

PISCES

PET EMPORIUM



Photo by Pisces Pet Emporium

Aquarium Plants

Live plants create a more natural looking tank, while providing valuable hiding spots and breeding spaces for fish. Plants produce oxygen, and use up fish waste products, contributing to a healthy, natural ecosystem.

Lighting: For optimum plant growth, a multi-bulb fixture that will provide a minimum of 2-3 watts per gallon is preferable. Deeper tanks (>24") should have 3 watts/gal or better. While 6700K bulbs are ideal, you may use a combination of bulb spectrums such as LifeGlo, PowerGlo, or AquaGlo to enhance both plant growth and fish color. Change your bulbs every 6-8 months to ensure spectrum integrity. Lights should be on for 10 -12 hours per day. Do not rely on natural sunlight to illuminate the tank, as this often results in excess algae growth at the expense of your plants.

Lighting is considered one of, if not the most important element needed for growing plants in an aquarium. Modern LED lights such as those in our 32-gallon Flex will provide the full light spectrum essential for your plants to thrive. Though LEDs are now more common due to their controllability and longevity, a mixture of **6700k bulbs** and **10000k bulbs** may also be used.

Full spectrum LEDs provide the photosynthetic active radiation otherwise called PAR that plants use for photosynthesis. PAR can be measured at different locations in your tank using a PAR meter such as the Seneye, which will guide the placement and care of your plants. The 32-gallon Fluval Flex The 32-gallon Fluval Flex set up comes with the **Fluval Bluetooth Aquasky Light** included.

The 15 & 9-gallon Fluval Flex include **7500k Aquarium Lights** ready for plant growth.

The Fluval Flora Planted Aquarium Kit includes the **Fluval Bluetooth Plant Spectrum LED Light** whose PAR output ranges between ~ 350 nm - 750 nm.

Nutrients: As well as consuming nitrates from fish waste, plants need additional supplements such as nitrogen (N), potassium (K), and phosphorous (P). Many comprehensive PNK fertilizers are available, dose according to bottle recommendations. Plants with red colored leaves also require iron to maintain their vibrancy. When iron is being used, a test kit must be used to monitor levels in the tank, as overdosing can be toxic to fish. Fertilizers can also be added in tab form. Bury these pellets directly in the gravel around the plant root system to boost nutrient availability to fast growing or struggling plants.

Filtration: All aquariums require a 3-stage filter to maintain water quality (See Freshwater Aquarium care sheet for more information). Plants assist the natural filtration in the tank and support the biological cycle of the aquarium by consuming more nutrients. Avoid using under- gravel filtration systems, as these may interfere with the root development of plants. ****A new tank is biologically sterile when first set up, and can take 4-6 weeks to become fully established. Pisces recommends: Tank Buster nitrifying supplement to boost bacteria.**

Aeration: Bubbler systems can be used in a planted tank, especially when there is a greater fish load. Use caution, as excessive aeration may counteract the use of CO₂ systems. Plants produce oxygen during photosynthesis, and water agitation from the filter also helps contribute to proper gas exchange.

CO₂: This element is often neglected in most planted aquariums. Plants consume the CO₂ produced by fish and bacteria in the tank, but these levels may not always be adequate for optimum plant growth. Adding CO₂ will increase color, growth rate and size of the plants in the aquarium. CO₂ can be injected using fermentation or pressure canister style systems. Each type of system should have a regulator to ensure the proper release rate in the tank. Be sure to include a pH monitor when using any CO₂ system, as rapid build up can negatively affect pH. Flourish Excel is a liquid CO₂ supplement that is occasionally used to destroy hair algae. Do not use this product with grassy plants such as Sagittaria and Vallisneria.

The addition of CO₂ to the planted aquarium will greatly improve the growth of the plants. CO₂ can be added by installing a CO₂ system to the aquarium. For our 32-gallon tank we will use the Fluval CO₂ 45g pressurized kit. For larger aquariums, the hobbyist can set up larger CO₂ units. Always monitor your pH. If too much CO₂ is added your pH in the aquarium can fall to unsafe levels.

