Demand feeder installed at Kaijanga, adopted Village of KVK, Khurda

Demand feeder installed at Madhyakhanda, adopted Village of AICRP on APA

This helps to avoid organic pollution in the rearing ponds by delivering demanded quantity of feed into it. This can also provide indication to the culturist regarding the feed demand of fish. The demand feeder will increase feed consumption in fish by making it available to them continuously.

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FRP Demand Fish Feeder

A Product of

AICRP on Application of Plastics in Agriculture

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Traditionally, farmers feed fish manually by broadcasting it on water surface or in simple trays. It leads to over feeding of fishes, waste of food and quite often pollution of the water. Feeding fish involves not only the quality and quantity of feed, but also, the method of offering it to fish. Hence, nutritionally enriched and expensive feed can be minimized to great extent if fed through feeders. From this point of view, the demand fish feeders appear to be more preferable in fish culture system.

Advantages

- Simple in construction
- Low-cost
- Maintenance free
- Can operate round the clock
- Suitable for pelleted feed and can be used in any kind of rearing facility
- It doesn't contain any complicated electrical or moving parts
- Fish themselves decide when and what amount of feed they consume
- Reduce the feed loss (10-15%) and man-hour involvement for feeding
- The product is made from FRP due to its unique properties like light in weight, low water absorption, free from corrosion, easy fabrication process and repair.

Working principle

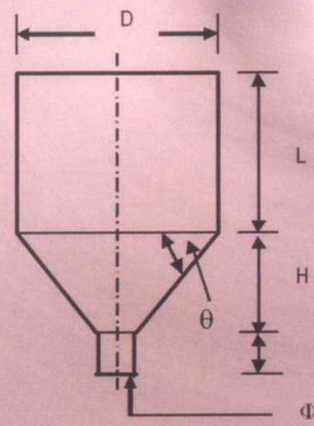
Feed drops by gravitational force. According to the law of friction, the feed particles begin to move down the plane, when the angle of repose is equal to the angle of friction. The calculated designed angle of repose is 41o for standard floating pellet feed. In the present design the angle of repose (?) was taken as 50o, which is higher than the actual required angle of repose (41o) for effective free flow of feed materials.

Major components

- Feed hopper & lid
- Activating mechanism
- Hopper holding stand

Specifications and salient technical features

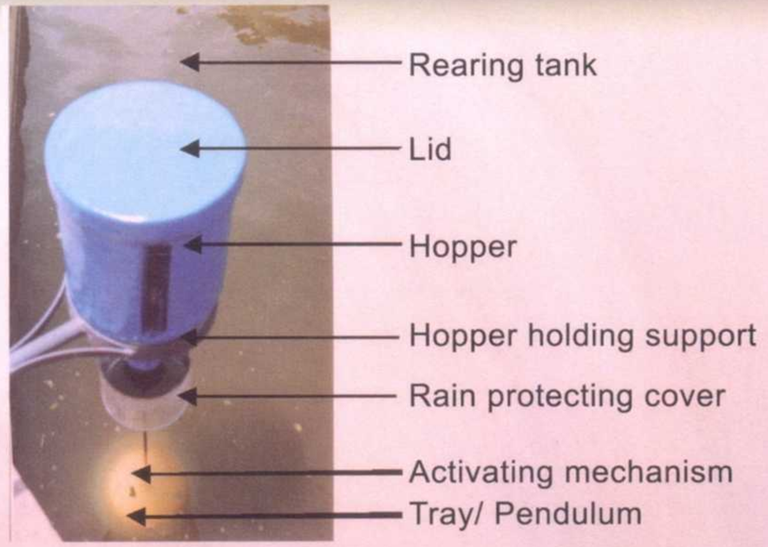
FRP demand fish feeder has main components of 30 liter capacity feed hopper and activated mechanism. The feeder is installed in a pond with the activating mechanism extending into the water through an activator rod. The activating mechanism includes steel bait rod, feed platform, feed protecting cover and pendulum or feeding tray in case of sinking feed. The feed drops by gravity onto the adjustable acrylic feed platform positioned below the hopper and above the water level. When fish activates the rod, feed pellets retained on the feed platform slowly drop on to the water surface. The gap (distance) between the feed platform and the end of the hopper cone is adjusted as per the size of the pellet feed.



Design of demand feed hopper

Specifications of feed hopper

Length of the cylinder (L): 285 mm
Diameter (D): 330 mm
Height of cone (H): 200 mm
Angle of repose/ inclination (?): 50o
Centre of gravity: 342.5 mm from base
Volume (V): 30 l



View of demand feeder in experimental tank

Performance Results

The growth rates of fish are 10-15% higher in the demand feeding cisterns/ tanks with feeders than the hand feeding tanks. The designed demand feeder is found suitable for feed delivery to Indian major carps in outdoor culture system. The designed feeder can hold 10 kg feed, which is sufficient to feed 500 kg fish if fed @ 2% of their body weight per day.

Demand feeders in cisterns

Demand feeder in pond