

The performance of a fish feed depends on:

1. Its ability to meet the nutritional needs of the growing fish.
2. Its water stability and impact on water quality.
3. On whether or not all fish in the pond are able to consume the required amount.

Ugachick's floating fish feeds meet all these requirements because the feeds are tailored to meet the specific nutritional requirements of the fish at the different stages of growth. Each pellet is complete in nutritional value and remains intact in water for at least 15 -20 minutes. This, coupled with the fact that the pellets do not sink to the pond bottom, reduces the potential negative effects on pond water quality resulting from excess feed decomposing in the pond.

In nature, tilapia feed off a wide range of tiny water plants and animals, called plankton. In ponds, plankton can be generated by fertilizing the water with either organic or inorganic fertilizers. However, when grazing, the amount of energy tilapia use to find and assimilate adequate amounts of plankton to meet their nutritional needs is large. Furthermore, under farmed conditions there are more fish per unit area as compared to the wild. Consequently, beyond a certain point in ponds, it becomes impossible to provide the fish with the appropriate levels of nutrition that can sustain economic growth rates, hence the need for artificial feeding.

Feeding Ugachick's nutritionally complete pellets bridges this gap. The farmer becomes able to provide a consistent diet that meets the fish's nutritional needs and thus obtain more consistent production. This is important considering that feed constitutes 60 -70% of operational aquaculture costs.

To ensure best results from Ugachick's feed, the following preconditions need to be met before and during the course of production.

Preconditions

1. Pond Preparation

- Ensure the pond is not leaking.
- Screen the inlet to ensure no wild fish enter the pond
- Fertilise pond as recommended

2. Filling the Pond with Water

- Only fill through a screened inlet
- Ensure the water depth is on average 1 m (about 80 cm towards inlet and not more than 1.2 towards outlet).

3. Stocking

- Stock within 10 days of filling once water quality looks optimal. *This limits chances of predators (e.g. frogs) dominating pond and competing with the fish for the feed.*
- Stock fish of the same size.
- Minimum average size to stock in grow -out ponds is 7g. Survival rates of fish stocked at less than 7g each is low. *Fish less than 7 g should be stocked in a nursery pond first till they get to 7 g or more .*
- It is better to stock only males as tilapia females reproduce rapidly in ponds and grow slower.
- Number to Stock: depends on the ponds carrying capacity and desired harvest size. The carrying capacity for fertilized tilapia ponds is 1 kg per m². *If too many fish are stocked in the pond, growth rates will be poor .* Below are stocking guidelines:

4. Pond Management

- Keep inlet and outlet screens on right through the cycle.
- Do not let water through the pond continuously. Only add water when topping water levels or when water quality becomes poor.

Targeted Average Marketable Size per Fish	Number of Fingerlings to Stock per m ²
200 g	5
300 g	3
400 - 500 g	2

- Fertilise the pond weekly to ensure the water is adequately green as in the picture.
- Maintain recommended average water depth of 1 meter.



5. Other Measures

- Do not feed wet or mouldy feed.
- Store feed in a cool dry place, away from direct sunlight and on pallets off the floor and off the walls.
- Harvest pond before it gets to carrying capacity.



How to Feed with Floating Feed

- Refer to the **feeding chart as a guide**.
- **Use the correct type and size of feed** for the size of fish being reared.
- **Feed the right amount** The amount of feed the fish need each day is based on their body weight and affected by water quality and their health at the time.
- **Feed the Correct number of times a Day**: The feeding chart shows how many times a day, fish at different sizes should be fed
- **Feed by Response**: feed based on the fishes interest in coming to eat. Once the fish show no interest in feeding, do not add any more.
- Re-adjust the feeding based on the actual average weight obtained.
- Keep daily records of the amount fed to enable you monitor growth rates and feeding performance.
- If one follows the guidelines, by harvest time a farmer should have used about 1.5 kg of feed to produce 1 kg of fish. The amount of feed used to produce a kilo of fish is called the **feed conversion ratio (FCR)**.

