Composite Fish Culture

Fish culture in which compatible and non-competing fishes are cultured simultaneously through the utilization of different feeding zones.

Primary objective: To utilize all available resources

To increase the total production from unit area

Steps in Composite Fish Culture:

1. Site selection: Factors to be considered:

a) Ecological- location, topography, water and characteristics and quantity etc.

b) Biological- Species selection, predator and disease etc.

c) Economical and social: facilities available, marketing, safety, social considerations etc.

2. Pond Management

a) Pre-stocking: Includes-

i) Removal of weeds by:

Manual/Mechanical methods

Chemical methods: through use of herbicides

Biological methods: introduction of other species like Grass carp, Tilapia, Common carp etc.

ii) Removal of unwanted and predatory fishes by:

Repeated netting or using mahua oil cake

iii) Liming - to bring the pH to the desired level. Other effects of liming include :

a) Acts as buffer and avoids fluctuations of pH.

c) Increases resistance of soil to parasites.

d) Kills the parasites

e) Hastens organic decomposition.

The dose of lime has to be calculated based on pH of the soil and water

iv) Pond Fertilisation- Purpose of pond fertilisation is to increase fish productivity by increasing the natural productivity of the pond.

A combination of both Organic and Inorganic fertilisers also be used.

1) Organic: It includes farm yard manure (FYM)- Cowdung @ 5000 kg/ha, Poultry, sheep manure and crop byproducts like cotton seed meal, mustard oil cake etc.

2) Inorganic: It include many inorganic components like nitrogen, phosphorus etc. in the form of nitrogenous and phosphate fertilisers.

b) Stocking:

Done after 15 days of application of fertilisers.

- Fish fingerlings of 50- 100 gm size (approx) and around 5000-8000 in number should be used for stocking
- Depending on prevailing condition, stocking can be of 3, 4 or 6 species combination.
- Fish species involved in composite fish culture Depending on the compatibility and type of feeding habits of the fishes
- Indian as well as Exotic varieties have been identified and recommended for culture in the composite fish culture technology
- Species feeding habits and feeding zone

  Indian Major Carp

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

b. Exotic carps

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

Species combination (ratio)

Species	3-species
Catla	4.0
Rohu	3.0
Mrigal	3.0

Questions for practice

1. One of the most important objective of composite fish farming is:
   a. Develop competition among different species
   b. All available niches are fully utilized
   c. Increase in the production of a single species
   d. To produce hybrids
2. In India which of the following combination of fishes is mainly utilized in composite fish farming:
   a. Catla, Rohu and Mrigal b. Catla, Mrigal and Grass carp
   c. Grass Carp, Rohu and Mrigal d. Rohu, Grass carp and Silver carp
3. Which of the following fish species can be utilized for controlling aquatic weeds as it is truly phytophagous having powerful pharyngeal teeth:
   a. Grass carp b. Rohu c. Catla d. Mrigal
4. Liming is an important process in proper management of fish ponds as it:
   a. Has an antiparasitic action
   b. Destroys unwanted algae
   c. Kills harmful aquatic insects
   d. All