

Feed Management

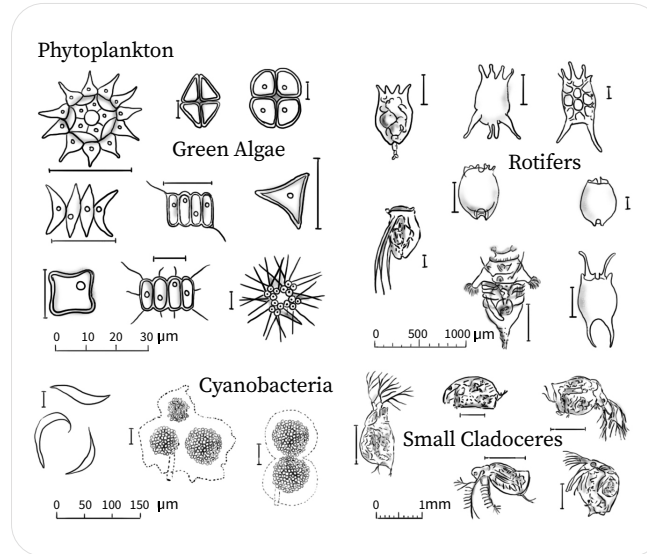
Feed accounts for the major part of the production cost in aquaculture and it is therefore, management of feed is very crucial to reduce the cost of production by minimising feed cost and invest enough to get maximum fish production.

Management of Natural Food

- Natural feed is the most essential and cost effective produced feed by using manures which is locally available. In systems where manures and fertilizers are used @ 2.5-3 fingerlings/m² are stocked.
- Maintaining optimal level of fish growth is essential. Plankton density of atleast at least 3 ml/100 l water is required for healthy fish growth.
- Traditionally, water transparency of 30 cm is considered as indicator of required plankton in the pond but measuring plankton density by plankton made of bolting silk cloth with mesh size of 65 microns collection gives the real situation in pond.

Manuring

Manuring during post stocking operation is to maintain sustained plankton during the entire culture period. During pond preparation only 25-30% of the recommended dose is used. The balance is to be given in equal fortnightly/monthly instalments for the rest of the culture period.



Supplementary Feeding

- Natural feed is very rich in protein and can be diluted by adding energy rich feed like Oil cakes and rice bran and this will make better use of natural feed and you can grow more in the same and you can increase the up to 5-7 fingerlings/m². Protein, vitamin and mineral requirements are met through the intake of natural food. Protein requirement in feed for grow out fish around 24-26% is sufficient.
- If more fish is to be grown in the same pond, feed with formulated feed which cost more than conventional feed (rice bran & oil cake) but they are complete feeds. If farmer can afford this,

he can stock the fingerlings up to 15 fingerlings/m². However, increasing stocking density always increases the risk of poor water quality, diseases and slower growth leading to economic loss.

Types of feeds

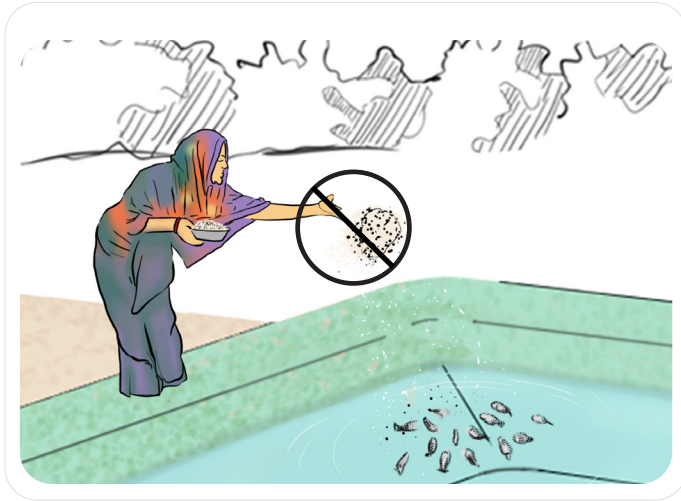
- **Conventional feed:** A mixture of oil cake and rice bran in equal proportion to meet protein requirement of 24-26% but lack in energy.
- **Farm made feed:** Prepared on farm using ingredients like oil cake, rice bran, soybean, pulses and vitamin and mineral mixture to meet the nutrient requirement. Cooking farm made feeds give consistency to make it stable in water.
- **Complete feeds:** Contain all the nutrients required for fish growth. Different brands of commercial feeds are complete feeds.

