

FISH HATCHERY MANAGEMENT

UNIT CODE: AQ/CU/AM/CR/03/6/B

Relationship to Occupational Standards

This unit addresses the Unit of Competency: Manage Fish Hatchery

Duration of Unit: 250 hours

Unit Description

This unit specifies the competencies required to manage fish hatchery. It involves ability to apply food safety measures in fish hatchery management, select and manage broodstock as well as breed, nurse and harvest fingerlings. It also involves producing both live and hormone-treated fish feeds, packaging fingerlings and supervising maintenance of the hatchery facility.

Summary of Learning Outcomes

1. Apply food safety measures in fish hatchery management
2. Prepare hatchery for stocking
3. Manage Broodstock
4. Produce fingerlings
5. Maintain hatchery facility

Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Apply food safety measures in fish hatchery management	<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 hatchery management• Hazard analysis for fish hatchery management<ul style="list-style-type: none">• Enterprise description• Product description	<ul style="list-style-type: none">• Written tests• Oral questioning• Observation• Portfolio of Evidence• Third Party reports• Project• Practical tests

	<ul style="list-style-type: none"> • Layout of premises and surrounding environment • 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 hatchery management <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 of food safety on fish hatchery management</p>	
<p>2. Prepare a hatchery to receive new stock</p>	<ul style="list-style-type: none"> • Safety measures <ul style="list-style-type: none"> • Use of PPEs in broodstock management • Carrying out basic first aid-cuts, CPR, fractures • Handling and use of tools, equipment and materials • Types of fish holding facilities in a hatchery • Preparation of facilities <ul style="list-style-type: none"> • Draining to dryness • Liming • Filling with water • Cleaning and disinfection 	<ul style="list-style-type: none"> • Written tests • Oral questioning • Practical tests • Oral presentations

<p>3. Manage broodstock</p>	<ul style="list-style-type: none"> • Broodstock selection <ul style="list-style-type: none"> • Criteria • Sources of broodstock • Acclimatization, quarantine and • Sorting <ul style="list-style-type: none"> • Quality • Size • Readiness for breeding • Stocking <ul style="list-style-type: none"> • Procedures • Considerations – species, maturity stage, densities, water quality • Management of broodstock <ul style="list-style-type: none"> • Feeding –conditions, rations, timings, • Health status monitoring – signs of stress and infections • Replacement – due to age and productivity levels • Water quality management <ul style="list-style-type: none"> • Parameters -Temperatures, Dissolved Oxygen, Ammonia, pH, Nitrite, Alkalinity • Monitoring • Corrective actions • Cleaning and disinfection of fish culture units 	<ul style="list-style-type: none"> • Written tests • Oral questioning • Practical tests • Oral presentations • Projects
<p>4. Produce fingerlings</p>	<ul style="list-style-type: none"> • Cleaning of breeding facilities <ul style="list-style-type: none"> • Tanks, breeding jars, happa nets, • Tables, • Selection of ripe broodstock • Types of breeding <ul style="list-style-type: none"> • Artificial propagation <ul style="list-style-type: none"> • Stripping • Fertilization • Incubation of eggs • Monosex tilapia production <ul style="list-style-type: none"> • Preparation of hormone treated feed • Stage of hatchlings at first feeding 	<ul style="list-style-type: none"> • Written tests • Oral questioning • Oral presentations • Practical tests • Projects

	<ul style="list-style-type: none"> • Duration of feeding • Live feeds culture <ul style="list-style-type: none"> • Algae • Artemia • Rotifers • Copepods • Nursing fry <ul style="list-style-type: none"> • Feeding • Grading 	
5. Maintain hatchery facility	<ul style="list-style-type: none"> • Plumbing works <ul style="list-style-type: none"> • Piping, leakages • Water flow rates • Cleaning schedule <ul style="list-style-type: none"> • Cleaning and disinfection agents • Cleaning and disinfection procedures • Waste disposal • Developing a schedule • Water quality monitoring <ul style="list-style-type: none"> • Water quality testing • Corrective actions • Maintenance and repairs of hatchery components 	<ul style="list-style-type: none"> • Oral questioning • Practical tests • Oral presentations • Written reports

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

- Fish Codes Of Practice And Standards
- Standard Operating Procedures
- Statutory Requirements
- Food Safety Standards

Tools and equipment

Dissecting kit, weighing balance, pair of pincers, pestle and mortar, needle and syringe, measuring cylinders, , hatching jars, larval rearing trays, perforators, basins, harvesting gear, happa nets, buckets, scoop nets, water test kits, refrigerators,

Materials and supplies

Salt, towel, egg substrates, warm water, anaesthesia, 17- α Methyl Testosterone, feeds, fertilizers, ethanol, acetone, vials, cotton wool, assorted bowls

Personal protective equipment (PPEs)

- Safety goggles
- Gum boots
- Wading suit
- Gloves
- Dust coats
- First aid kits
- Life ring
- Life jacket

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