About Water Gardening

Information from the University of Illinois Extension Service

The sight and sound of water has always drawn the interest of people. Water adds an appealing element to a garden. Water gardens can include fountains, waterfalls, small ponds and elaborate combinations of rockwork and lighting. Basically, a water garden is just a pool of water that is home to plants and possibly fish and other water creatures. Natural ponds or large spaces are no longer needed for a water garden. They can consist of a concrete dish, half barrel, plastic tub or anything else that can hold water.

Perhaps the most important consideration in water gardening is to choose the right spot. Most aquatic plants and fish need plenty of sun, so a site that gets 6-8 hours of direct sun is best. Choose a site away from tall shrubs and trees for best light and to prevent the accumulation of leaf debris.

Plan your water garden using some basic principles. Consider the size of your property and the ability to maintain the water garden. Small ponds are best for small properties. A container on a deck may be all that is needed and add just the right feature for your space. Features like waterfalls, rockwork, lighting and fountains depend on your budget, style of your landscape, and purpose of the garden pond.

When choosing aquatic plants, keep in mind that the plants should cover no more than 50 - 60 percent of the water surface. There are many types to choose from. Some are free floating while others are marginals to submerged. Selection depends on the size of the pond and the kind of look you want. Water lilies can add drama and fragrance even in small tubs. Some plants provide oxygen and help keep the pool healthy. Fish can be a beneficial addition, because they are good scavangers, cleaning up debris. They also can help control mosquito larva, and other insects.

All garden pools regardless of size will need maintenance throughout the year. With proper planning you can ensure a healthy balance between living and decorative features of a water garden that can almost care for itself with simple maintenance inputs from you.

Aquatic Plant Selection

There are many types of plants available for use in a garden pool. Considerations such as water depth, amount of sunlight and how each species relates to its surroundings need to be taken into account when choosing plant material. Both floating leafed and submerged plants are needed for a healthy pond and need to be included in your selection. Water garden plants are called aquatic, because their life cycle revolves around water. Aquatics can be divided into three major categories: emergent, submerged and floaters.

Emergent plants are sometimes also called **marginals**. These plants are found along the edges of a pond where the roots are attached to the muddy bottom and portions of their stems are above the water. Common examples include cattails, iris and pickerelweed (see list of emergent plants for others). Further from the edge, between shallow and deep water, are other emergent plants where roots are attached to the bottom, but

have floating leaves above the water. Water lilies fall into this category. Bog plants are also considered to be marginals.

Though most are not grown for their flowers, some, like lotus and waterlilies, are extremely dramatic when in flower. Bog plants are available for those not able to locate their water garden in sufficient sunlight to support good plant growth. Some bog plants can tolerate as little as three hours of sun and still provide interest to the water garden.

Many bog plants grow in constantly moist to soggy soils, while others actually grow in standing water. There are many different species of bog plants with varying heights, textures and foliage colors that add height and drama to water gardens. Lotus, sagittarius, dwarf bamboo, iris, cattails, and sweet flag are some examples (see list).

Submerged plants are those that for the most part remain beneath the water surface. They are often referred to as oxygenators. These plants help combat algae by consuming excess nutrients while at the same time providing cover for fish and producing oxygen during daylight hours. Roots of these plants are not used for nutrient or water uptake, but only for anchorage. Because of this, many oxygenators may be potted in gravel. Submerged plants stocked at the rate of about one bunch per two square feet of water surface area. Caging these plants is sometimes suggested if the pond contains fish, which tend to forage on submerged plant foliage. (See list for suggested oxygenators.)

Floaters are not rooted in the soil, but are allowed to float freely above or below the water surface. Floaters enhance the display of water lilies and lotus as well as adding a finishing touch to the water garden. They are the "ground covers" of the pond world. They may be restricted by a framework to prevent them from moving around or allowed to float freely with the breeze. This produces an ever-changing look to the water surface. Some floaters are very prolific and may need to be kept in check by scooping out excess plants on occasion. Duckweed, water hyacinth, and water lettuce are examples. (See list for other floaters)

Planting Aquatic Plants

Gardening with aquatics is similar to other forms of gardening in that you have to be aware of proper soil conditions, kinds of containers, proper planting techniques, fertility needs, and after planting care. What makes water gardening unique is that the plants you grow are growing in a water filled environment. Things like water depth, water temperature and what to do with plants during the winter now become a consideration.

Soils for Aquatics

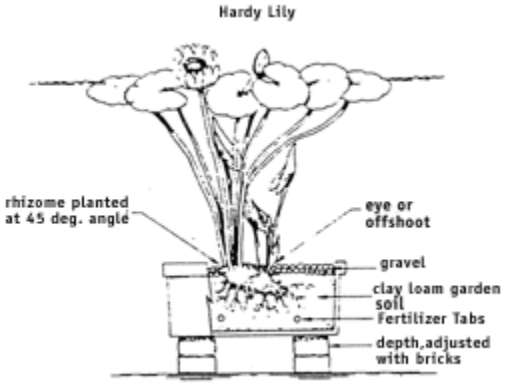
Water lilies, lotus, and other aquatic plants do best when they are planted in heavy clay loam soils similar to what you would have in a garden setting. These types of soils are generally well-balanced nutritionally and will support good growth. Commercial potting mixes or other artificial mixes are not used because they are too lightweight and do not hold nutrients for any length of time. So, contrary to other container gardening "rules" do not use an amended soil mix for potting aquatic plants.

