of each type of production record		
	1.3	Identify information required in each type of record form		
	1.4	Identify the consequences of incomplete or inaccurate records		
LO 2: <i>Complete production records accurately</i>	2.1	Fill batch record sheets with accurate production data		
	2.2	Record raw material usage		
	2.3	Record batch quantities		
	2.4	Record production output		
	2.5	Record quality check results		
	2.6	Submit completed records to the supervisor within stipulated timelines		
LO 3: <i>Maintain and store production records correctly</i>	3.1	File completed production records in designated locations		
	3.2	Handle production records in line with workplace ethics		
	3.3	Retrieve records promptly when required for review		
	3.4	Report missing or damaged records to the supervisor		
Learners Signature:			Date:	
Assessors Signature:			Date:	
IQA Signature (if sampled)			Date:	
EQA Signature (if sampled)			Date:	

NATIONAL SKILLS QUALIFICATION

FISH FEED PRODUCTION

LEVEL 3



GENERAL INFORMATION

OVERVIEW

This qualification is designed for individuals who are interested in pursuing a career in **Fish Feed Production** for the award of National Skills Qualifications (NSQ)/National Occupational Standards (NOS). It is aimed at producing competencies necessary to support in **Fish Feed Production 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 Fish Feed Production Technicians with the knowledge, skills, and attitudes required to perform routine fish feed production activities using precision agriculture principles and tools.

QUALIFICATION REQUIREMENTS

All Candidates must be:

- At least eighteen (18) years of age
- Medically fit
- Mentally fit (Mental alertness)
- A Nigerian citizen
- Holder of the National Skills Qualification in Fish Feed Production Level 2, or demonstrate equivalent prior competence
- 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 supervise the work of others.

QUALIFICATION OBJECTIVES

At the end of this qualification, the learner should be able to:

- i. Apply occupational safety, hygiene and quality compliance at a skilled technician level
- ii. Communicate Effectively in Fish Feed Production Environment.
- iii. Practice team Work
- iv. Interpret fish feed formulation and batch instructions
- v. Coordinate the preparation of raw materials for production
- vi. Operate and monitor fish feed processing equipment
- vii. Carry out quality control of raw materials and finished fish feed
- viii. Troubleshoot common fish feed production faults
- ix. Carry out routine maintenance of fish feed production tools and equipment
- x. Support production planning and maintain production documentation
- xi. Demonstrate effective workplace communication, team coordination and supervision support

NATIONAL SKILLS QUALIFICATION (NSQ) TABLE

D	Unit Reference Number	Unit Title	Credit Value	Guided Learning Hours	Practice Time	Remark
1.	AGR/FFP/001/L3	Workplace Communication	3	30	150	Mandatory
2.	AGR/FFP/002/L3	Occupational Safety, Hygiene and Quality Compliance in Fish Feed Production	3	30	150	Mandatory
3.	AGR/FFP/003/L3	Team Coordination and Supervision Support	3	30	150	Mandatory
4.	AGR/FFP/004/L3	Interpretation of Fish Feed Formulation and Batch Instructions	3	30	150	Mandatory
5.	AGR/FFP/005/L3	Coordination of Raw Material Preparation	4	40	200	Mandatory
6.	AGR/FFP/006/L3	Operation and Monitoring of Fish Feed Processing Equipment	6	60	350	Mandatory
7.	AGR/FFP/007/L3	Quality Control of Raw Materials and Finished Fish Feed	4	40	200	Mandatory
8.	AGR/FFP/008/L3	Troubleshooting of Common Fish Feed Production Faults	4	40	200	Mandatory
9.	AGR/FFP/009/L3	Maintenance of Fish Feed Production Tools and Equipment	5	50	250	Mandatory
10.	AGR/FFP/010/L3	Production Planning, Documentation and Record Keeping	4	40	150	Mandatory
TOTAL			39	390	1950	

QUALIFICATION STRUCTURE

This qualification comprises a total of ten (10) Mandatory Units, with a credit value of 39 and 390 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.

UNIT 001: WORKPLACE COMMUNICATION

Unit Reference Number:	AGR/FFP/001/L3
Level:	3
Credit Value:	3
Guided Learning Hours:	30
Practice time:	150 hours

Unit Purpose:

This unit is designed to equip the learners with knowledge and skills to communicate effectively in a fish feed production workplace.

Unit Assessment Requirements/Evidence Requirements:

Assessment must be carried out in a real workplace environment in which learning and human development is carried out. Simulation may be permitted where direct workplace assessment of a specific Performance Criterion is not practicable.

Assessment methods to be used include:

1. Direct Observation (DO);
2. Personal statement/Learning Journal (PS/LJ);
3. Questions and Answers (QA);
4. Witness Testimony (WT);
5. Assignment (ASS);
6. Work Products (WP);
7. Professional Discussion (PD).

