

# Composite fish culture in rain-fed seasonal village common ponds

## **Introduction**

Fish is the cheapest and most easily digestible animal protein and is believed to have been utilized for human consumption from time immemorial. However, due to over exploitation of the available resources and other anthropogenic activities, the availability of fish in natural waters have declined considerably forcing us to focus and adopt various other methods to increase fish production. Fish farming in controlled or under artificial conditions has become the promising way of increasing the fish production and its availability for consumption. Farmers can easily take up fish culture in village ponds, tanks or any other water body and can improve their socio-economic position substantially. It also creates gainful employment for women and youth.

Formation of water committee can ensure to implement the technology, close monitoring of culture pond and protection from poaching of fishes. Bank account opening for developing common fund has ensure sustain the fish culture activity in subsequent years.

## **Composite fish culture**

The technology in which more than one type of compatible fish is cultured simultaneously is the most primitive and popular practice in many Asian countries especially China and India. This technology is known as Composite Fish Culture. Composite fish culture enables to get maximum fish production from a pond or a tank through utilization of all the available nutrients in the natural niches, supplemented by artificial feeding.

Depending on the compatibility, feeding habit of the fishes, availability of seeds, disease resistance and consumer preference of the species the following types of fishes of Indian as well as Exotic varieties have been identified and recommended for culture in the composite fish culture systems.

### **I. Exotic carps Indian Major Carp**

Catla	Zoo plankton feeder	Surface feeder
Rohu	Omnivorous	Column feeder
Mrigal	Detritivorous	Bottom feeder

### **II. Exotic carps**

Silver carp	Phytoplankton feeder	Surface feeder
Grass carp	Herbivorous	Surface, column and marginal areas
Common carp	Detritivorous/Omnivorous	Bottom feeder

### **Selection of pond**

- ☛ Seasonal village pond – at least 7 months water period pond
- ☛ Area of village pond - 0.2 -2.0 hectare
- ☛ PH of soil and water – Between 7-9

## Pond Management

### A) Pre-stocking management

- Seasonal village pond – at least 7 months water period pond

Soil PH	Dosage /hectare
4.6-5.0	2000 kg
5.1-6.5	1000 kg
6.6-7.5	500 kg
7.6-8.5	200 kg
8.6-9.5	No need

- Turbidity settlement – Turbidity reduce the primary production in pond, causes oxygen depletion in the pond water, reduce growth of cultured fish and also cause mortality of cultured fishes due to asphyxiation. We have to wait for at least 15-20 days after rain water gets filled in the pond, in order to reduce turbidity.
- Establishment of baby pond – Ensure water storage for long time

### B) Stocking management

- Stocking rate - 3500 numbers per acre (above 7 cm)>
- Species combination - Depending on availability of seed and market condition, stocking can be of 3, 4 or 6 species combination in the following ratio.

species combination	Catla (%)	Rohu (%)	Mrigal (%)	Common carp (%)	Silver carp (%)	Grass carp (%)
3 species	40	30	30	-	-	-
4 species	30	25	25	20	-	-
6 species	15	15	15	20	500 kg	10

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### C) Post-Stocking management

- Fertilization – For better growth of fishes we need to increase the primary productivity of extensive seasonal ponds. The cattle's are allowed into ponds for drinking purpose common in rural areas which may leave its droppings helping to increase the primary productivity of pond. Otherwise at least 5000kg of cow dung need to applied into village pond.
- Feeding – Based on availability, locally available low cost agriculture byproducts are broadcasted over the pond
- Sampling –Monthly once to check length, weight, health status of fishes by using cast net/drag net

### Harvesting

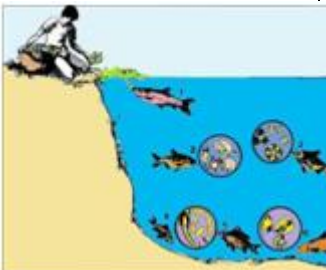







- Average production –700 to 800 kg /acre
- Harvesting - Harvesting is done by partial and repeated netting at the time fish harvest day which is organized by the community.

## Marketing

- Local market – Fresh live fish fetches higher market rate.

**Approximate Expenses and profit (1 acre area) for extensive village common pond (based on our demonstration)**

s.no	Particulars	Amount (in Rs)
<b>Expenses</b>		
1	Pond	Nil
2	200 kg Lime @Rs.5/kg	1000
3	Fertilization	Nil
4	3500 advanced fries @Rs.1/nos	3500
	Feeding	Nil
	<b>Total</b>	<b>4500</b>
<b>Production &amp; profit</b>		
	Average production	750 kg
	Income (selling @Rs.65/kg)	Rs.48750
	Profit (Income- Expenses)	Rs.44250

COMPOSITE FISH CULTURE	VILLAGE COMMON POND	HARVESTED FISH	CATLA
			
ROHU	MRIGAL	SILVER CARP	GRASS CARP
			
COMMON CARP			
