

Liming

Pond bottom is important for productivity since process of mineralization of organic matter and release of nutrients to the overlying water takes place.

Liming helps in improving the quality of the pond soil, thus enhancing productivity.

A range of liming materials are used such as

- Agricultural lime or calcite (CaCO_3)
- Dolomite [$\text{CaMg}(\text{CO}_3)_2$]
- Calcium hydroxide/slaked lime $\text{Ca}(\text{OH})_2$
- Calcium oxide/quicklime - CaO

The dose of a particular variety of lime depends on its effectiveness and soil pH. Generally 200-500 kg/ha of lime is used for application to pond soil

Note: Quick lime is preferred for applying to soil and calcite agricultural lime for application to water after stocking of the ponds

Liming helps in

- Correcting soil pH
- Mineralization of organic matter
- Release of soil bound phosphorus to water
- Disinfection of the pond bottom

4. Control of Aquatic Weeds:

Has been discussed in details in the next section

5. Eradication of Predatory and Weed fish

Predatory fish severely affect survival of fish primarily in nursery and rearing ponds. Weed fish compete with stocked fish for food, space and oxygen and result

in reduction in production of desirable fish. Common predatory fish are murrels (Snakeheads), Catfishes such as Wallago attu, Clarias batrachus, Heteropneustis fossilis, Ompak sp. Etc., Weed fish include Puntius, Barbas Danio, Aplocheilus, Anabas etc.,

Most predatory and weed fish breed prior to the onset of carp breeding. They infest the ponds before carp fry and fingerlings are stocked. Hence their eradication prior to stocking of carps is necessary

Control

Dewatering followed by sun drying is most effective way to control weed and predatory fish. In ponds which cannot be dewatered, piscicides are used.

A suitable piscicides should have the following characteristics:

- Effective at low dose
- Not injurious to people and animals
- Doesn't make fish unsuitable for human consumption
- Gets detoxified quickly
- Easily available and economical

Types of piscicides

Following are the three types of piscicides that can be used to eradicate weed fish and predatory fish

- Plant origin
- Chemicals
- Pesticides (Chlorinate hydro carbons and organophosphates)

Piscicides of plant origin

A. Derris root powder

- Rotenone is the active ingredient
- It is a contact poison
- Lethal to other organisms also such as zooplankton, Benthos and insects
- Dosage is 4-20 ppm (mg/l)
- The powder is mixed thoroughly with water and sprayed all over the pond
- It is effective only on sunny days when the temperature is above 25°C
- It is less effective in cold waters.

B. Mahua oilcake

- The active ingredient is saponin
- It causes lysis of the RBC and kills fish, frogs, snakes and turtles
- Dosage is 250 ppm
- The cake is soaked in water for 2-3 hrs and applied all over the pond.
- Detoxification takes about 25 days
- The toxicity can be reduced to 10 days through aeration and application of oxidizing agents.

The other less widely use fish toxicants of plant origin are

- Tea seed cake – 60 ppm
- Tamarind seed husk – 50-100 ppm