



Feed and Feeding Management in Ornamental Fishes

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Abstract

Proper feeding of aquarium fish requires patience. It is important to understand the different species, and their life cycles. The amount of food required depends upon the type of food, culture conditions, and individual fish. Newly hatched larvae may feed almost continuously. Fish generally will not overeat, unless they are fed too infrequently. One to two feedings a day are best for most fish. More for newly hatched fish and less often for larger fish. Most problems with overfeeding result when wasted food spoils the quality of water in fish tank. Ammonia and other products of decay will degrade water quality and stimulate disease organisms. In the aquarium with under gravel filters, it is common for the under gravel to clog from accumulated uneaten food and debris. This problem can be eliminated with frequent aquarium care, including water changes, redistributing the aquarium decorations, and cleaning external filters. Common bottom-feeding fish such as loaches, plecostomus, and catfish can also help to keep the aquarium clean.

Keywords: Bloodworms, Cyclops, Flakes, Earthworms, pellets feed

Introduction

Aquarium fish depending on their feeding habits and preference may be fed with live foods such as mosquito larvae, fruit flies, bloodworms, tubificids, cyclops, daphnids, rotifers,

brine shrimps earthworms which worm and microworm or with moist pellets, dry pellets, flakes and chopped bits fish, shrimp, beef, oyster, crab, liver, spleen, lung, heart and brain.

The principal types of available commercial food fall into one of five main groups.

- 1) Flakes
- 2) Granules/ Tablets/ Sticks
- 3) Freeze dried diets
- 4) Deep frozen diets
- 5) Live foods

1) Flakes

These range from fine powered foods for very young fish, through small flakes, to large flakes for larger fish. In terms of their formulation, they range from high protein diets for baby and growing fish to lower protein flakes for adults, from vegetable based formulations for herbivores, to animal based ones for carnivores and mixed ones for omnivores. In addition, there are conditioning flakes, color enhancing flakes and many other types.

a) Color enhances

Beta carotene and astaxanthin have been long used as effective color enhances, but have been surpassed by the introduction of *Spirulina*. The fresh water algae has very high colour enhancing properties.

2) Granules/ Tablets/ Sticks

These foods consist of a somewhat narrower range of formulations which are either compressed or extruded into various shapes. Some types float, while others sink slowly and others quickly thus catering for the feeding habits of a wide variety

3) Freeze dried diets

These contain very little moisture, but retain their high nutritional value consisting of insect larvae/ pupae, crustaceans, blood worms, tubifex worms and daphnia are all popular freeze dried foods. These foods come either loose for sprinkling on the water surface, or in small compressed blocks for sticking onto the sides of the aquarium.

4) Deep frozen diets

These predominantly animal based foods are usually gamma irradiated to send them disease free and they come in a wide range of single component and multiple component formulations, some including vegetable matter. Deep frozen foods must be kept in a freezer at all times.

5) Live food organisms

i) Infusorians

Materials used for culturing infusorians include hay, banana peels, dried beans, lettuce, cabbage, egg yolk, malted milk, skimmed milk(dried), hay seed, dried blood, spinach, dried aquatic plants, etc. A medium may be prepared by first boiling any of the above ingredients. It is then diluted with freshwater, kept in a plastic trough or cement tank of 50 to 100 lit capacity. The fertilized water medium may be covered with velon screen for bacterial development, fermentation and subsequent leaching of nutrients. Within four days, the water turns greenish which indicates the production of infusorians. A mild aeration and alkaline pH (8-9) may enhance the production of the infusorians.

ii) Zooplankton

Zooplanktonic organisms such as rotifers, copepods and cladocerans like moina and daphnia spp. A ideal live foods for juvenile ornamental fishes such as fighter fish, angel, oscar, red tail shark and other baby live bearing fish species.

iii) Rotifers

The common freshwater rotifer species suitable for feeding a variety of ornamental fishes include *Brachionus rubens*, *B. calclflorus*, *B.forficula* and *Keratella tropica*. The mass culture of these rotifers could be undertaken in plastic troughs or circular tanks of 250 lit, capacity. A mixture of poultry droppings, groundnut oilcake and triple super phosphate is prepared at 150ppm, 20ppm and 20ppm respectively and are added to above tanks containing water. The medium is then inoculated with *Brachionus* sp. On the third day at the rate of 10-15 animal/ml.

iv) Copepods

Cyclopoid and calanoid copepods are also known to be ideal live food organisms especially for feeding the fry and fingerlings of ornamental fish species such as fighter fish, angel and tetra.

Tiny crustaceans that are a powerhouse of nutrition for fish! Copepods are found in both freshwater and marine environments, and they're a natural food source for many aquatic species.