Unit 001: Workplace Communication

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 1: <i>Demonstrate effective workplace communication</i>	1.1	Communicate production instructions clearly to team members									
	1.2	Use appropriate channels for routine and urgent workplace communication									
	1.3	Deliver clear production briefings to team members									
	1.4	Communicate effectively with supervisors, management and other departments									
LO 2: Interpret fish feed production information	2.1	Interpret fish feed production instructions according to standard operating procedures									
	2.2	Identify feed ingredients formulations and nutritional requirement for different fish growth stages									
	2.3	Interpret production records and safety information in accordance with work place and quality standards.									
LO 3: Communicate with workplace stakeholders	3.1	Communicate with work place stakeholders using appropriate methods and work place protocols									
	3.2	Adapt communication method and terminology to the needs of the recipient and situation.									
	3.3	Maintain effective working relationships by responding appropriately to stakeholders enquiries and feedbacks									
LO 4: Coordinate communication tools and records	4.1	Use appropriate communication tools for routine and urgent operational messages.									
	4.2	Coordinate the timely distribution of work instructions, alerts and schedule changes.									
	4.3	Maintain secure, accurate and retrievable communication records in									

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type	Evidence Ref. Page No.
		accordance with workplace requirements.		
Learner's Signature:			Date:	
Assessor's Signature:			Date:	
IQA Signature (if sampled)			Date:	
EQA Signature (if sampled)			Date:	



UNIT 002: OCCUPATIONAL SAFETY, HYGIENE AND QUALITY COMPLIANCE IN FISH FEED PRODUCTION

Unit Reference Number: AGR/FFP/002/L3

Level: 3

Credit Value: 3

Guided Learning Hours: 30

Practice time: 150 hours

Unit Purpose:

This unit is designed to equip the learners with knowledge and skills to manage occupational safety, hygiene and quality compliance in a fish feed production facility at a skilled technician level.

Unit Assessment Requirements/Evidence Requirements:

Assessment must be carried out in a real workplace environment in which learning and human development is carried out. Simulation may be permitted where direct workplace assessment of a specific Performance Criterion is not practicable.

Assessment methods to be used include:

1. Direct Observation (DO);
2. Personal statement/Learning Journal (PS/LJ);
3. Questions and Answers (QA);
4. Witness Testimony (WT);
5. Assignment (ASS);
6. Work Products (WP);
7. Professional Discussion (PD).

Unit 002: Occupational Safety, Hygiene and Quality Compliance in Fish Feed Production

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 1: <i>Support risk assessment in fish feed production activities</i>	1.1	Identify hazards associated with fish feed production processes									
	1.2	Support in assessing the level of risk associated with identified hazards									
	1.3	Recommend appropriate control measures for identified risks									
	1.4	Document risk assessment findings for supervisor's review									
LO 2: <i>Supervise compliance with safety and hygiene standards</i>	2.1	Monitor compliance with workplace safety procedures during production									
	2.2	Inspect PPE use among production personnel									
	2.3	Conduct routine hygiene inspection of the production area									
	2.4	Address non-compliance with safety and hygiene requirements									
	2.5	Report persistent non-compliance to the appropriate authority									
LO 3: <i>Monitor environmental safety compliance in production activities</i>	3.1	Identify environmental safety regulations applicable to fish feed production									
	3.2	Monitor production activities for compliance with environmental safety requirements									
	3.3	Promote responsible use of resources during production operations									
	3.4	Report environmental safety concerns to the appropriate authority									
LO 4: <i>Investigate and report safety incidents</i>	4.1	Investigate the causes of safety incidents in the production area									
	4.2	Document incident investigation findings accurately									
	4.3	Recommend corrective and preventive actions following an incident									
	4.4	Submit incidence reports to the appropriate authority within stipulated timelines									
Learner's Signature:			Date:								
Assessor's Signature:			Date:								

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



UNIT 003: TEAM COORDINATION AND SUPERVISION SUPPORT

Unit Reference Number: AGR/FFP/003/L3
NSQ Level: 3
Credit Value: 3
Guided Learning Hours: 30
Practice Time: 150 hours

Unit Purpose: This unit equips the learner with the knowledge and skills required to coordinate team activities, promote professional conduct, resolve workplace disagreements and monitor task performance in fish feed production.

Unit assessment requirements/evidence requirements: Assessment should be carried out in a workplace environment. However, simulation techniques may also be adopted to enhance real-life experiences.

Assessment methods to be used include:

1. Direct Observation (DO);
2. Personal statement/Learning Journal (PS/LJ);
3. Questions and Answers (QA);
4. Witness Testimony (WT);
5. Assignment (ASS);
6. Work Products (WP);
7. Professional Discussion (PD).

