MANAGE FISH FARM

UNIT CODE: 0811 451 17 A

TVET CDACC UNIT CODE: AGR/CU/AP/CR/03/5/MA

UNIT DESCRIPTION

This unit describes competencies required to manage fish farm. This involves constructing fish holding units, performing fish farming management practices, process harvested fish, maintain fish hatcheries, maintain fish cages, maintain re-circulatory aquaculture and producing live fish feeds.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT These describe the key outcomes which make up workplace functions	**PERFORMANCE CRITERIA** These are assessable statements which specify the required level of performance for each of the elements ***(Bold and italicized terms are elaborated in the range)***
1. Construct fish holding units	1.1 Tools, equipment and materials are assembled as per workplace requirements 1.2 Fish farm site is selected based on Fish Production Manual (FPM) 1.3 Fish farm is designed based on FPM 1.4 ***Fish farm site is prepared*** as per FPM. 1.5 Fish holding unit is constructed and installed according to FPM 1.6 Fish farm water filtration system is installed based on design features 1.7 ***Auxiliary farm structures*** are constructed or installed based on the farm design specifications 1.8 Predator control devices are installed as per FPM 1.9 Soil erosion control measures are taken based on good agricultural practices
2. Perform fish farm management practices	2.1 ***Water quality parameters*** are monitored as per FPM 2.2 Fish Pond is fertilized as per FPM

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	2.3 Fish Pond liming is carried out as per FPM 2.4 Fish Pond weed is controlled as per FPM 2.5 **Pond repair and maintenance** is performed as per workplace procedure 2.7 Fish predators are controlled as per FPM 2.8 Brood stock are monitored for signs of infections and stress according to FPM 2.9***Fish disease causes*** are identified as per standard operation procedures 2.12 ***Sanitation and hygiene*** are practiced as per recommended fish farm procedures 2.13 ***Fish feeds*** are produced as per recommended procedures. 2.14 Fish are fed as per FPM 2.15 Fish feed performance is evaluated according to FPM 2.16 Fish ***bio-security measures*** are applied as per FPM 2.17 Fish farm wastes are managed as per environmental protection guidelines 2.18 Records are kept as per work procedures
3. Process harvested fish	3.1 Tools, equipment and materials are assembled as per workplace requirements 3.2 Harvesting of fish is carried out as per FPM 3.3 Harvested fish is sorted according to FPM 3.4 ***Preservation methods*** are performed as per FPM 3.5 Fish processing methods are performed as per FPM 3.6 Fish quality assurance is adhered to as per Hazard Analysis and Critical Control Points (HACCP) and Integrated Quality Management (IQM) procedures. 3.7 Fish products and by-products ***are*** marketed as per market

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	specifications 3.8 Records are kept as per work procedures
4. Manage fish hatcheries	4.1 PPEs are worn as per task requirements 4.2 Hatchery management tools, equipment and materials are assembled as per task requirements 4.3 ***Hatchery Pre-stocking activities*** are performed as per FPM 4.4 Brood stock is sourced as per FPM 4.5 Brood stock is sorted and stocked into brood stock ponds based on FPM 4.6 Brood stock is fed according to FPM. 4.7 ***Water quality parameters*** are monitored and corrective action taken as per FPM 4.8 Brood stock are monitored for signs of infections and stress as per FPM 4.9 Fingerlings are produced as per FPM 4.10 Records are kept as per work procedures
5. Manage fish cages	5.1 Fish cage is designed as per FPM 5.2 Cages are set up in the water body as per Fisheries Management and Development Act 5.3 Cages are stocked based on FPM 5.4 ***Husbandry practices*** are performed based on FPM 5.5 Fish safety and Bio security measures are applied as per FPM 5.6 Fish stock is harvested based on FPM 5.7 Cages are maintained based on FPM 5.8 Records are kept as per work procedures
6. Manage re-circulatory aquaculture systems	6.1 ***Re-circulating Aquaculture System*** (RAS) is designed based on FPM

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	6.2 Re-circulating Aquaculture System is installed based on design specifications 6.3 Bio safety measures are set up based on good animal husbandry practices ***2.4 RAS management activities*** are performed as per standard operating procedures.

RANGE

This section provides work environment and conditions to which the performance criteria apply. It allows for different work environment and situations that will affect performance.

VARIABLE	RANGE
1. Fish farm site preparation activities may include but not limited to:	• Site selection • Site clearance • Measurement and pegging
2. Auxiliary farm structures may include but not limited to:	• Farm stores • Roads • Fences • Offices • Laboratories • washrooms
3. Water quality parameters may include but not limited to:	• Water temperature • Water PH • Dissolved oxygen • Ammonia • Nitrates • nitrites

VARIABLE	RANGE
	• Salinity • Turbidity • Salinity • Total suspended solids • Heavy metals • Hydrogen sulphide
4. Pond repair and maintenance may include but not limited to:	• Sealing leakage • De-clogging • Water flow rate regulation
5. Fish disease causes may include but not limited to:	• Environmental/water quality causes • Hereditary/genetic causes • Microbial/pathogenic causes • Nutritional causes • Physical injury
6. Sanitation and hygiene may include but not limited to:	• Regular hand washing • Sanitization • Disinfection • Use of foot bath
7. Fish feeds	• Live or natural feeds • Concentrate feeds
8. bio-security measures may include but not limited to:	• Sanitation and hygiene practices • Sourcing of feeds, fingerlings, brood stock • Self-closing doors • Use of air conditioning instead of natural ventilation. • Use of artificial lights. • Visitor Movement control
9. Preservation methods may include but not limited to:	• Chilling • Freezing • Salting

VARIABLE	RANGE
	• Drying • Salting • smoking
10. Fish processing methods may include but not limited to:	• Salting • Drying • Salting • Smoking • Filleting • Frying
11. Hatchery Pre-stocking activities may include but not limited to:	• Cleaning • De-clogging • Removal of sludge • Fixing water leakages • liming • Filling with water • Controlling water flow rate
12. Husbandry practices may include but not limited to:	• Feeding • Aeration • Water flow rate control • Water quality monitoring • Predator control • Sludge removal • De-clogging of drainage system • Cleaning of filters • Harvesting • Growth monitoring • Fingerling/fry grading • Marketing of hatchery products • Fish health monitoring • Fish propagation