- Nutritional value: Rich in protein, lipids, and essential fatty acids
- Uses: Live food for fish larvae, small species, or as a supplement

- Culture: Can be challenging, but some species like *Tigriopus* are popular for aquaculture

v) Cladocerans

Cladocerans are otherwise known as water fleas, the sizes of which vary from 0.5 to 1.5 mm. They are common in seasonal ponds, pools, etc. especially after the development of phytoplankton blooms on which they normally feed.

These are tiny freshwater crustaceans you probably know them as “water fleas.” Common genera include *Daphnia* and *Moina*. They’re super popular in aquaculture and hobbyist tanks because:

Super nutritious – Packed with protein, lipids, and vitamins. Ideal for fish fry and small ornamental species.

Easy to culture – Can be grown in simple containers with green water (phytoplankton) or yeast feeds.

Fast reproduction – Parthenogenesis (asexual) lets populations explode in a few days under good conditions.

Basic Culture Crash Course¹. Set up – Use a 10–20 L plastic tank or bucket, fill with dechlorinated water. Inoculate – Add starter culture (*Daphnia* or *Moina*). Feed – Daily dose of yeast or cultured algae (*Chlorella*, *Spirulina*). Maintain – Keep water temp 20–25°C, mild aeration, partial water exchange every 3–5 days. Harvest – Siphon or net them, rinse, and feed to fish.

Brine shrimp

Brine shrimp (*Artemia salina*) cysts are available in the aquarium shops. Such cysts can be hatched at the time of need and the resulting larvae are fed to the juvenile and adult ornamental fishes. They're a popular live food for aquarium fish, especially for feeding larvae or small species. *Artemia salina* is a species of brine shrimp often used in aquaculture.

- Hatching: *Artemia* cysts (eggs) can be hatched in saltwater
- Nutritional value: Rich in protein and lipids
- Uses: Live food for fish, enrichment for aquariums

Blood worm (*Chironomus* larva)

The intermediate stage of the midge fly (*chironomus* sp.) is commonly called as blood worms. These worms are ideal live food source to all varieties of ornamental fishes.

The Chironomid fly normally lays about 2000 eggs at a time in any substratum of the stagnant water and such eggs hatch out in the presence of sunlight in a period of about three days. The larvae attain the optimum size in about 15-20 days, when they are ready for feeding fishes. These worms could be collected from the wild waters rich in organic nutrients by disturbing the mud bottom. The larvae of Chironomus feed on phytoplankton like *Nitzschia sp.*, *Navicula sp.*, *Chlorella sp.*, *Chlamydomonas sp.* etc.

Tubificid (*Tubifex tubifex*)

The tubificid worms are annelids which normally dwell inside tubular cases. They are common in sludge banks or silty shores of aquatic areas rich in nutrients. As they are available throughout the year, the supply is not restricted. As *Tubifex* contains n3 and n6 fatty acids, it is an ideal live food source especially for brood fishes

Tubifex worms are often cultured as a nutrient-rich food source for aquarium fish. Here's a basic culture method:

- Use a container with mud or substrate and water
- Add *Tubifex* worms and feed with organic matter (like vegetable scraps or commercial feed)
- Maintain aerobic conditions and monitor water quality
- Harvest worms by rinsing them out with water
- *Tubifex* worms thrive in low-oxygen environments, but need some water flow
- Regular water changes help maintain culture health
- Be cautious with wild-collected worms due to potential pathogens

Micro worms

The Micro worms belonging to the species *Anguilla silusidae* are white tiny nematode worms which also serve as an important live food for ornamental fishes. In ornamental fishkeeping, microworms are a nutritious live food for fry (baby fish) or small species. They are:

- Rich in protein and nutrients
- Easy to culture at home
- A great alternative to brine shrimp

Basic method:

- Mix oatmeal or wheat flour with water to create a paste
- Add microworms (available online or from an aquarium store)
- Keep at room temperature (around 20-25°C)
- Feed with a small amount of oatmeal or yeast weekly
- Harvest by rinsing with water

Feeding

Algae which grow around the stones and in water serve as a good feed source for cichlids, sword tails, kissing gourami and mollies. Live protein-rich foods such as cyclops, daphnids, rotifers, tubificid worms, artemia nauplii, chironomid larvae, mosquito larvae etc., are considered excellent. Fresh foods such as chopped earthworm, shrimp, fish paste, scraped boiled fish or raw liver also constitute good feed items. Artificial pelleted fish feeds suitable for feeds aquarium fish are easily available from the requisite shops. Dried prawns are powdered to which white and yellow of egg are added and the entire mixture is made into a paste with little salt. This is then pelleted through a hand pelletiser and dried in shade. Such pelleted foods may be stored and used whenever required.