Unit 003: Team Coordination and Supervision Support

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA	Evidence Type					Evidence Ref. Page No.			
The learner will:		The learner can:									
LO 1: <i>Coordinate teamwork</i>	1.1	Allocate routine feed production activities according to work priorities, competence and available resources.									
	1.2	Coordinate the exchange of safety and production information among team members.									
	1.3	Provide practical support and guidance to team members within own responsibility.									
LO 2: <i>Promote professional conduct</i>	2.1	Model punctuality, accountability, respectful behaviour and compliance with workplace requirements.									
	2.2	Promote welfare, confidentiality, biosecurity, non-discrimination and ethical work practices.									
	2.3	Address minor conduct issues promptly and refer serious or repeated issues appropriately.									
LO 3: <i>Resolve workplace disagreements</i>	3.1	Establish the facts and interests associated with a workplace disagreement.									
	3.2	Facilitate a respectful discussion and agree practical actions within workplace procedures.									
	3.3	Document and refer unresolved, sensitive or serious disagreements to the authorised person.									
LO 4: <i>Monitor agreed workplace tasks</i>	4.1	Monitor team progress against assigned standards, schedules and animal welfare requirements.									
	4.2	Provide timely, specific and constructive feedback on work performance.									

	4.3	Adjust routine work arrangements												
	4.4	Recommend further action where performance requirements are not met.												
Learner's Signature:			Date:											
Assessor's Signature:			Date:											
IQA Signature (if sampled)			Date:											
EQA Signature (if sampled)			Date:											



UNIT 004: INTERPRETATION OF FISH FEED FORMULATION AND BATCH INSTRUCTIONS

Unit Reference Number: AGR/FFP/004/L3

Level: 3

Credit Value: 3

Guided Learning Hours: 30

Practice time: 150 hours

Unit Purpose:

This unit is designed to equip the learners with knowledge and skills to interpret fish feed formulation and batch instructions.

Unit Assessment Requirements/Evidence Requirements:

Assessment must be carried out in a real workplace environment in which learning and human development is carried out. Simulation may be permitted where direct workplace assessment of a specific Performance Criterion is not practicable.

Assessment methods to be used include:

8. Direct Observation (DO);
9. Personal statement/Learning Journal (PS/LJ);
10. Questions and Answers (QA);
11. Witness Testimony (WT);
12. Assignment (ASS);
13. Work Products (WP);
14. Professional Discussion (PD).

Unit 004: Interpretation of Fish Feed Formulation and Batch Instructions

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 1: <i>Interpret fish feed formulation and batch instructions</i>	1.1	Interpret fish feed formulation sheets									
	1.2	Identify ingredient quantities and units specified in batch instructions									
	1.3	Identify the sequence of ingredient addition in batch instructions									
	1.4	Identify critical control points specified in batch instructions									
LO 2: <i>Explain ingredient functions in a fish feed formulation</i>	2.1	Classify ingredients according to their nutritional functions									
	2.2	Identify ingredients that serve as protein sources in the formulation									
	2.3	Identify ingredients that serve as energy sources in the formulation									
	2.4	Identify binders, attractants and additives in the formulation									
LO 3: <i>Carry out basic batch calculations</i>	3.1	Calculate ingredient quantities required for a specified batch size									
	3.2	Convert ingredient proportions from percentage to weight									
	3.3	Check that calculated quantities are consistent with the formulation									
	3.4	Report calculation errors or discrepancies to the supervisor									
LO 4: <i>Adapt batch instructions in response to ingredient availability</i>	4.1	Identify ingredients that may require replacement									
	4.2	Report ingredient shortages or quality issues to the supervisor									
	4.3	Apply approved substitution instructions provided by the supervisor									
	4.4	Document batch adaptations and report to the appropriate authority									
Learner's Signature:			Date:								
Assessor's Signature:			Date:								
IQA Signature (if sampled)			Date:								
EQA Signature (if sampled)			Date:								



UNIT 005: COORDINATION OF RAW MATERIAL PREPARATION

Unit Reference Number: AGR/FFP/005/L3

Level: 3

Credit Value: 4

Guided Learning Hours: 40

Practice time: 200 hours

Unit Purpose:

This unit is designed to equip the learners with knowledge and skills to coordinate the preparation of raw materials for fish feed production.

Unit Assessment Requirements/Evidence Requirements:

Assessment must be carried out in a real workplace environment in which learning and human development is carried out. Simulation may be permitted where direct workplace assessment of a specific Performance Criterion is not practicable.

Assessment methods to be used include:

1. Direct Observation (DO);
2. Personal statement/Learning Journal (PS/LJ);
3. Questions and Answers (QA);
4. Witness Testimony (WT);
5. Assignment (ASS);
6. Work Products (WP);
7. Professional Discussion (PD).

