

- ▶ Grass carp should be fed with sufficient quantity of aquatic vegetation, green fodder.
- ii) Liming: Once in a month.
- iii) Fertilization: Monthly installment after the application of lime.
- iv) Health Care: To avoid disease are –
  - ▶ Soil & Water management through proper feeding schedule.
  - ▶ Use of balance feed.
  - ▶ Periodic sampling for health checkups.
  - ▶ If it is noticed that the feed provided is not being consumed, then the fish are either suffering from disease or the water quality is deteriorated.
- v) Harvesting: Harvesting is done after 10-12 months, when fishes attain a weight of 700-1000 g or more. Depending on the demand, market requirement and catching efficiency, either total harvest or partial harvest is done. Generally, if all the above measures are followed properly, a production of 2000-3000 Kg/ha/yr can be expected.

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# COMPOSITE FISH CULTURE

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In order to obtain high fish production per hectare of water body, fast growing, compatible different species of Indian & Exotic carp of different feeding habits are stocked and cultured in the same pond, so that all ecological niches are utilized by the fishes. This technique of fish culture is called Composite/Poly Culture/Mixed farming.

The method adopted in composite fish culture can be broadly divided into three phases-

**A) Pre-Stocking Management :-**

- i) Dewatering is compulsory and ensures the complete eradication of unwanted aquatic weeds & fishes.
- ii) Sun drying of bottom at least 15-20 days till it develops cracks.
- iii) Repairing of side slopes: Side slopes should be based on the type of soil i.e. Clayey Soil (1.5:1), Loamy Soil (2:1), Sandy soil (3:1)
- iv) Ploughing the bottom:
  - ▶ To facilitate killing of disease causing parasitic organism.
  - ▶ Releasing of primary nutrient & trace element to maximize productivity.

v) Liming:

- Why-*
- ▶ To neutralizing acidity of soil & water.
  - ▶ To destroy parasites and disease causing agent.
  - ▶ To improve the soil quality
  - ▶ To increase the organic matter decomposition.
  - ▶ To increase fertilizer effectiveness.
  - ▶ To quick release of NPK from organic manures.

*How much-* Based upon the  $p^H$  status, liming should be as follows -

$P^H$ of Soil	Type of Soil	Dose (Kg/ha)
4.5-5.0	Highly acidic	2000
5.0-6.0	Moderately acidic	1200
6.0-6.5	Mildly acidic	1000
6.5-7.0	Near neutral	400
7.0-7.5	Mildly alkaline	200

- How -*
- ◆  $1/4^{\text{th}}$  of total quantity during the pond preparation either on dry bottom or in water.
  - ◆ The  $3/4^{\text{th}}$  is equal monthly installments.
  - ◆ The lime should be soaked overnight and sprayed uniformly on the water surface on bright sunlight.

vi) Fertilization:

- ▶ Cowdung initially 20% of total quantity (@12000 Kg/ha/Yr) is applied by heaping in a corner of the pond with a sunny exposure after 7 days of application of 1<sup>st</sup> dose of lime.
- ▶ Remaining 80% is applied in equal monthly installments.
- ▶ Urea @ 250/ Kg/ha/Yr & SSP @ 300 Kg/ha/Yr is applied in equal monthly installment each after 7-15 days of application of organic manure.
- ▶ During application of inorganic manures, silt/mud (4 times of the total weight of inorganic manures) should be mixed with the manure to make small ball and then thrown into the pond.
- ▶ The fertilizers should be applied when pond water received plenty of sunlight, optimum dissolve oxygen, conducive temperature, clear transparent, no wind and adequate water level is maintained in pond.

**(B) Stocking Management:**

I) Species Combination:

Altitude(ft)	C	R	M	SC	GC	CC
0- 2500	20	20	15	20	10	15
2500-3500	20	10	10	30	10	20
3500-4500	-	-	-	40	25	35

ii) Stocking Density:

- ▶ 7500 fingerlings/ha is suitable for stocking with 1 m water depth of and rearing period about 8-10 months.
- ▶ If possible carried over seeds should be introduced into the pond.
- ▶ Aril-May is the best time for releasing fish seeds.

**(C) Post-Stocking Management:**

i) Supplementary feeding:

- ▶ The supplementary feed comprising of 1:1 mixture of oil cake (Mustard/Groundnut/Till) and rice/wheat bran commencing from the 2<sup>nd</sup> day of stocking.
- ▶ The feed mixture is either provided in the form of dough ball in the trays or perforated gunny bags hung at different places in the pond.
- ▶ Different feeds such as vitamin, mineral pre-mixes, enzymes are used for better conversion efficiency, improving growth, health and disease resistance and easy water quality management.