

BREEDING OF LIVE BEARERS AND EGG LAYERS

CHAPTER 1: LIVE BEARERS AND IT'S BREEDING

8.1.1 Introduction

Livebearers are fish that bear live young ones. There are two types of livebearers: ovoviviparous, where the eggs form and hatch within the female before birth; and viviparous, where no eggs are formed, and the young are nourished through an umbilical-like cord or from secretion by the female. Livebearers are generally prolific and are easily bred.

The important live bearers are guppy, molly, swordtail and platy.

8.1.2 Maturity

Usually live bearers mature between 4 and 6 months. However, guppy and platy may mature even within two months.

8.1.3 Sex identification

Male	Female
Smaller	Larger
Brightly coloured and attractive	Dull coloured
Fins especially dorsal and caudal fins are longer	Comparatively smaller
<u>Belly</u> region is flat	<u>Belly</u> region is bulged
<u>Anal fin</u> is modified into gonopodium which is a rod or tube like structure	<u>Anal fin</u> is normal in shape.

8.1.4 Conditioning

Before placing the parent fishes together for spawning, they should first be conditioned. Conditioning is feeding the fish with a variety of healthy foods to make them attain suitable condition for spawning. Many species may be conditioned using a well-balanced flake food, though others may be conditioned with live foods such as brine shrimp, insect larvae, and earth worms. The parent fishes should be separated while conditioning. Such fishes when reintroduced, will ready to spawn.

8.1.5 Breeding of live bearers

In live bearing fish, the eggs are situated in the egg duct where they are fertilized. Upon hatching, the fry are not immediately delivered, but they remain in the safety of the mother's body until they reach a stage of development equivalent to the young of egg layers that have absorbed the yolk sac and become free swimming. The ideal temperature must be 27°C.

As the male matures, the anal fin becomes more pointed and straightened into a rigid tube like projection, which is called gonopodium. The gonopodium is carried normally close to the body and pointing rearwards. However, it is a mobile organ and can be angled in almost any direction. The males court the females with their fins erect and they chase the female until the opportunity presents itself for a lightning thrust of the gonopodium. The female is fertilized by the nearest touch of the gonopodium on her vent, and one fertilization will last for several broods. Unlike the male, the female has normal analfin. Females can have upto eight broods from one fertilization therefore it is unnecessary to remate after the first brood. The period of gestation is being constant for every species. Females about to give birth are said to be ripe. This condition can be determined by the appearance of the dark, crescent shaped area in the female body close to the vent known as the gravid spot, which is accompanied by a general fattening of the belly when viewed from above. The eggs develop and actually hatch out inside the mother and leave her body as fully developed fish. The number of young in a brood is largely dependent upon the size of the female. Irrespective of the number in the brood the fry are approximately all the same size at birth. Livebearers are notorious cannibals; they will devour their young ones as soon as they are born. This can be prevented by having an abundance of cover for the young ones in the form of bunched fine leaved plants, or to use a breeding trap, which

restricts the female to a small part of the aquarium, but allows the fry to escape into the wider reaches of the breeding tank.

The preparation for the breeding tank is simple. It need not be too large for most species, and should be filled to a depth of about 8" (20cm) with matured water and the temperature is raised to about 25oC. The tank should be well stocked with fine leaved plants. Once the female has given birth to the full brood she can be removed. Instead of plants, nylon knitting wools can also be used. Handling livebearers when they are near the time to delivery can cause premature birth. Premature babies have not completely absorbed their yolk sac, which can be seen attached to their bellies. Livebearers normally kept in a community aquarium tank will breed indiscriminately, and will often crossbreed between similar species. If the aquarist is interested in obtaining a particular colour strain or any other feature for that matter it is imperative that the sexes are housed separately.

8.1.6 Number of young ones

The number of young ones i.e. brood varies from fish to fish and also it depends on the size, feed given and tank environment. In an average 20-40 young ones can be expected.