UNIT 005: COORDINATION OF RAW MATERIAL PREPARATION

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type	Evidence Ref. Page No.
LO 1: <i>Coordinate receipt and inspection of raw materials</i>	1.1	Verify quantities of received raw materials against delivery documents		
	1.2	Inspect raw materials for quality compliance upon receipt		
	1.3	Report non-conforming raw materials immediately to the supervisor		
	1.4	Record receipt and inspection findings on the appropriate forms		
LO 2: <i>Organise pre-treatment of raw materials</i>	2.1	Identify raw materials that require pre-treatment before use		
	2.2	Organise grinding, drying, sieving or heat treatment of raw materials		
	2.3	Monitor pre-treatment operations for compliance with specifications		
	2.4	Inspect pre-treated materials before further processing		
LO 3: <i>Allocate prepared raw materials to production batches</i>	3.1	Match prepared raw materials to scheduled production batches		
	3.2	Organise the weighing and preparation of ingredients for each batch		
	3.3	Monitor the allocation of materials to ensure accuracy		
	3.4	Report material shortages or allocation errors to the supervisor		
LO 4: <i>Maintain raw material records</i>	4.1	Record raw material receipts, inspections and pre-treatment activities		
	4.2	Maintain a stock record of raw materials in storage		
	4.3	Report low stock levels to the supervisor for procurement action		
	4.4	File raw material records in compliance with workplace procedures		
Learner's Signature:			Date:	
Assessor's Signature:			Date:	
IQA Signature (if sampled)			Date:	
EQA Signature (if sampled)			Date:	

UNIT 006: OPERATION AND MONITORING OF FISH FEED PROCESSING EQUIPMENT**Unit Reference Number:** AGR/FFP/006/L3**Level:** 3**Credit Value:** 6**Guided Learning Hours:** 60**Practice time:** 350 hours**Unit Purpose:**

This unit is designed to equip the learners with knowledge and skills to operate and monitor fish feed processing equipment at a skilled technician level.

Unit Assessment Requirements/Evidence Requirements:

Assessment must be carried out in a real workplace environment in which learning and human development is carried out. Simulation may be permitted where direct workplace assessment of a specific Performance Criterion is not practicable.

Assessment methods to be used include:

1. Direct Observation (DO);
2. Personal statement/Learning Journal (PS/LJ);
3. Questions and Answers (QA);
4. Witness Testimony (WT);
5. Assignment (ASS);
6. Work Products (WP);
7. Professional Discussion (PD).

Unit 006: Operation and Monitoring of Fish Feed Processing Equipment

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 1:	1.1	Inspect processing equipment for cleanliness and functionality before									

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type	Evidence Ref. Page No.
<i>Carry out pre-operational checks on processing equipment</i>		operation		
	1.2	Check that equipment settings are correct for the specified production batch		
	1.3	Carry out pre-start safety checks according to workplace procedures		
	1.4	Document pre-operation check findings		
LO 2: <i>Operate processing equipment according to production specifications</i>	2.1	Operate mixing, pelleting, extrusion, drying and cooling equipment		
	2.2	Assist in setting equipment parameters according to batch and product specifications		
	2.3	Monitor equipment operation for consistency and efficiency		
	2.4	Adjust equipment parameters where necessary to maintain product quality		
LO 3: <i>Monitor equipment performance during production</i>	3.1	Assist in monitoring production output rate against target throughput		
	3.2	Monitor product quality indicators during equipment operation		
	3.3	Identify signs of equipment malfunction or degraded performance		
	3.4	Record equipment performance data during production operations		
LO 4: <i>Carry out post-operation procedures</i>	4.1	Stop processing equipment safely at the end of the production run		
	4.2	Clean equipment according to workplace procedures		
	4.3	Report equipment faults or maintenance requirements to the supervisor		
	4.4	Complete equipment operation records for each production run		
Learner's Signature:			Date:	
Assessor's Signature:			Date:	
IQA Signature (if sampled)			Date:	
EQA Signature (if sampled)			Date:	



UNIT 007: QUALITY CONTROL OF RAW MATERIALS AND FINISHED FISH FEED

Unit Reference Number: AGR/FFP/007/L3

Level: 3

Credit Value: 4

Guided Learning Hours: 40

Practice time: 200 hours

Unit Purpose:

This unit is designed to equip the learners with knowledge and skills to carry out quality control of raw materials and finished fish feed products.

Unit Assessment Requirements/Evidence Requirements:

Assessment must be carried out in a real workplace environment in which learning and human development is carried out. Simulation may be permitted where direct workplace assessment of a specific Performance Criterion is not practicable.

Assessment methods to be used include:

1. Direct Observation (DO);
2. Personal statement/Learning Journal (PS/LJ);
3. Questions and Answers (QA);
4. Witness Testimony (WT);
5. Assignment (ASS);
6. Work Products (WP);
7. Professional Discussion (PD).

