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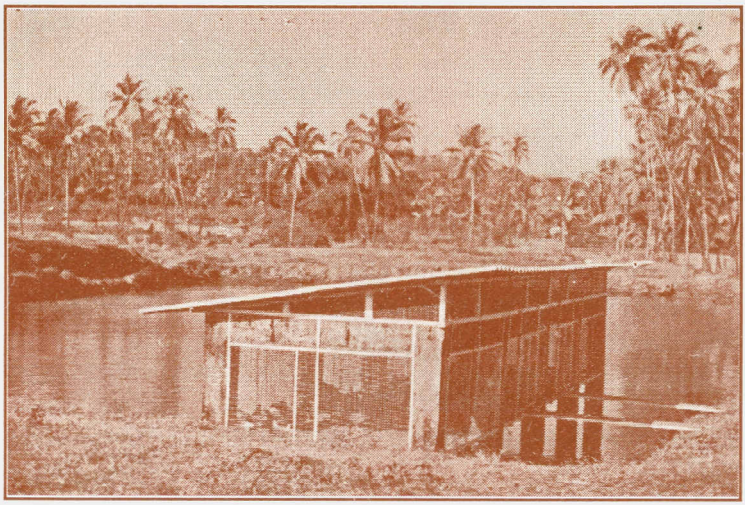
POULTRY - FISH INTEGRATED FARMING SYSTEM FOR GOA



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Technology for Poultry-fish Integrated System in Goa

Goa has a large meat eating population. About 90% of Goans are fish eaters. While marine fish is preferred most, fresh inland fishes are welcome alternatives particularly during monsoon periods when marine fish is scarce. However freshwater carps are recent introductions. While Goa has a large inland water portentials for aquaculture, it has only a reasonable fresh water areas which include 100 ha of perennial and long seasonal ponds besides bhandaras, irrigation catchments, reserviors and about 200 ha of old mine pits, all of which could be put to optimum use.

While utilizing these water bodies for aquaculture, it would be possible to integrate poultry rearing and recycle the bird dropping through fish. In regular fish culture, the pond is mannured and fertilised for the production of the fish food organisms called 'Plankton' and in addition, the fishes are also feed with supplementary fed to enhance production. By integrating poultry with fish, the expenditure on pond fertilization and fish feeding can be avoided, as the droppings of the birds are sufficient for the production of natural fish food in the pond.

I. CULTURE MANAGEMENT

a) **Pond management practices**

The scientific practices detalied below should be followed for successful culture :

1. The pond has to be prepared by strengthening the bunds, prevention of water overflow, closing the inlet and outlets by fixing screens to prevent escape of stocked fish and entry of unwanted local and carnivorous fishes.
2. If possible, the pond is dewatered and the bottom dried prior to commencement of culture. Let in the water after a few days of exposure to sun or during the onset of monsoon.
3. All the aquatic weeds and vegetations are eradicated by removal.
4. All local fishes are removed by netting and poisoning with mohua oil cake and lime.
5. About 300 to 500 kg of lime is applied per hectare of pond.

b) **Selection of fish species and stocking**

The composite fish culture combination of 4 species namely catla, rohu, mrigal and common carp, which could be simultaneously cultured in the same pond, could be selected for the poultry-fish farming as well.

These carps are fast growing varieties and would grow upto one kg individual average weight in one year culture period. The four varieties namely catla, rohu, mrigal and common carp should be stocked in the ration of 2:2:1:1 at the stocking density of about 6,000/ ha. To avoid predation by duck themselves, it is important that slightly grown up fish seeds of the size of about 100 g each should only be stocked in the pond.

c) **Fish Harvest**

Harvest of fish from pond can be made either when the fish attain the marketable size of 1 kg average or after one year of culture or when the water level in the pond is reduced less than a metre. Over 3,500 kg to 4,200 kg of fish could be harvested per ha for 3-4 species combination, under the system.

II. CHICKEN HUSBANDRY PRACTICES

a) **Night Shelter**

Night shelter can be simple structure made up of bamboos either constructed on the bond or erected inside the pond itself with supporting pillars.