Guppy maximum 100 numbers

Platy maximum 50 numbers

Molly maximum 100 numbers

Swordtail maximum 200 numbers.

After 2-3 days the female again becomes pregnant even without the contact of male. The sperm transferred during first mating is stored in the female body and when eggs are formed the sperm will join with eggs and form young ones. Thus by single mating young ones can be released 8-10 times. In a year it is possible to get young ones 10 times from one female.

8.1.7 Feeding of fry

Baby fish i.e. fry can swim and eat from the moment they are born. It accepts infusoria, finely crushed dried food, brine shrimp nauplii, etc.,

BREEDING OF EGG LAYERS

CHAPTER 1: TYPES OF BREEDING

9.1.1 Introduction

The majority of aquarium fish are egg-layers with external fertilization. Egg-layers can be divided into five groups: egg-scatterers, egg-depositors, egg-burriers, mouth-brooders, and nest-builders.

9.1.2 Egg-scatterers

These species simply scatter their adhesive or non-adhesive eggs to fall to the substrate, into plants, or float to the surface. These species do not look after their brood and may even eat their own eggs.

These fish spawn in groups or in pairs. Often there is a large number of the small eggs laid. The fry hatch quickly.

9.1.3 Egg-depositors

These species deposit their eggs on any of the substrata such as a tank glass, wood, rocks, plants, etc. Egg depositors usually lay less eggs than egg-scatterers, although the eggs are larger.

9.1.4 Egg-burriers

These species usually inhabit waters that dry up at some time of the year. The majority of egg burriers are annual Killifish, which lay their eggs in mud. The parents mature very quickly and lay their eggs before dying when the water dries up. The eggs remain in a dormant stage until rains stimulate hatching.

Mouth-brooders: species that carry their eggs or larvae in their mouth.

9.1.5 Mouth-brooders

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9.1.6 Nest-builders

Nest builders build some sort of nest for their eggs. The nest is usually in the form of bubble-nest formed with plant debris and saliva-coated bubbles (labyrinth fish, catfish), or a excavated pit in the

substrate (cichlids). Nest builders practice brood care.

CHAPTER 2: SETTING UP OF SPAWNING TANK

9.2.1 Conditioning of parent fish

Before placing the parent fish together for spawning, they should be conditioned. Conditioning is feeding the fish with a variety of healthy foods to get them in top condition for spawning. Many species can be conditioned using a well-balanced flake food, though others should be conditioned on live foods such as brine shrimp, insect larvae, and flying insects. The parent fish can be separated while conditioning. This way, when the fish are reintroduced, they are eager to spawn.

9.2.2 Spawning tank

Though some species readily spawn in the aquarium, the eggs or fry often do not survive because of predatory parents or other fish. Often the fry die because of unfavourable, water conditions. Many species that practice brood care will harm other tank mates in attempting to guard the eggs. Because of all these problems; most aquarists who breed fish use a separate spawning tank. The spawning tank should be like the hospital tank with protected heater so the fish are not burned; a slow-moving filter (sponge filter), so the eggs or fry are not sucked up; and good aeration. Depending on the spawning method, the spawning tank can be set up in a number of different ways.

9.2.3 Spawning tank set up for egg- scatterers

Because egg scatterers often eat their own eggs, the spawning tank has to be set-up so the eggs fall out of the reach of hungry parents. A 25-50 litre tank is sufficient for spawning of most egg scatterers. For egg scatterers like barbs and danios, which lay non-adhesive eggs, the spawning tank can be furnished with a substrate consisting of two layers of marbles or a nylon netting just above the tank floor. As the eggs are laid, they fall through the marbles or the netting out of the reach of the parents. After spawning is over, the eggs or the parents can be removed. For egg scatterers that lay adhesive eggs like tetras, the spawning tank should be furnished with a substrate. The tank should be planted with fine-leaved plants. The eggs are laid amongst plants, and adhere to the fine-leaves. The parents should be removed after spawning.