Other options of adding CO₂ are yeast-based systems. Although yeast-based systems will work they are messy and less reliable in their consistency of the delivery of CO₂. There are also liquid bio absorbable forms of carbon that plants can use. For larger planted aquariums Pisces Pet Emporium recommends the use of a CO₂ regulator with a pH monitor. You will also need to add a CO₂ diffuser system.

Substrate: Gravel or plant substrate is added to a depth of 1-3 inches, or approximately 1-2 lbs per gallon of water. Grain size should be between 3-5 mm, and non-epoxy coated. Sand should primarily be used as an accent or decoration within the tank. Sand compacts over time which can suffocate the plant's root system.

Gravel should be 3mm – 5mm in size and 1" – 2" deep. Underneath the gravel, a thin layer of Flourite ¼" deep is recommended. Seachem Flourite is an excellent choice as it holds and provides nutrients better than regular gravel. Flourite has a shorter nutrient retention lifespan than soil and like gravel, should be supplemented with root tabs. Most gravels offered for sale will not alter the pH of the water.

Tropica Aquarium Soil is a complete bottom layer that does not require any other type of preliminary substrate or powders. Though effective at delivering nutrients it can alter the water chemistry within your tank. Make sure to allow your tank 4-6 weeks to cycle with 25% water changes twice weekly. Tropica Aquarium Soil Powder though like aquarium soil is primarily used for foreground plants or groundcovers due to the smaller grain size.

Choosing Plants: Some plant species are easier to grow than others, due to differing light and nutrient needs. Here is a list of common plants and their difficulty levels.

Easy to Grow:

Anubias*
Cryptocoryne*
Java Ferns*
Hygrophila

Medium Difficulty:

Echinodorus (Swords)
Vallisneria
Hornwort*
Elodea
Most bulbs*

Harder to Grow:

Rotala
Cabomba
Lilaeopsis
Sagittaria
Glossostigma
Alternanthera

Plants marked with an * are also generally not readily eaten by fish.

Choosing Compatible Livestock: While most fish do well in a planted tank, some species are more likely to damage or eat plants. These include: Goldfish, Koi, Plecos (except Bristlenose), Crayfish, all African & large South American Cichlids, Livebearers (such as Guppies, Platies, Mollies, and Swords), Severums, and some Snail species. Avoid species such as Pacus, Silver Dollars, and large Barbs (such as Tinfoil and Cummings).

Important Tips:

- Avoid using copper based medication treatments, and excessive amounts of salt in your planted aquarium, as these substances can harm plants with long term use.
- Remove the baskets and collars surrounding newly purchased plants, before transplanting into the aquarium. If left on, these may result in plant death.
- Remove 10-25% of the aquarium water every week, and replace with fresh treated water. While plants use up some of the nutrients as they are broken down, a regular maintenance schedule should still be kept to prevent excess build up. Use caution when using a gravel vac so not to damage plant roots.
- Use CO₂ systems that are appropriately rated for the size of your tank. Failure to do so can result in fish loss due to pH fluctuations.

Recommended Books: This care sheet is designed to provide you with some basic information on your new aquarium plants. To learn more about how to care for your aquarium plants, Pisces recommends: *The Mini Encyclopedia of Aquarium Plants* by Barron's Books.

Recommended Supplies:

- | | |
|---|---|
| <input type="checkbox"/> Plant books | <input type="checkbox"/> CO ₂ System |
| <input type="checkbox"/> Plant fertilizer | <input type="checkbox"/> Plant substrate |
| <input type="checkbox"/> Planting tongs | <input type="checkbox"/> Pruning tools |

Your New Aquarium: It is the responsibility of any aquarist to provide their tank with regular maintenance to ensure optimum water quality and to prevent plant loss.

Should you experience any problems with your new tank, please contact staff at Pisces Pet Emporium. We will make every effort to assist you, but we cannot be held responsible for any fish or plant loss.

A tank is a large responsibility and should not be purchased without due consideration. Fish, plants and invertebrates should never be released into the wild.



4921 Skyline Way N.E.
Calgary, Alberta T2E 4G5
Phone: (403) 274-3314 Fax: (403) 275-6296
www.piscespets.com
Email: pisces@piscespets.com

Reprint of this handout only with permission of and full credit to
Pisces Pet Emporium