Fish Vitamins & Pond Plant Supplement Overview

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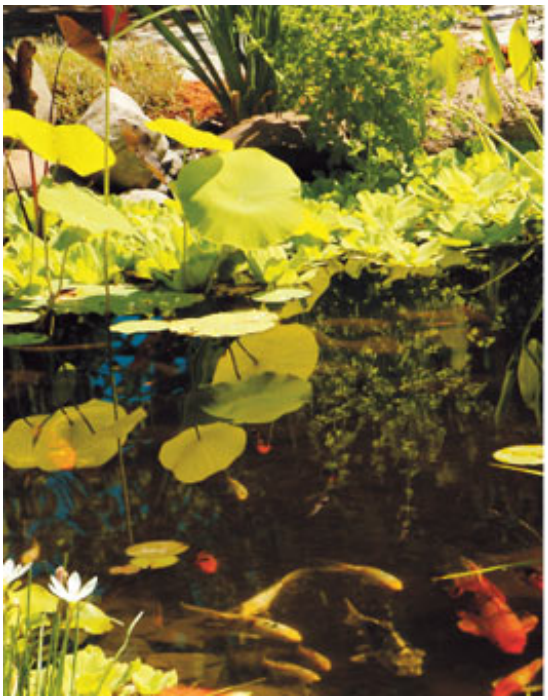

improve fish & plant health with SUPPLEMENTS

Maintaining a healthy pond depends on preserving a stable environment. This includes conditioning the water so your pond inhabitants are thriving and at their best.

While mechanical filtration or UV sterilization work well to clean your pond, there will be a time when your aquatic life may not be as healthy as you like and this is when additives such as vitamins or minerals may be needed.

Fish Vitamins

Used mainly to improve vitality, vitamins are especially a boon for koi, which is why so many vitamin supplements are marketed toward koi keepers. Vitamins can improve the health of other cold water fish as well and, in fact, positively affect the same conditions that they do in koi.

Vitamins are essential for normal growth and metabolism. Requirements increase during spawning. Their functions and consequences of vitamin deficiencies are as follows:

- **Vitamin A:** Important for skin and vision, a deficiency of Vitamin A may cause poor growth and/or blindness.
- **Vitamin E:** Found in wheat germ, Vitamin E is an antioxidant, which improves functions of all body mechanisms. A deficiency of Vitamin E can cause disorders of the bone and fatty degeneration of the liver.
- **Vitamin K:** Aids in blood clotting; a deficiency may cause an excessively long blood clotting time, which can interfere with healing. Too little Vitamin K can also lead to anemia.
- **Vitamin B-complex:**
  - *Thiamin (B1):* Aids in nerve function, digestion, and reproduction. A lack of thiamin may cause skittishness, poor coloration, and paralysis of the fins.
  - *Riboflavin (B2):* Aids in absorption of oxygen in tissues with a poor blood supply. Deficiencies can cause cataracts, sensitivity to light, and bleeding from the nostrils and gills.
  - *Niacin (Nicotinic Acid):* Aids greatly in growth. A lack of this vitamin causes stunting.
  - *Choline, Pantothenic Acid (B6), and Pyroxidine:* All three of these vitamins are essential for the proper metabolism of carbohydrates, fats, and proteins. Too little of these vitamins cause problems ranging from lack of appetite to reduced growth to internal hemorrhaging.
  - *Folic Acid and Cyanobalamin (B12):* Both of these vitamins are important for blood cell formation; deficiencies can cause anemia and lack of appetite.
- **Vitamin C:** Another valuable antioxidant, Vitamin C is essential for the development of cartilage and collagen. A

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deformed spine and gills as well as internal hemorrhaging are consequences of insufficient Vitamin C.

Plant Minerals

The minerals that help plants to thrive are often incorporated in the food or fertilizer that you give your water plants. Minerals such as potassium, manganese, and copper, in the correct amounts, help plants absorb essential nutrients from the water, and also can help to clarify the pond.

Plant mineral combinations such as Lily Grow Aquatic Plant Supplementis formulated to encourage growth, promote coloring, and increase propagation. Make sure any additives that you are putting into your pond are nitrate- and phosphate-free.

As you can see, vitamins and minerals are essential for all life in your pond, whether plant or animal. The premium foods that we sell contain a good balance of vitamins and minerals. If you suspect, however, that your pond inhabitants are not getting enough of these nutrients, products such as Koi Vital and Lily Grow Aquatic Plant Supplement, can help get your pond inhabitants and plants and their environment back on the right track.

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