Unit 007: Quality Control of Raw Materials and Finished Fish Feed

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 1: <i>Carry out quality control checks on raw materials</i>	1.1	Inspect raw materials for compliance with quality specifications									
	1.2	Carry out physical checks on raw material quality including colour, odour and texture									
	1.3	Check moisture content of raw materials using appropriate instruments									
	1.4	Document quality check findings on the appropriate forms									
	1.5	Report non-conforming raw materials to the supervisor									
LO 2: <i>Carry out in-process quality control checks</i>	2.1	Monitor ingredient weights and mixing uniformity during production									
	2.2	Check pellet or extrudate quality including size, colour, shape and texture during production									
	2.3	Monitor drying parameters and moisture content during drying									
	2.4	Record in-process quality check results appropriately									
LO 3: <i>Carry out quality control checks on finished fish feed</i>	3.1	Inspect finished fish feed for compliance with product specifications									
	3.2	Check moisture content, pellet integrity and appearance of finished products									
	3.3	Inspect packaging and labelling of finished products for accuracy									
	3.4	Record finished product quality check results on the batch record									
LO 4: <i>Report non-conforming materials and products</i>	4.1	Identify non-conforming materials and products									
	4.2	Segregate non-conforming materials and products									
	4.3	Label non-conforming materials and products clearly									
	4.4	Report non-conformances to the supervisor with appropriate documentation									

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type	Evidence Ref. Page No.
	4.5	Apply approved corrective measures for non-conforming materials and products		
Learner's Signature:			Date:	
Assessor's Signature:			Date:	
IQA Signature (if sampled)			Date:	
EQA Signature (if sampled)			Date:	



UNIT 008: TROUBLESHOOTING OF COMMON FISH FEED PRODUCTION FAULTS

Unit Reference Number: AGR/FFP/008/L3
Level: 3
Credit Value: 4
Guided Learning Hours: 40
Practice time: 200 hours

Unit Purpose:

This unit is designed to equip the learners with knowledge and skills to identify, diagnose and address common faults in fish feed production processes.

Unit Assessment Requirements/Evidence Requirements:

Assessment must be carried out in a real workplace environment in which learning and human development is carried out. Simulation may be permitted where direct workplace assessment of a specific Performance Criterion is not practicable.

Assessment methods to be used include:

1. Direct Observation (DO);
2. Personal statement/Learning Journal (PS/LJ);
3. Questions and Answers (QA);
4. Witness Testimony (WT);
5. Assignment (ASS);
6. Work Products (WP);
7. Professional Discussion (PD).

Unit 008: Troubleshooting of Common Fish Feed Production Faults

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 1: <i>Identify common faults in fish feed production processes</i>	1.1	Identify signs of faulty grinding (irregular, particle, sizes, etc.)									
	1.2	Identify signs of poor mixing									
	1.3	Identify signs of pelleting faults, (poor pellet hardness or breakage)									
	1.4	Identify signs of drying faults (high residual moisture or heat damage, etc.)									
	1.5	Identify signs of packaging faults, (incorrect weight or poor sealing)									
LO 2: <i>Diagnose the probable causes of identified faults</i>	2.1	Apply systematic investigation procedures to identify the probable cause of a fault									
	2.2	Check process parameters against specified settings to identify deviations									
	2.3	Consult production records to identify patterns associated with the fault									
	2.4	Document diagnostic findings and probable causes									
LO 3: <i>Apply corrective actions within scope of competence</i>	3.1	Apply approved process parameters to correct identified deviations									
	3.2	Re-process non-conforming product according to workplace procedure									
	3.3	Check product quality after applying corrective actions									
	3.4	Record corrective actions taken on the production record									
LO 4: <i>Escalate faults beyond scope of competence</i>	4.1	Identify faults that require specialist or management intervention									
	4.2	Report faults beyond scope of competence timely and accurately									
	4.3	Secure the affected production area or equipment pending specialist intervention									
	4.4	Follow up on the status of escalated faults with the supervisor									
Learner's Signature:			Date:								

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



UNIT 009: MAINTENANCE OF FISH FEED PRODUCTION TOOLS AND EQUIPMENT

Unit Reference Number: AGR/FFP/009/L3

Level: 3

Credit Value: 5

Guided Learning Hours: 50

Practice time: 250 hours

Unit Purpose:

This unit is designed to equip the learners with knowledge and skills to carry out routine maintenance of fish feed production tools and equipment.

Unit Assessment Requirements/Evidence Requirements:

Assessment must be carried out in a real workplace environment in which learning and human development is carried out. Simulation may be permitted where direct workplace assessment of a specific Performance Criterion is not practicable.

Assessment methods to be used include:

1. Direct Observation (DO);
2. Personal statement/Learning Journal (PS/LJ);
3. Questions and Answers (QA);
4. Witness Testimony (WT);
5. Assignment (ASS);
6. Work Products (WP);
7. Professional Discussion (PD).

Unit 009: Maintenance of Fish Feed Production Tools and Equipment

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 1: <i>Assist in developing routine maintenance schedule for production equipment</i>	1.1	Identify maintenance requirements specified by equipment manufacturers									
	1.2	Assist in determining maintenance intervals based on operating hours or production volume									
	1.3	Support the development of routine maintenance schedule for production tools and equipment									
	1.4	Communicate the maintenance schedule to relevant personnel									
LO 2: <i>Carry out preventive maintenance of production equipment</i>	2.1	Carry out routine cleaning and lubrication of production equipment									
	2.2	Check and tighten fastenings and fittings on equipment									
	2.3	Replace routine consumable items including filters, screens and gaskets									
	2.4	Record all maintenance activities carried out									
LO 3: <i>Carry out inspection and recommendation for replacement consumable parts</i>	3.1	Inspect wear-prone parts of production equipment for damage or deterioration									
	3.2	Determine when consumable parts require replacement									
	3.3	Replace worn or damaged consumable parts within scope of competence									
	3.4	Report maintenance needs beyond scope of competence to the supervisor									
LO 4: <i>Keep proper maintenance records</i>	4.1	Record all maintenance activities on the equipment maintenance register									
	4.2	Update equipment history records following maintenance activities									
	4.3	Report recurring equipment faults to the supervisor for investigation									
	4.4	Retrieve maintenance records when required for audit or review									
Learner's Signature:			Date:								

