3.2 MODULE 2
AQUACULTURE

Introduction

The term aquaculture broadly refers to the cultivation of aquatic organisms in controlled aquatic environments for any commercial, recreational of or public purpose. It involves breeding, rearing and harvesting various forms of marine and freshwater life. Fisheries and aquaculture provide essential nutrition, support livelihoods and contribute to national development. Aquaculture-fish farming offers farmers land use diversification without big demand on land. Aquaculture fish farming has an important role to play in: Gender equality since it can be practiced by women and youth; Poverty reduction as an income-generating activity and Food security where the fish is a nutritious food item in the community. Particular kinds of aquaculture include fish farming, shrimp farming, oyster farming, mariculture, pisciculture, alga-culture (such as seaweed farming), and the cultivation of ornamental fish marine organisms under controlled aquatic environments e.g. water tanks, cages, tanks, pods, etc. It can involve the farming of two or more different organisms of different trophic levels where the wastes of one organism can be food for the other organisms and thus safeguarding the environment from wastes.

There are four major aquaculture facilities (i) freshwater pond culture; (ii) rice-fish culture or integrated fish farming; (iii) brackishwater finfish culture; (iv) mariculture involving extensive culture and producing fish/shellfish (e.g., oysters, mussels, cockles) which are sold in rural and urban markets at relatively low prices. In Kenya, aquaculture is mainly divided into mariculture, which is still at the infancy stage and more progressive freshwater aquaculture. Fish can be cultured in one of four culture systems namely; ponds, raceways, recirculating systems or cages. A cage or net pen is a system that confines the fish or shellfish in a mesh enclosure.

Aquaculture farm facilities and their surroundings should be maintained in a clean and hygienic condition. Containers, equipment and farm facilities should be maintained in good condition for ease in cleaning and sanitising. Successful aquaculture takes into consideration the biology of the aquatic species such as feeding. Water flow and temperature needs disease prevention and engineering design like water source and water quality study, pond and tank containment systems, water filtration and aeration. Kenya is endowed with an extensive network of aquatic ecosystems, which support the commercial production of a critical volume of fish that is required to fill the growing gap in national fish supply and demand, as captured fish catches decline.

This Module has 2 sub-modules namely:

1. Pond fish farming and cage fishing
2. Capture fisheries

This sub module one is divided into eight topics as listed below:

1. Semi-intensive culture systems and management practices
2. Intensive culture systems and management practices.
3. Fish breeding and genetics.
4. Fish nutrition, feed formulation and management practices.
5. Fish health management and biosecurity.
6. Fish postharvest technologies and value addition.
7. Fish marketing and supply chains.
8. Aquaculture as a business.