Feeding Rate & Frequency

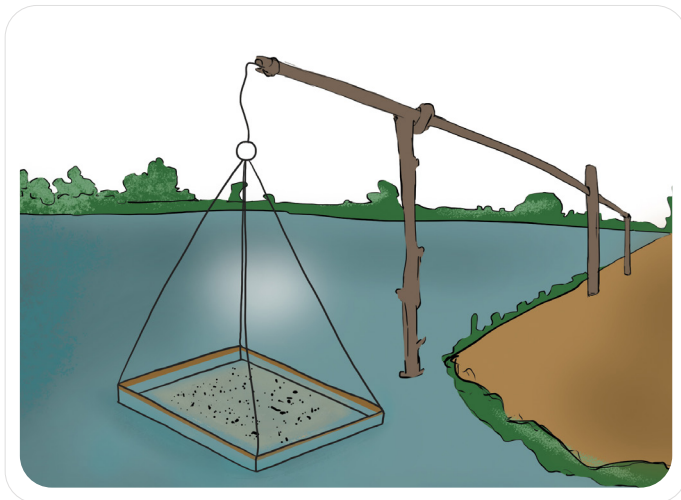
- Fish require more feeding in the initial stages as the growth rate is faster and as the growth rate reduces, reduce the feed quantity.
- Feeding quantity should be regulated after sampling fish once in 2-3 weeks.
- Feed @3-5 % of the fish biomass for initial 2 months and gradually reduce to 2 to 1.5% at the end of the growing period.
- Feeding frequency reduces wastage; improves water quality; reduces nutrient loss; improves feed utilization resulting in increased fish growth.

Feeding Methods

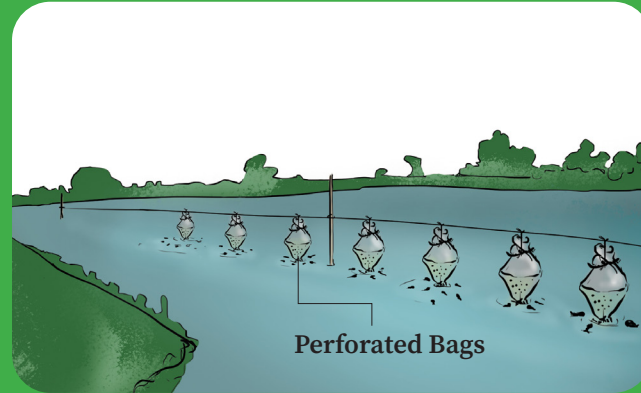
Avoid direct feeding as unutilized feed gets accumulated in the pond bottom leading to water quality deterioration affecting fish growth and health.



In Tray feeding method the feed is kept in the tray and the tray is hanged inside pond and observed to see the feed consumption.



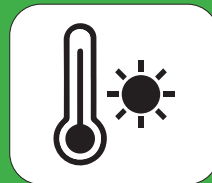
Bag feeding with perforated bag is a better practice as fish will find more time to feed and wastage will be minimum.



Storage of Feed



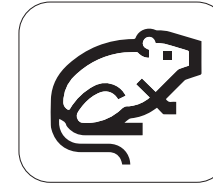
Moisture content of both air and feedstuffs should be maintained low to maintain humidity level below 75%.



The optimal temperature at storage places is around 25 °C. High temperature may result in deterioration and feed loss.



Moulds (fungi) and insects may cause considerable losses and may contaminate feeds with their metabolic by-products.



Rodents (mice, rats, etc.) and birds can consume feed. Their wastes may also contaminate the feeds.

Storage of Feed

- Keep the storage areas as dry and cool and protect from rain. Store them on a raised platform to protect from floor moisture. Provide good ventilation to storing place
- Cover the roof to protect from rain. Provide ventilation on sides with small-mesh metal netting to prevent the entry of rodents and birds. Use ledges to deter ants or termites from entering. If bags are used to store feedstuffs, do not stack them too high.
- Manage your stocks well, by holding reasonable quantities and avoiding excessive stocks; Maintain storing areas clean and tidy and clean spilled feed.
- Storage time for feeds with whole grain and oil seeds is 3-4 months and for dry feed materials and feed pellets is 2-3 months.