

Seasonal Requirements

Spring:

- The pond water should be partially changed and the decaying sludge, which has accumulated during the winter, should be siphoned off. It is important that this be done before the water warms significantly to minimize the annual spring algae bloom. Once the nutrient rich water at the bottom of the pond convectively rises, algae will flourish. Water changes performed after this has begun will enhance water quality but will not diminish the temporary green water problem.
- Service filters and pumps, removing any debris from the intake.
- Wash or replace filter media.
- Restart pumps and filters.
- Clean the U.V. clarifier sleeve, replace the bulb and turn on the clarifier.
- The fish will begin looking for food when the water temperature is consistently above 45 degrees. Feed sparingly at first until it is obvious that they are hungry. Then they can be given as much as they are prepared to take, as their resistance to disease following winter's dormancy will be at its lowest level. *It is important that the food offered in early spring be of a high carbohydrate, low protein formula to aid digestion.*
- Check closely for signs of disease, parasitic, bacterial and/or fungal. Symptoms of parasites will include "flashing" or scratching against the bottom or sides of the pond and/or gasping at the surface of the water. Where there are fish, there will always be parasites. Healthy fish are able to support a small number of parasites without suffering any ill effects. Bacterial infections will be evidenced by hemorrhaging (blood red streaks) particularly in the fins and/or tail. Fungus will appear as white cotton-like patches on the body. Most bacterial and fungal infections are secondary infections and are usually related to water quality.
- A treatment against parasites that are already established and multiplying in your pond will help reduce their numbers, giving any fish that have been weakened by the stress of Winter a chance to regain their strength.
- Raise water lilies to within 6 inches of the pond surface hastening the development of new growth.

Summer:

- With the pond water consistently 70 degrees or warmer you may begin adding pond plants.
- Water lilies may be divided and should start receiving slow release fertilizer pellets monthly according to manufacturer's instructions.
- You need to occasionally drain a substantial amount of water from the pond for a thorough cleaning and you will need to regularly replace water lost through evaporation. Algae flourish in mineral laden fresh water, so be prepared for renewed algae growth whenever you clean and refill the pond. In dry summer months when there is continuous water loss through evaporation, it is best to top off a pond every few days rather than top off in large doses so that algae bloom will be minimized. When you top off a pond an inch or less, the standing water dilutes the new water so that you can fill the pond directly from your garden hose without the use of de-chlorinator. *Whenever fresh water is introduced in large quantities, de-chlorinator must be used.* Please be careful! An unbelievable number of our customers have forgotten and left the water running the entire night, awakening to find all their fish dead from chlorine poisoning. Replacement water, which will be much colder than that in the pond, must be added slowly to prevent stressing the fish.
- Check and record water quality values (pH, ammonia, nitrite, nitrate and dissolved oxygen) weekly or whenever the fish exhibit apparent symptoms of stress.
- Clean the UV clarifier sleeve frequently.
- Keep pumps and filters serviced and running.
- Maximize water circulation, breaking the surface tension to increase gaseous exchange. Dissolved oxygen will be at its lowest levels during the summer, particularly prior to a storm.
- Blanket weed, if it becomes a problem, can be removed by inserting a broomstick into the mass and twirling it.
- Submerge water lilies 6 to 18 inches below the waterline.

Autumn:

- **The amount of dead foliage in the water must be kept to a minimum. As the foliage decays it produces gases which dissolve in the water and can be harmful to the fish. The necessity of oxygenating plants is over. Severely trim them back or discard them (this should be done no later than mid-September). Remove the spent blooms and leaves of hardy water lilies as they die off, finally trimming the lilies back to the crown and submersing them in the deepest part of the pond. When marginal plants are affected by frost, cut them down to the water level. Tropical plants should be taken indoors or disposed of. Spread a fine mesh net of plastic over the pond to prevent the collection of falling leaves.**
- **Feed the fish all they will eat to store up their reserves for the winter. *As in spring, the food should be of a high carbohydrate, low protein formula.* Discontinue feeding when the water temperature is consistently below 45 degrees.**
- **Change 1/2 to 1/3 of the pond's water, removing as much accumulated debris as possible.**
- **Provide a shelter for the fish. If the bottom of the pond is devoid of rock work, scatter some sections of 4 inch diameter PVC pipe. This provides a sense of security and a refuge from predators.**

Winter:

- **If all of autumn's tasks have been completed, winter is a comparative time of rest.**
- **Disconnect the UV Clarifier, drain it and take it indoors to prevent the sleeve and/or bulb from being broken by the formation of ice.**
- **Turn off waterfalls and fountains.**
- **The filter should be left running, but the pump should be raised off the bottom of the pond as warmer water, being more dense, collects there.**
- **The pond surface must be prevented from freezing over. If frozen over, gaseous exchange cannot occur and toxic gases accumulate in the pond eventually causing death. Freezing can be prevented by the use of thermostatically controlled deicers and/or mild aeration of water current. Should freezing occur, do not pound on the ice to create an opening. The concussion can cause serious injury or death to the fish. An easy solution is to place a metal container on the ice and fill it with boiling water, repeating the process until the ice has been penetrated.**