

Aquaculture



Brochure

Introduction to Aquaculture

Aquaculture is the process of rearing fish and shrimps (prawns) in ponds. In St. Lucia two species are grown: 1. freshwater fish e.g. Tilapia nilotica and red hybrid Tilapia and 2. A freshwater shrimp /prawns called Macrobrachium rosenbergii. This prawn is an Asian species that is related to the species found in St. Lucia and often incorrectly referred to as “crayfish”.

Why aquaculture in St. Lucia?

Aquaculture can offer a form of agriculture diversification.

Aquaculture allows a landowner to use land which may not be suitable for other forms of agriculture.

Fish and shrimp are high protein foods. Aquaculture allows these to be easily produced in small ponds by low-income farmers and thus enables them to improve family diets.

Aquaculture requires very little labour. A young person can easily care for a 1/4 acre (1,000 square meters) pond. One adult can manage 2-3 acres of pond .

Aquaculture has the potential to bring in more monetary returns per acres per year than more common forms of agriculture.



How does one get involved in aquaculture?

A potential aquaculture farmer should have:

A clean reliable water source on or near his/her property. This should be in the form of a stream or river. Water should be available all year round.

Sufficient flat land (about 1/4 acres) on which the pond(s) can be built.

The land should have some level of clay in the soil to ensure that the pond does not leak. This is very important.

Once the criteria have been met by the farmer, a site visit is carried out and feasibility report is prepared by the Aquaculture Unit of the Department of Fisheries.

Aquaculture Crop

Tilapia nilotica or red Hybrid Tilapia;

These fish will be:

Stocked at fingerlings size (i.e. **juveniles fishes**) and Grown in monosex culture only male. All males grow faster and bigger than all female culture. When both sexes are stocked together, uncontrolled breeding occurs and this slows down the growth of the adults.



Tilapia

Take 4- 6 months to reach the market size of 1 pound.

Feed on algae in the pond, farm made feeds and commercial pellet feed.

Tilapia are hardy and very resistant to disease and changes in water quality.

Grow in stagnant pond and are therefore chosen for use in ponds that have limited water supply.

Can be cooked in a number of exotic ways and are often used by dieters due to low fat content of the flesh.

Shrimp/prawn; Macrobrachium rosenbergii

Must live for some time in salt water after hatching.

Will be stocked when only 1 cm or 1/2 inch at which time they need fresh water.

Take 6 months to reach a market size of 14 cm or 5-7 inches.

Need large amount of oxygen and therefore cannot live long in stagnant ponds. Flowing water increases the oxygen leveling ponds and allows the shrimps to survive.



When small, will feed on algae. Larger animals need high protein (35-40%) food, e.g. crushed fish or meat or a processed feed.

Since young need salt water after hatching, shrimp cannot reproduce in freshwater; breeding is therefore controlled in the ponds.

Can be cooked and marketed in a number of ways under a number of names:-local shrimp, crayfish or quibish, local lobster, St. Lucia prawn, freshwater shrimp or prawn.

Aquaculture Statement of Projected Economic Returns from the Industry

Assumptions and Estimations

Average stocked densities are 1 /sq m (fish) and 10/sq m (shrimp)

Survival in the pond is 90% (fish) and 60% (shrimp)

Feed cost .90 cents – 1EC per pound

Food conversion ratios (F.C.R) are 2:1 (fish) 4:1 (shrimp)

At harvest time, weight of product would equal one fish per pound and 12-15 shrimp per pound.

Two production periods are possible each year for both fish and shrimp.

Fish are sold to farmers at .15 and .25 cents and shrimp at .10 cents each.

Market prices are range from \$ \$6 -\$10 per pound (Fish) and \$20-\$30 (Shrimp) per pound.

These assumptions and calculations have been made on statistics from current local production reports.



Facts

Small fish and shrimp are sold to farmers at .10 cents each.

Minimum guaranteed market prices are \$8 per pound (fish) and \$25 per pound (shrimp)

The assumptions and calculations have been made based on the statistics from current local production reports.

Economic statement concerning fish (Tilapia) farming for 1 acre pond for 1 year

1 acre=4,000 sq m

Number of fish stocked = 4,000.

Cost of baby fish= 4,000 x .25 =\$1,000

Expected survival = 4,000 X 90% = 3,600

Expected weight of produce = 3,600 lbs

Weight of food needed = 3,600 x 2 =7,200 lbs

Cost of food = 7,200 x.90 = \$6,480

Revenue = \$28,800

Net profit=Value of product - (cost of feed cost of stocked fish)
=28,800-(\$6,480+\$1,000) =\$21,320

Note

This net profit will only be realized if strict compliance is used in following the day to day management practice given and instructed, to include primarily,

The proper daily use of feed schedule

The need to sample pond stock when instructed

The need to ensure good pond water quality

(Water change must be done at least once per week).

Economic Statement concerning shrimp/prawn farming for one acre pond over a 1 year period

1 acre = 4,000 sqm

Number of shrimp stocked = 40,000

Cost of baby shrimp - larval shrimp=\$4,000

Expected survival = 40,000 x 60% = 24,000

Expected weight of produce = 1,600 lbs (24,000 /15).

Weight of food needed = 1,600 x 4 = 6,400 lbs

Cost of food = 6,400 x 1 =\$6,400

Revenue = \$ 40,000

Net profit = value of production - (cost of feed+ cost of post-larvae) \$40,000

- (\$6,400 + \$4,000) = \$29,600

Prepared by:

Taiwan Technical Mission

and

The Department of Fisheries

Ministry of Agriculture

Telephone Number: 4684143/ 4684135/4684142/4684145