A feed-ring is a ring-shaped material for confining dry feeds within the ring, avoiding dry feeds within the ring, avoiding its spread all over the surface of water. It also helps in allowing the feed, to fall at the bottom in only one place. Cup- shaped feeding device is used for tubificid worms. It is always better to feed the aquarium fish with different kinds of feeds. As far as the feeding is concerned, “feed little but often” is the best maxim. Fish may be fed once or twice a day according to their preference and satiation. A demand feeder may be used to avoid wastage of feed and water quality. It is also worth mentioning here that it is not at all a problem to maintain ornamental fish without food nearly for two weeks especially in home aquarium.

Excess food and detritus may be removed 30 minutes after feeding by siphoning out with a rubber tubing. If the sides of the tank are found with algal deposition, the same may be scraped by an aquarium scraper, which is a long handle with a clip at one end for fixing a razor blade. In the case of the tanks with biological filter, it is necessary to rake the gravel bed periodically to liberate the unwanted gases and ensure a continued water flow.

The dietary requirements of aquarium fish are different from those of food fish. A diet for aquarium feeding should be nutritionally balanced, palatable, resistant to crumbling, water stable and inexpensive. A well balanced diet besides yielding higher growth also provides the nutrients necessary to hasten recovery from diseases or help the fish in overcoming the effects of environmental stress.

Balanced diets for aquarium fishes

The diet of fish should normally have protein, carbohydrate, fat, essential aminoacids, vitamins and minerals in right proportions so that, it meets the daily energy and nutrients to support the maintenance and growth of fish. While the carbohydrate is the chief energy yielding substance, much of the protein is converted into flesh during the growth of the fish. The following table shows the utilization of feed by an aquarium fish during its metabolism.

The pellet feeds are prepared by pressing the dough mix through a pelletizer. The wet pelleted feed is dried in an hot air oven or room to remove the moisture. The prepared food should have only less than 10% moisture content and its shelf life should be more than six months.

Over feeding

Over feeding is the most common mistake made by beginners. Overfeeding causes extra food to rot on the bottom and pollute the water. The pollution caused by decaying food can be harmful to the fish.

The most common symptom of over feeding.

- 1) Cloudy water.
- 2) White mold-like growth on the gravel (or) plants, high ammonia level.
- 3) Small “gooey” pieces of debris are seen when gravel surface is agitated
- 4) If your suspected there is extra food delaying in the tank does a partial water change by siphoning 25% of the water from the bottom of the tank. Use the siphon to pick up as much debris from the gravel surface as possible.

Conclusion

Effective feed and feeding management is crucial for the health and growth of aquatic species. Providing nutrient-rich food sources (like live foods or formulated feeds) Optimizing

feeding schedules and rates. Monitoring water quality and adjusting feeding accordingly. Minimizing waste and reducing environmental impact.

Reference

Dawes, John (1991). Live bearing fishes-A guide to their Aquarium care, *Biology and classification Blandford*. ISBN-0-7137-2152-9

Dawes, John (1998). The concise encyclopedia of popular freshwater tropical United Kingdom, ISBN-0-75252-4976

Santhakumar.R., N.V.Sujathkumar., I.Vasudhevan and K.Veerabhadran 2007. Manual on freshwater ornamental fish culture, Dep. of Fisheries Extension, Fisheries College and Research Institute, Thoothukudi, TANUVAS.pp.1-47

Vasudhevan.I. *et al.* Live Jewels Breeding and Management Techniques (LJBMT- 2012) Vivekananda College, Agasteeswaram, Kanyakumari on 12th October 2012. pp. 1-181. ISBN -13-978-93-80819-12-9

Vasudhevan. I and R. James. Manual on Freshwater ornamental fish culture (English), Vivekananda College, Agasteeswaram, Kanyakumari on 12th April 2015. Slide.1-166

Charlon, N. and Bergot, P. (1984). Rearing system for feeding fish larva on dry diets: Trial with carp (*Cyprinus carpio* L.) larvae, *Aquaculture*, **4**: 1-9

Degani, G. and Gur, N. (1992). Growth of juvenile *Trichogaster leerii* on diets with various protein levels. *Aquacult. Fish. Manag.* **23**: 161-166.

Degani, G., Horowitz, A. and Levanon, D. (1985). Effects of protein level on impurities, diet, density, ammonia and O₂ level on growth of European eel *Anguilla anguilla* (L). *Aquaculture*, **46**: 193-200.



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