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



UNIT 010: PRODUCTION PLANNING, DOCUMENTATION AND RECORD KEEPING

Unit Reference Number: AGR/FFP/010/L3

Level: 3

Credit Value: 4

Guided Learning Hours: 40

Practice time: 150 hours

Unit Purpose:

This unit is designed to equip the learners with knowledge and skills to support production planning, maintain comprehensive production documentation and keep accurate records in a fish feed production facility.

Unit Assessment Requirements/Evidence Requirements:

Assessment must be carried out in a real workplace environment in which learning and human development is carried out. Simulation may be permitted where direct workplace assessment of a specific Performance Criterion is not practicable.

Assessment methods to be used include:

1. Direct Observation (DO);
2. Personal statement/Learning Journal (PS/LJ);
3. Questions and Answers (QA);
4. Witness Testimony (WT);
5. Assignment (ASS);
6. Work Products (WP);
7. Professional Discussion (PD).

Unit 010: Production Planning, Documentation and Record Keeping

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 1: <i>Interpret production plans and schedules</i>	1.1	Interpret fish feed production plans and schedules									
	1.2	Identify the sequence of production activities in the plan									
	1.3	Identify resource requirements for planned production activities									
	1.4	Communicate the production plan to relevant production personnel									
LO 2: <i>Support production planning activities</i>	2.1	Assess raw material availability against planned production requirements									
	2.2	Identify constraints that may affect production plan execution									
	2.3	Report planning constraints to the supervisor for action									
	2.4	Monitor production activities against the production plan									
LO 3: <i>Maintain comprehensive production documentation</i>	3.1	Complete batch records, quality records and maintenance records accurately									
	3.2	Record production output, downtime and waste figures									
	3.3	Compile information for periodic production reports									
	3.4	Submit production reports within stipulated timelines									
LO 4: <i>Manage production records in compliance with organisational procedures</i>	4.1	Apply document control procedures to production records									
	4.2	Maintain confidentiality of sensitive production records									
	4.3	Store and archive records in compliance with organisational policy									
	4.4	Retrieve records promptly when required for review or audit									
Learner's Signature:			Date:								
Assessor's Signature:			Date:								

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



NOS FISH FEED PRODUCTION LEVEL 1 – 3 LIST OF EQUIPMENT REQUIRED FOR TRAINING

A. Personal Protective Equipment (PPE)

1. Safety boots
2. Safety helmet
3. Hair net
4. Dust mask/respirator
5. Face mask
6. Safety goggles
7. Face shield
8. Ear plugs/ear muffs
9. Hand gloves (rubber and leather)
10. Protective overalls/laboratory coat
11. Apron
12. Reflective vest

B. Ingredient Handling Equipment

1. Feed ingredient storage bins
2. Ingredient storage drums
3. Plastic containers
4. Feed ingredient bags/sacks
5. Pallets
6. Hand trolley
7. Wheelbarrow
8. Sack truck (hand truck)
9. Pallet truck
10. Forklift (optional)
11. Scoops
12. Shovels
13. Buckets
14. Receiving trays
15. Material collection trays

C. Measuring and Weighing Equipment

1. Platform weighing scale (optional)
2. Digital weighing scale
3. Analogue weighing scale
4. Precision balance
5. Sensitive weighing scale
6. Measuring cylinders
7. Measuring cups
8. Measuring jugs
9. Measuring buckets
10. Graduated containers
11. Batch weighing table

D. Ingredient Preparation Equipment

1. Feed grinder/Hammer mill
2. Pulverizer
3. Crusher
4. Sieves
5. Vibrating sieve
6. Wire mesh screens
7. Screening machine
8. Magnetic separator
9. Sorting table
10. Drying trays
11. Solar dryer
12. Mechanical dryer
13. Ingredient conditioning tank

E. Feed Mixing Equipment

1. Feed mixer
2. Ribbon mixer
3. Paddle mixer
4. Vertical mixer
5. Horizontal mixer
6. Mixing tank
7. Mixing bowls/bins
8. Ingredient loading hopper
9. Mixing paddles
10. Mixing shovel

F. Pelletizing and Extrusion Equipment

1. Pelletizer
2. Feed extruder
3. Pellet die
4. Feed cutter
5. Pellet conveyor
6. Pellet collection trays
7. Feed transfer auger
8. Screw conveyor
9. Preconditioners
10. Steam boiler (optional)