How to Train Fish Feed by Response

To feed by response, fish need to be trained to come and eat from the same place at the same time at the water surface.

1. Call the fish to feed at the designated fixed time and place. E.g. by making a sound or stump the ground just before feeding.
2. Pour in a handful of feed first. If the fish come, add more. If they do not come do not add any feed.
3. The following day, do the same until the fish eventually learn that if they do not come to feed on time, there will be nothing left for them. This may take several days .
4. The first week, do not give more than half the estimated required ration (see feeding chart) to train the fish to feed very intensively and rapidly.
5. **Do not** trickle food into the pond. **Use containers to broadcast the feed rapidly**.
6. The fish should finish all the food given in 15 minutes. If not, reduce the ration. If they finish it all in less than 5 minutes, add more.
7. Record daily how much has been actually consumed.



Calling fish to feed



Tilapia responding to call to feed

Tilapia Feeding Chart

Weeks in Production	Size (g)	Growth (g/day)	Daily Feed Requirement (% BW)	Total Daily Amount to Feed per Fish per Day (g)	Type of feed Protein % - size (mm)	Number to Feed per Day
*Recommended Size at Stocking						
1	10	0.4	5.0	0.5	35-3	4
2	13	0.6	4.8	0.6	35-3	2
3	17	0.7	4.8	0.8	35-3	2
4	22	1.0	4.6	1.0	35-3	2
5	29	1.1	4.5	1.3	35-3	2
6	37	1.3	4.5	1.7	35-3	2
7	46	1.4	3.8	1.7	35-3	2
8	56	1.9	3.7	2.1	35-3	2
9	69	2.0	3.5	2.4	35-3	2
10	83	2.1	3.4	2.8	30-3	2
11	98	2.4	3.4	3.3	30-3	2
12	115	2.4	3.2	3.7	30-3	2
13	132	2.4	3.2	4.2	25-5	2
14	149	2.6	3.0	4.5	25-5	2
15	167	2.6	3.0	5.0	25-5	2
16	185	2.7	2.9	5.4	25-5	2
17	204	2.7	2.8	5.7	25-5	2
18	223	2.9	2.6	5.8	25-5	2
19	243	2.9	2.5	6.1	25-5	2
20	263	3.0	2.4	6.3	25-5	2
21	284	3.0	2.3	6.5	25-5	2
22	305	3.0	2.3	7.0	25-5	2
23	326	3.0	2	6.5	25-5	2
24	347	3.0	2	6.9	25-5	2
25	368	3.0	2	7.4	25-5	2
26	389	3.0	2	7.8	25-5	2
27	410	3.0	2	8.2	25-5	2
28	431	3.0	1.8	7.8	25-5	2
29	452	3.0	1.8	8.1	25-5	2
30	473	3.0	1.8	8.5	25-5	2
31	494	3.0	1.7	8.4	25-5	2
32	515	3.0	1.7	8.8	25-5	2
33	536	3.0	1.4	7.5	25-5	2

NOTE: The 25% protein feed is ONLY applicable where the ponds are adequately fertilized (green). If the pond water is not fertilized adequately (i.e. is not green always), continue with the 30% protein feed.

Estimating Feed Requirement

1. The estimated **total amount of feed** the fish in a pond per day:

= Fish Size (g) x total amount per fish per day x the total number of fish in the pond

2. The amount of feed to give at each meal:

= total feed requirement for the day (calculated in 1 above) / Number of Feedings per day

Remember:

1. Feed by Response
2. If the fish do not finish the amount calculated, keep the balance in a closed container for the following meal as shown in the picture below.



These are only guidelines. Results will vary based on local pond water temperatures, the farmers specific management practices and the pond's characteristics.

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Guidelines on the Use of Ugachick Floating feed to Rear Tilapia in Earthen Ponds



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