9.2.4 Spawning tank set up for egg-depositors

Depending on the type of egg depositor, the tank should be furnished differently. For those egg-depositors that care for their young, the parents can remain in the tank after spawning. Substrate spawners, depending on the species, should be given tanks with furnished glass panes, broad-leaved plants, or flat stones as spawning sites. Some species such as Discus and Angelfish prefer vertical surfaces. For cavity spawners, flowerpots turned on their side, coconut shells, and rocky caves are suitable spawning sites. The tank should be furnished with either live or plastic plants to give the fish a sense of security.

Breeding of Goldfish

Breeding of Angelfish

refer ecourse diagram

9.2.5 Spawning tank set up for egg- burriers

A peat-moss substrate is one of the best substrates for egg-burying species. The peat moss can be removed after spawning and placed in a plastic bag to be stored for weeks to months (depending on the species). A new peat moss substrate can be placed in the tank for further spawning. In order to initiate hatching, the stored peat can be immersed in soft water.

9.2.6 Spawning tank set up for mouth-brooders

Ovophile mouth-brooders can be bred in the main aquarium because the eggs are protected in the mouth cavity. However, it is better to separate mouth-brooders with eggs because of their potentially aggressive behavior. There are no special breeding tank requirements other than the usual tank set-up for the species. Larvophile mouth-brooders should be placed in a breeding tank because the eggs are not protected in the mouth, but laid on a surface.

9.2.7 Spawning tank set up for nest-builders

Nest-builders should be provided with material with which the nests are build. For bubble-nest builders, fine leafed and floating plants should be provided, species that build nests in the substrate should be given fine gravel or sand.

9.2.8 Stimulating spawning

One of the best ways to induce fish to spawn, especially difficult-to-spawn species, is to simulate natural conditions. Among factors that encourage fish to spawn are the environment, the food, and the rainy season.

9.2.9 Water conditions

The right water conditions are among the most basic requirements in spawning fish. Thus the water conditions should be similar to those in the natural environment of the species. Another important environmental conditions is the right tank set-up including hiding places, spawning sites, lighting, water current, and social conditions (schools).

9.2.10 Food

The right foods are important to encourage spawning. Without proper foods, natural conditions cannot be entirely recreated. Some of the live foods that often can make a difference in spawning success are earth worm, mosquito larvae and fruit flies.

9.2.11 The rearing tank

A rearing tank is not required with species that take care of their young, although they are still recommended. For species that do not take care of their young, the rearing tank can be the same tank as the spawning tank as long as the parents are removed. The rearing tank should have a protected heater, a sponge filter and plastic or live plants. In addition, three of the tank sides should be covered with black paper, because a light can encourage fungal infections and cause discomfort for the fry. The water in the rearing tank should be similar to the water used for spawning.

9.2.12 Raising the fry

When the eggs hatch, the larvae that emerge look nothing like the parent fish. Instead, the larvae have a large, yellow yolk sac and are barely able to move, let alone swim. The larvae will feed off the egg sac until all the yolk is gone. Once the yolk sac disappears, the hungry fry will begin to look for food. The fry of small fish can be first fed infusoria, “green water,” or egg yolk. Later these fry can be fed larger foods like whiteworms, [Daphnia](#), [Artemia](#) nauplii, and ground flakes. These foods are good for slightly larger fry such as those of cichlids. Once the fish grow larger, larger foods like brine shrimp, larger [Daphnia](#), flakes, insect larvae, and chopped [Tubifex](#) worms are accepted. 25-50% of the water in the rearing tank should be changed daily. Be sure that the “new” water added has characteristics like the water taken out, because fry are more sensitive to sudden changes in the water. The fry should be fed several times a day. Many species need periodic sorting by size, so that larger fish do not cannibalize smaller fish. With favourable water conditions, regular water changes, and generous feeding, the fry should grow quickly. Unhealthy and deformed fish should be removed.