

## Plant Basics

The most successful aquariums rely on the creation of an ecosystem that is as close to nature as possible and in nature, an essential element of healthy and sustainable ecosystems is healthy plant growth. In an aquarium, healthy plant growth helps maintain water quality (by absorbing nitrates and other toxins), produces clearer water by reducing unsightly algae (by robbing algae of nutrients), gives shelter to fish (reducing stress), and provides some fish with essential nutrition. By following a few simple rules relating to the provision of light and nutrients, you can maintain healthy aquatic plants and have an attractive, sustainable and manageable aquarium.

### **Substrate**

A high quality plant growing substrate provides nutrients and stimulates root growth. There are many substrates on the market that can be used alone or laid under gravel. B.A. Laterite is an inexpensive but highly effective under-gravel substrate which is rich in iron and ideal for sword plants, stem plants and grasses. If you wish to supplement an existing or depleted substrate, long-term, slow release products can be inserted directly into existing substrates.

### **Heating Cables**

Are installed under the substrate and ensure distribution of nutrients and oxygen to roots through convection currents that imitate natural ground currents for optimum plant growth.

### **Nutrients**

As thriving aquatic plants consume the nutrients and trace elements that are available in the aquarium water within a few days, the regular addition of high quality liquid fertilizers is necessary. B.A. recommends the Seachem range which is not only economical and extremely effective, but caters to a range of specific requirements.

### **Lighting**

Plants that do not receive enough light will turn brown and die. In this situation adding fertilizers will only produce more algae. Direct sunlight is not sufficient for most plant growth and causes 'green water' algae. Healthy plant growth and algae control requires specialized artificial lighting. While most 'standard' or 'daylight' aquarium tubes offer light with a kelvin (colour temperature) that highlights natural fish colours they do not target plant growth. Specialised plant growing tubes offer light with a kelvin that specifically stimulates plant growth. The combination of both 'plant growth' and 'standard' aquarium tubes provides both lush foliage and natural fish colours. The amount of light required is dependent on the types of plants you wish to grow as well as the width and depth of your aquarium (see B.A. staff for further information). The use of a timer will regulate the light hours and establish a regular day/night cycle. Tubes should be replaced every ten to twelve months as light quality deteriorates as tubes age.

### **Fluorescent tubes**

The most economic and popular form of aquarium lighting. Tubes are available in T8 (normal thickness) and T5 (thinner) tubes. T5 high output tubes are recommended by B.A. as they are more effective than T8 tubes but they must be high output as T5 standard output tubes can be less effective than T8 tubes.

### **Metal Halides**

The ultimate in outstanding aquarium plant growth, quality units are not cheap to purchase or run. In order to disperse light and heat radiation they must be hung or mounted a minimum of 30cm above the aquarium.

### **CO2 Injection**

In addition to quality lighting, dissolved carbon dioxide levels can be supplemented to improve plant growth using direct injection of carbon dioxide bubbles from an aquarium CO2 reactor. For the dedicated plant grower these devices are a must.

*Feel free to contact the friendly staff at Boronia Aquarium for further information*

To achieve healthy plant growth we recommend:



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