

ALGAE AND POND BALANCE

There are many methods to achieve biological balance and algae control in a pond. Factors in controlling algae:

- Proper amount of plant material to shade 50-70% of surface.
- Sufficient oxygenators to remove excess nutrients in water.
- Eliminate runoff from sprayed or fertilized lawns or gardens.
- Proper balance of types of plant materials.
- Proper number and size of fish for size of the pond.
- Do not overfeed fish.
- Remove organic debris from water.
- Minimize water changes.
- Filters
- Barley straw
- Beneficial Bacteria

Please see the *#5 Water Gardens: Algae Control and Pond Balance* care sheet for detailed information.

FISH AND SCAVENGERS

Fish and scavengers are an important part of creating biological balance in a pond. Scavengers (snails, tadpoles, etc.) eat decomposing plant material, excess fish food and some multi-celled algae. Fish eat mosquito and other insect larvae and some algae. Too many fish in the pond will deplete oxygen, add ammonia and excess waste products to the water. You should have no more than 1 to 2 inches of fish for every 5 to 7 gallons of water in a pond. Figures should be based on the size of the fish at maturity. Common goldfish need very little care. Koi must be fed regularly, need better filtration and may outgrow a small pond.

INSECT AND PEST PROBLEMS

Aphids and the China Mark Moths are the most common pests of water garden plants. Aphids are small round insects ranging in color from green to black. Aphids can be hosed off plants and into the water so fish will eat them. They can also be rubbed out by hand. Natural predators such as Lady Bugs or Lacewings can also be introduced to control aphid populations. Insecticidal Soap may be used in moderation if fish are present. Other insecticides can be used, if no fish are present, as a last resort.

China Mark Moths are most destructive on Water Lilies. They will cut off a small piece of leaf and form a cocoon on the underside, sandwiching themselves between the leaf and the piece they have cut off.

Before the moth pupates, it may float between two pieces of leaves it has cut. Inspection must be done on the underside of Lily leaves to identify the pest. They can be rubbed out by hand or treated with *Bacillus thuringiensis* (contained in Mosquito Dunks) which is a natural method of control for caterpillars.

Leaf-mining midges are small, mosquito-like insects that lay their eggs on the leaves of aquatic plants. Larvae are transparent and almost invisible. They tunnel into the leaves and eat the foliage between the veins, leaving visible trails. Pick off and discard any affected leaves.

Water Lily Beetles are small brown beetles that lay eggs on water plants. When the grubs hatch they mine the leaves. Remove affected leaves and hose down the remaining foliage. Also remove the dead stalks of marginals in autumn as this is where the Water Lily Beetle hibernates.

Mosquitoes will normally only lay their eggs in stagnant water so they are usually not a problem in ponds with pumps and fountains. Fish will also eat mosquito larvae. If there are no fish in your pond, mosquito dunks (a form of Bt specific to mosquito larvae) are a great natural control.

SEASONAL CARE

SPRING

- Clean out leaves and organic debris
- Place plants in pond or return plants to their proper shelf (see chart)
- Start feeding fish (see chart for water temperatures)
- Check and clean filter

SUMMER

- Fertilize pond plants
- Check for insect pests
- Remove yellowing Water Lily leaves
- Check and clean filter

FALL

- Cover pond with leaf netting
- Stop feeding fish (see chart for water temperatures)
- Clean out leaves and organic debris from pond
- Cut back plants
- Remove plants from pond or place on bottom of pond
(see *#6 Water Gardens: Winterizing* care sheet)

WINTER

- Use pond de-icer, pump or air stone to keep pond open for fish.