G. Drying, Coating and Cooling Equipment

1. Mechanical dryer
2. Solar dryer
3. Charcoal dryer
4. Electric dryer
5. Conveyors

6. Drying racks
7. Drying trays
8. Vacuum coaters
9. Rotary drum coaters
10. Cooling trays
11. Cooling conveyor
12. Cooling fan
13. Moisture meter
14. Thermometer
15. Hygrometer
16. Industrial feed cooler
17. Blowers

H. Packaging Equipment

1. Packaging bags
2. Laminated feed bags
3. Polypropylene sacks
4. Belt/bucket conveyor/elevator
5. Automatic packaging machine (optional)
6. Bag stitching machine
7. Heat sealer
8. Bag sealer
9. Labelling machine
10. Manual label applicator
11. Weighing scale
12. Packaging table
13. Batch coding machine
14. Permanent markers

I. Storage Equipment

1. Warehouse storage racks
2. Wooden pallets
3. Plastic pallets
4. Shelving units
5. Stackers
6. Storage bins
7. FIFO labels/cards
8. Stock cards
9. Raw material silos
10. Finished product silos

J. Quality Control Equipment

1. Moisture meter
2. Thermometer
3. Hygrometer
4. Sample collection containers

5. Sample bags
6. Sampling scoop
7. Sample divider
8. Vernier caliper (pellet diameter)
9. Pellet hardness tester (where available)
10. Colour chart/reference chart
11. Inspection table

K. Cleaning and Housekeeping Equipment

1. Brooms
2. Cutlass
3. Brushes
4. Mops
5. Buckets
6. Waste bins
7. Refuse bags
8. Cleaning cloths
9. Detergents
10. Disinfectants
11. Hand brushes
12. Scrapers
13. Water hose
14. Pressure washer (where available)
15. Steam washers (optional)
16. Dust pan
17. Lawn mower
18. Dust blowers
19. Extractor fans
20. Dehumidifiers
21. Fans

L. Safety and Emergency Equipment

1. First aid box
2. Fire extinguisher
3. Fire blanket
4. Emergency alarm
5. Eye wash station
6. Hand washing facility
7. Emergency exit signs
8. Spill kit
9. Safety signs
10. PPE storage cabinet

M. Laboratory and Inspection Equipment

1. Laboratory work bench
2. Microscope

3. Moisture analyser
4. Sample bottles
5. Glass beakers
6. Glass stirring rods
7. Funnels
8. Digital thermometer
9. Stop watch/timer
10. pH meter (where additives require monitoring)

N. Hand Tools and General Workshop Equipment

1. Adjustable spanner
2. Screwdriver set
3. Pliers
4. Hammer
5. Allen keys
6. Wrenches
7. Lubricating oil can
8. Grease gun
9. Tool box
10. Hand gloves (workshop gloves)
11. Measuring tapes
12. Chisel
13. Hack saw

O. ICT and Documentation Facilities

1. Desktop computers
2. Laptop computers
3. Printers
4. Internet access
5. Batch record forms
6. Production record sheets
7. Stock register
8. Quality inspection forms
9. Calculator
10. Clipboard
11. Stamp
12. Seal
13. Office files

LIST OF MINIMUM EQUIPMENT AND FACILITIES

The equipment and facilities listed below are the minimum required to deliver and assess this qualification for a cohort of fifteen (15) learners. Quantities are stated on the basis of one item per learner for personal protective equipment and items each learner must handle during assessment, one per three learners for shared tools and containers, one per five learners for instruments, and one per centre for processing machinery, installations and information technology.

S/N	Equipment / Item	Minimum Quantity (15 Learners)	Purpose / Use
	A. Personal Protective Equipment		
1	Factory overall / coverall	15	Personal safety during all production operations
2	Safety boots	15	Personal safety during all production operations
3	Dust mask / respirator (N95 or equivalent)	15	Personal safety during all production operations
4	Hand gloves (general purpose and heat resistant)	15	Personal safety during all production operations
5	Safety goggles	15	Personal safety during all production operations
6	Ear defenders / ear plugs	15	Personal safety during all production operations
7	Hair net / head cap	15	Personal safety during all production operations
8	Waterproof apron	15	Personal safety during all production operations
	B. Raw Material Handling and Preparation		
9	Platform weighing scale (100–500 kg)	2	Receiving, weighing and preparing feed ingredients
10	Bench-top digital scale (1–30 kg)	3	Receiving, weighing and preparing feed ingredients
11	Precision balance (0.01 g)	2	Receiving, weighing and preparing feed ingredients
12	Scoops / hand shovels	5	Receiving, weighing and preparing feed ingredients
13	Wheelbarrow	3	Receiving, weighing and preparing feed ingredients
14	Sack trolley / hand truck	2	Receiving, weighing and preparing feed ingredients
15	Plastic basins and bowls	15	Receiving, weighing and preparing feed ingredients
16	Graduated buckets	5	Receiving, weighing and preparing feed ingredients

