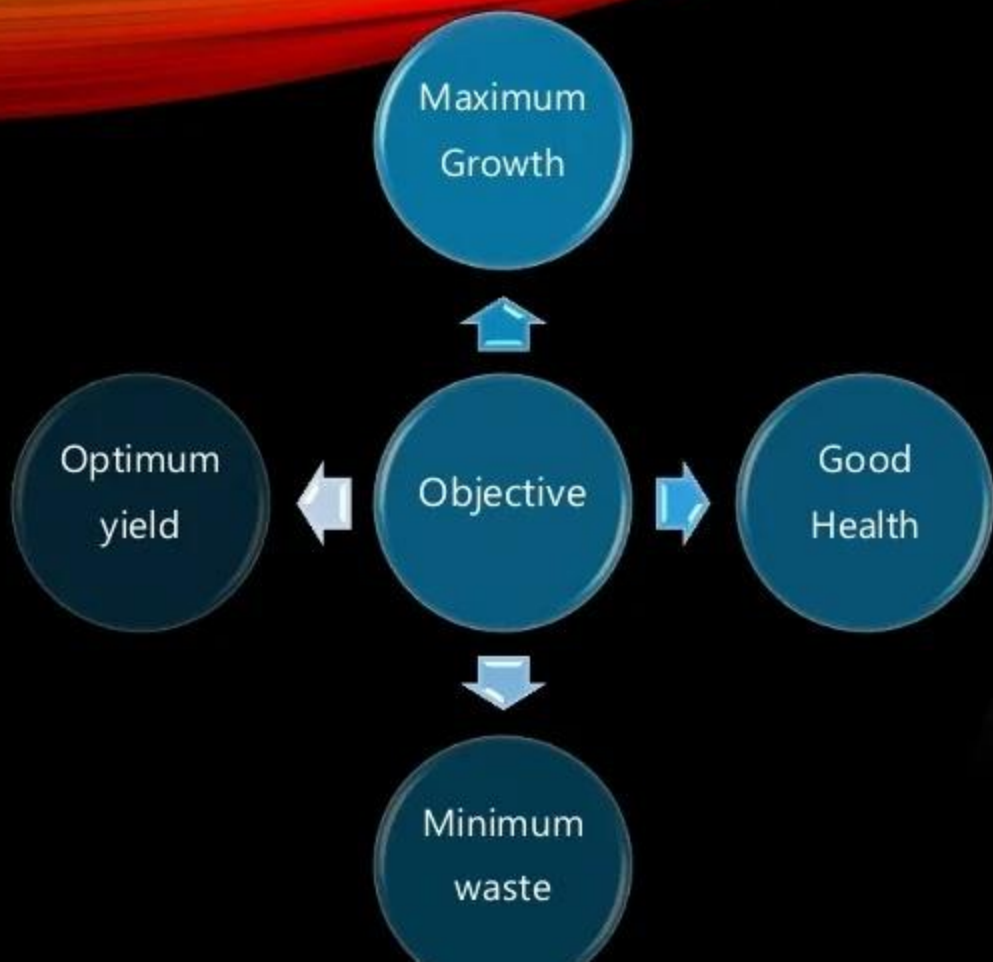


FISH FEEDING AND FEEDING TYPES

Azeem Iqbal





Fish Feeds



Natural feed

Artificial feed

FEED QUALITY

Nutritional efficiency

Different nutrients in right proportions to meet the dietary requirements for good growth and efficient performance

Physical characteristics

Fine grinding
Water stability
Particle size
Palatability
Minimum waste

Selection

Blending

Processing

Storage

Molds

8-10 bags



Fats?



Vitamins



Bag quality

FEED STORAGE

Perishable nutrients

Storage period should be kept minimum

Adequate storage conditions should be provided

Ambient temperature and humidity are two main factors to be controlled



FEEDING CORRECTLY

It results in low FCR, uniform growth and good water quality

Effects fish performance

Correct nutritional quality

Correct size


Feed the correct amount

Feeding at right time

FEED SELECTION



Species



Quality of feed



Age and size



FCR

CORRECT AMOUNT ESTIMATION

Feed ration = Average fish size X Feed rate (%) X Total No. of fish in the pond

- If 5g tilapia requires 8% of its body weight how much feed should it be given per day?

$$\hat{f}(\xi) = \int_{-\infty}^{\infty} f(x)e^{-2\pi i x \xi} dx$$



- 5g X 8/100 = 0.4 g per fish
- Or 400 g for 1000 fish per day
- 200 g + 200 g

Adjusting feed rations



rain conditions, carrying capacity



For smaller fish , adjusted more frequently due to fast growth rate



26-32°C

Feeding rations should be adjusted weekly or fortnightly
Sampling or feeding charts
Feeding charts and occasional sampling help adjust feeding rations



ADMINISTERING THE FEED

Rapid and complete consumption
of feed by fish

Minimal metabolic energy
expenditure associated with feeding

Ensure all the fish have equal access
to the feed



FEEDING METHODS



Hand feeding



Demand feeder



Automatic feeder



Sub-surface feeder

Hatchery feeder

FEEDING FREQUENCY

Feeding should be 1% of body weight but we feed 2-3 times a day

FCR and Uniform growth

Juvenile fish more feeding frequency – high metabolic rates – small stomachs

400g fish can be feed only once a day

Feed administered must be consumed within 15 minutes. If not?

FEEDING FREQUENCY

Fish weight (grams)	Feed quantity % of body	Frequency of feeding (times day)
1-5	10	6
5-20	6	4
20-100	4	3-4
Above 100	2	2

A woman with a long, dark braid, wearing a light purple t-shirt and a blue patterned sarong, is crouching on a rocky shore. She is holding a small container and feeding a group of colorful fish, including a prominent yellow and black striped fish, in a clear, shallow pond. The water is greenish, and many other fish are visible swimming in the background. The scene is outdoors, likely in a rural or semi-rural setting.

FEEDING RESPONSE

- Response of fish to feed
- Reduces over-feeding or under-feeding
- No. of fish and their average weights can be visually assessed
- Problems can be detected sooner and remedial measures should be taken
- Feeding response depends upon suitability of feed, water quality like temperature and DO, other stressors like pollutants

ASSESSING THE FEEDING RESPONSE

- How fast the fish moves towards the feed
- Whether or not the fish are interested in feed
- What is the color of pond water prior to feeding
- What proportion of fish comes to the feed
- Weather rainy, cold or rainy?
- Do not rely on the feed charts only

Same person should feed the fish daily and keep the records



CRITERIA TO JUDGE THE FEEDING RESPONSE

Excellent

Fish are very active and come to feed immediately. All feed consumed within 5-10 minutes

Good

Fish are less active and come to feed over a longer duration. All feed consumed in about 15-20 minutes

Fair

Fish are sluggish and eat 3 quarters of feed in 30 minutes

Poor

Fish do not come to feed only 1 quarter of feed is consumed

TRAINING FISH TO THE FEED

- Administer the feed at the same place in the pond at the same time every day
- Broadcast a handful or plateful of the feed once fish collected at the feeding area



WHEN NOT TO FEED FISH?

- If feeding response is poor
- If fish are feeling unwell
- Two days before harvest or transportation
- The afternoon before sampling and on the day of sampling before taking samples
- When treatments are applied to the pond
- When water temperatures are low or on rainy days



MANAGING FISH WASTES

Avoid over-feeding

Using floating feeds

Thank You