(i) **Bund Shelter:** Bund shelter should be preferably made with concrete floor. The sides of the shelter may be covered with welded wire mesh or split bamboos. Similarly, roof can also be bamboo thatached or with any other light roofing material. Care should be taken to provide adequate ventilation and provision of trays fo feeding and watering should also be made. A slope has t be provided from poultry shelter to the pond so tha droppings can be washed daily into the pond. Birds ca also be kept in cage system if the shelter space is limited

(ii) **Pond shelter:** Alternatively, the night shel ter can also be errected inside the pond in one corner o the pond. The structure can be either with bamboos o RCC pillars for support. The floor of the shelter has to b preferably of 1" x 1" welded wire mesh. The floor shoul be atleast 60 cm above the maximum water level. Othe provisions like roof, feed & water troughts should also b provided as mentioned earlier. Approach to the shelte from the bund can be made by a wooden plank. Advan tage of this type of shelter is that the droppings & spillover feed will fall directly into the pond, there b saving labour.

The space requirement per bird is about 0.3 m^2. Therefore poultry shelter of the size of 100 to 120 m^2 area is required to accommodate 400-500 birds which ar sufficient to fertilize a pond of 1 ha size. The size of th shelter and the number of the birds can be accordingly reduced depending on the size of the pond.

b) **Selection and rearing of birds**

Birds are raised either for eggs or for meat. For the poultry-fish combination, layer birds are more suitable as they can be maintained for one complete year. Any commercial layer like Babcock and Hysex are suitable Astrowhite hybird birds are found to be suitable for the combination. Six week old chicks can be housed for the combination as they don't require any brooding arrangement. They start laying eggs after 20th week and can be reared for 10 to 12 months. The birds attain about 2 kg weight per year.

It should be ensured that all prophylactic vaccines are given to the birds (strain vaccine for Mareck's disease, R.K.D vaccine for Raniket Disease and fowl pox vaccine for fowl pox disease).

c) **Feeding**

From 6th to 8th week, every bird requires about 2kg feed, from 8th to 20th they will require 8 kg feed per bird (grower mash) and during laying period they take about 35kg layer mash per bird for a year period.

d) **Egg laying**

Birds start laying after 20 weeks. Laying nests in the form of wooden boxes, are the provided to facilitate the birds to lay eggs and to avoid breakage of the eggs. A healthy bird will give about 250 to 280 eggs/year.

e) **Poultry droppings**

A bird voids about 100 g per day. With 400 to 500 birds/ha, about 40 to 50 kg of dropping are recycled daily through fish by the production of sufficient plankton.

III. ECONOMICS (for 0.2 ha pond with 80 birds)

A) **Non recurring expenditure**

Cost of poultry shelter (30m²)	Rs.	8,000-00

B) **Recurring expenditure**

a) Cost of 6 week old birds (hybird) @ Rs. 40/-	Rs.	3,200-00
b) Cost of feed		
i) Grower mash @ Rs. 560/- per 70 kg bag for 640 kg.	Rs.	5,100-00
ii) Layer mash for one year @ Rs. 560 of 35 bags of 70 kg.	Rs.	19,600-00
c) Cost of fish seed (600 fingerlings)	Rs.	1,200-00
d) Miscellaneous	Rs.	300-00
e) 20% of the capital investment for poultry shelter maintenance.	Rs.	1,600-00
Total Rs.		**39,000-00**

C) **Receipts**

1) From sale of fish 800 kg @ Rs. 40 per kg.	Rs.	32,000-00
2) From sale of 22000 eggs @ Rs. 1.50 per egg.	Rs.	33,000-00
3) From sale of poultry meat 120 kg @ Rs. 45/- per kg.	Rs.	5,400-00
Total Receipts	**Rs.**	**70,400-00**

D) **Profit**

Total Receipts	Rs.	70,400-00
Total expenditure	Rs.	39,000-00
Net Profit	**Rs.**	**31,400-00**

IV. SALIENT FEATURES OF POULTRY-FISH CULTURE

1) Fish utilize the spilled over poultry feed and their droppings.

2) Poultry droppings save the need for pond fertilization and fish feeding.

3) No additional space is required for poultry rearing.

4) Fish, eggs and meat are produced in a single unit area and it ensures higher profit with fewer inputs.

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