

FISH FEED PRODUCTION

UNIT CODE: AQ/CU/AM/CR/02/6/B

Relationship to Occupational Standards

This unit addresses the Unit of Competency: Produce Fish Feeds

Duration of Unit: 210 hours

Unit Description

This unit describes the knowledge, skills and attitudes required to produce fish feeds. It requires competencies to apply food safety measures in producing fish feeds, sustain a ponds natural productivity and ensure the production of quality on-farm formulated feeds. It also involves trial of the fish feeds to evaluate their performance.

Summary of Learning Outcomes

1. Apply food safety measures in producing fish feeds
2. Produce natural fish foods
3. Produce on-farm formulated fish feeds
4. Evaluate fish feed performance

Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Apply food safety measures in producing fish feeds	<ul style="list-style-type: none">• Meaning of food safety• Importance of food safety• Principles of food safety• Prerequisite programmes<ul style="list-style-type: none">• Meaning, importance, categories and establishment of prerequisite programmes• Relevant programmes for fish feed production• Hazard analysis in fish feeds production<ul style="list-style-type: none">• Enterprise description• Product description• Layout of premises and surrounding environment	<ul style="list-style-type: none">• Written tests• Oral questioning• Observation• Third Party reports• Project• Practical tests• Portfolio of Evidence

	<ul style="list-style-type: none"> • Development of flow diagram • Identification of hazards at each step of the flow diagram • Describing the hazard • Significance of hazards • Establishment of the HACCP plan for fish feed production <ul style="list-style-type: none"> • Identification of critical control points • Procedures for setting up critical control limits • Establishment monitoring procedures on the control limits • Establishment of corrective actions • Verification procedures • Record keeping • Validation procedures <p>Standards and legislations in food safety on fish feeds production.</p>	
2. Produce natural fish foods	<ul style="list-style-type: none"> • Types of fish feeds <ul style="list-style-type: none"> • Natural feeds • Artificial feeds • Nutritional requirement of commonly cultured fish species at different stages • Use of PPEs in production of natural fish foods • Tools and materials for natural fish production • Production of natural feeds <ul style="list-style-type: none"> • Types of plankton • Benthic fauna • Types of fertilizers • Methods of fertilization • Frequency of fertilization 	<ul style="list-style-type: none"> • Written tests • Oral questioning • Practical tests • Portfolio of Evidence

	<ul style="list-style-type: none"> Measuring productivity in ponds 	
3. Produce on-farm formulated fish feeds	<ul style="list-style-type: none"> Use of PPEs in production of fish feeds Safety measures to be observed Uses of fish feed production materials, supplies, tools and equipment Production of artificial feeds <ul style="list-style-type: none"> Feed ingredients and their properties Proximate analysis of feed ingredients Importance and uses of feed premixes Feed formulation methods using Pearson's square and computer software Anti-nutritional factors in feed ingredients Factors affecting mixing Procedure of mixing Pelletizing process Drying methods Types of packaging materials Packaging methods Labelling information Fish feed handling and storage Stores management Fish feeds price determination 	<ul style="list-style-type: none"> Written tests Oral questioning Oral presentation Practical tests Projects Portfolio of Evidence
4. Evaluate fish feed performance	<ul style="list-style-type: none"> Proximate analysis of feeds Measurement of fish feeds physical parameters Fish nutrition Fish feeding methods Fish feeding habits and behaviour Fish sampling procedure <ul style="list-style-type: none"> Types and uses of sampling gears Handling of fish samples Sample size determination (5-10%) 	<ul style="list-style-type: none"> Oral questioning Practical tests Written tests Projects Portfolio of Evidence

	<ul style="list-style-type: none"> • Calculation and interpretation of feed conversion ratio (FCR) 	
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Suggested Methods of Instruction

- Instructor led facilitation of theory
- Demonstration by trainer
- Viewing of related videos
- Projects
- Group discussions
- Case studies

Recommended Resources

Reference materials

- Kenya Fish Feed Standards
- Standard Operating Procedures
- Statutory Requirements And Standards

Tools and equipment

- Meat mincers, blenders, grinders, weighing scales, dryer, mixers, containers, bag sealers, ovens, burners, drying racks, dessicator, muffle furnace

Materials and supplies

- Fertilizers, secchi disks,
- Buckets , gunny bags, sticks, stakes
- Packaging bags, drying canvas/ polythene

Personal protective equipment (PPEs)

- Safety goggles
- Gum boots
- Helmets
- Gloves
- Dust coats
- First aid kits
- Mouth piece