17	Hand sieves (assorted mesh)	5	Receiving, weighing and preparing feed ingredients
18	Magnet / metal separator	1	Receiving, weighing and preparing feed ingredients
19	Wooden pallets	20	Receiving, weighing and preparing feed ingredients
20	Ingredient storage bins	6	Receiving, weighing and preparing feed ingredients
	C. Processing Machinery		
21	Hammer mill / grinder	1	Grinding, mixing, pelleting, extrusion, drying and sizing
22	Feed mixer (horizontal or vertical)	1	Grinding, mixing, pelleting, extrusion, drying and sizing
23	Pellet mill with assorted dies	1	Grinding, mixing, pelleting, extrusion, drying and sizing
24	Extruder (floating feed)	1	Grinding, mixing, pelleting, extrusion, drying and sizing
25	Crumbler	1	Grinding, mixing, pelleting, extrusion, drying and sizing
26	Cabinet / tray dryer	1	Grinding, mixing, pelleting, extrusion, drying and sizing
27	Cooling unit or cooling tray rack	1	Grinding, mixing, pelleting, extrusion, drying and sizing
28	Vibrating sifter / grader	1	Grinding, mixing, pelleting, extrusion, drying and sizing
29	Bag sealing machine	2	Grinding, mixing, pelleting, extrusion, drying and sizing
30	Generator / standby power supply	1	Grinding, mixing, pelleting, extrusion, drying and sizing
	D. Quality Control and Laboratory		
31	Moisture meter / moisture analyser	3	Raw material and finished feed quality checks
32	Hot air oven	1	Raw material and finished feed quality checks
33	Desiccator	2	Raw material and finished feed quality checks
34	Sieve shaker with test sieve set	1	Raw material and finished feed quality checks
35	Pellet durability tester	1	Raw material and finished feed quality checks
36	Water stability test set (beakers and mesh baskets)	5	Raw material and finished feed quality checks
37	Sampling spear / probe	3	Raw material and finished

			feed quality checks
38	Sample containers and bottles	15	Raw material and finished feed quality checks
39	Digital probe thermometer	5	Raw material and finished feed quality checks
40	pH meter	2	Raw material and finished feed quality checks
41	Light microscope (×400)	2	Raw material and finished feed quality checks
42	Measuring cylinders (assorted)	5	Raw material and finished feed quality checks
43	Flotation test beakers / transparent tank	5	Raw material and finished feed quality checks
	E. Packaging, Labelling and Storage		
44	Empty feed bags / sacks	150	Packaging, labelling and storage of finished feed
45	Label printer or labelling set	1	Packaging, labelling and storage of finished feed
46	Bag stitching machine	2	Packaging, labelling and storage of finished feed
47	Storage racks / shelving units	4	Packaging, labelling and storage of finished feed
48	Weighing scale for finished bags	2	Packaging, labelling and storage of finished feed
49	Rodent traps and pest control set	6	Packaging, labelling and storage of finished feed
50	Store temperature and humidity monitor	2	Packaging, labelling and storage of finished feed
	F. Cleaning, Hygiene and Waste Handling		
51	Industrial brooms and brushes	5	Plant hygiene, housekeeping and waste management
52	Mops and buckets	5	Plant hygiene, housekeeping and waste management
53	Segregated waste bins	6	Plant hygiene, housekeeping and waste management
54	Disinfectant and cleaning agents (litres)	20	Plant hygiene, housekeeping and waste management
55	Compressed air blower	1	Plant hygiene, housekeeping and waste management
56	Pressure washer	1	Plant hygiene, housekeeping and waste management
57	Hand washing station	2	Plant hygiene, housekeeping and waste management
	G. Maintenance		

58	General tool kit (spanners, screwdrivers, pliers)	3	Routine maintenance and minor repair of plant
59	Grease gun and lubricants	3	Routine maintenance and minor repair of plant
60	Spare pellet dies and rollers (set)	1	Routine maintenance and minor repair of plant
61	Spare hammer mill screens, assorted (set)	1	Routine maintenance and minor repair of plant
62	Vernier caliper	3	Routine maintenance and minor repair of plant
63	Multimeter	2	Routine maintenance and minor repair of plant
64	Torque wrench	2	Routine maintenance and minor repair of plant
	H. Records, ICT and Training Support		
65	Computer system (desktop or laptop)	2	Production records, reporting and instruction
66	Printer	1	Production records, reporting and instruction
67	Production record books / batch cards	15	Production records, reporting and instruction
68	Calculators	15	Production records, reporting and instruction
69	Whiteboard with markers	1	Production records, reporting and instruction
70	Multimedia projector	1	Production records, reporting and instruction
71	First aid box	2	Production records, reporting and instruction
72	Fire extinguishers (dry powder / CO ₂)	4	Production records, reporting and instruction
73	Fire blanket	2	Production records, reporting and instruction
74	Safety signage set	1	Production records, reporting and instruction

LIST OF WORKSHOP PARTICIPANTS

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