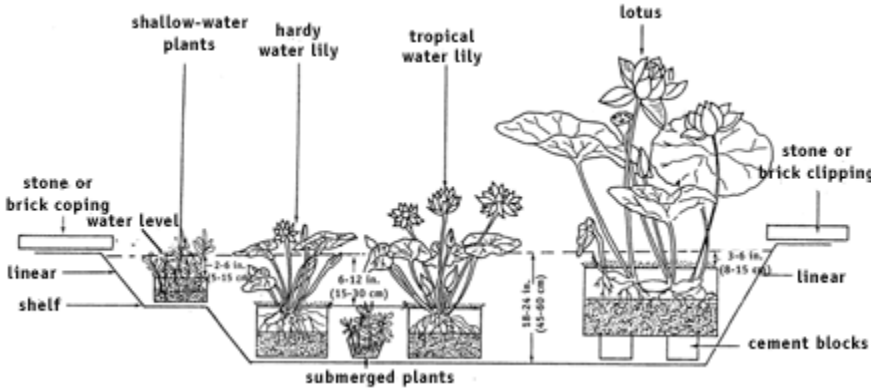
Containers

Most containers used for aquatics are chosen based upon the size of the water garden and the purpose. The size of the pool or pond dictates the size of the container and the types of plants that will be grown. For the most part, containers that are about 15 inches in diameter and 10 inches deep are suitable for hardy water lilies. When planting tropical water lilies, containers that are 20 inches in diameter and 10 inches deep will work well. For other types of plants, containers in the range of six inches to 20 are suitable. The choice will be made based on the plant and the fact that larger containers produce larger plants and smaller containers tend to keep plants smaller in size.

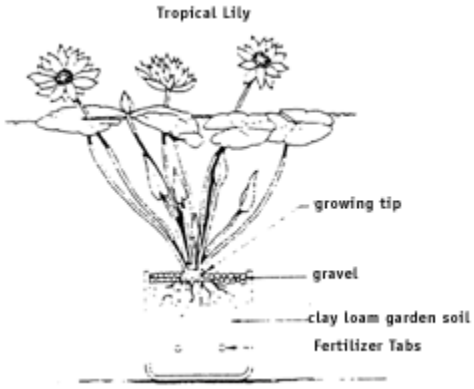
How to Plant Aquatics

Soil used for planting should be damp. Fill containers about two-thirds full of soil. For hardy water lilies, the rhizome should be placed so that the growing point is directed toward the center and at a slight angle. Look for buds or "eyes," similar to what would be found on a potato to determine which end is the growing point. This is done so that it can grow across the center of the pot. After the rhizome is in place, cover it with soil so that the growing point is just barely above soil level.





Tropical water lilies are planted much like hardy water lilies with one exception; they are planted in the center of the pot. Lotus is also planted in the center of the pot. Lotus rhizomes should be handled very carefully though, as they are very brittle and subject to damage. Lotus rhizomes are best planted in large containers and should be covered with about 2-4 inches of soil, keeping the growing tips above soil level.



Potting emergent and submerged plants is similar to planting other aquatics. Place some soil in the pot, center the plant and add soil to cover the roots. Another method that works well is to fill the container with soil, wet it thoroughly so it becomes muddy, and gently press the roots of the plant into the soil.

Once planted, the soil should be covered with a 1/2 to 3/4 inch layer of pea gravel. This will help prevent soil particles from clouding the water and will discourage fish from digging into the soil.

After planting, water thoroughly and carefully lower the containers into the pond at the proper depth.

Placing Plants in the Pond

Hardy water lilies will grow well at water depths of 12-18 inches over the top of the pot. The plant can be placed in the pot at an initial depth of six inches and then lowered to its final placement or 12-18 as the plant grows. If the pond is in full sun, the minimum amount of water over the top of the pot should be from 6-8 inches for the plant to grow well. If the pond is in the shade (less than six hours of sun a day), then six inches of water is sufficient in order for the growing tip to receive enough light. Tropical water lilies prefer to grow at water depths of 12 inches but will tolerate 6-8 inches of water. Lotus is usually grown with 4-6 inches of water over them while emergent water plants can be grown in soil that is constantly wet or with 2-4 inches of water over the top of them.

In order to conveniently adjust the water depth over the pots, bricks or inverted pots can be used as props under the plants to position them. As plants grow, the depth can be easily adjusted by adding or taking away supports.

Timing the Placement of Plants in the Pond

Hardy water lilies, lotus and emergent plants are tolerant of cooler water temperatures and can be placed in the pond when temperatures reach about 50 degrees. Tropical water lilies and some floaters cannot tolerate

cold temperatures and should not be placed in the pond until the water temperature reaches at least 70 degrees. Placing them out too early can cause dormancy, injury and restrict potential growth of the plant.

Fertilizing Aquatic Plants

Fertilizers contain minerals that are used by plants for growth and development. There are many factors that may determine the amount and type of fertilizer to use such as amount of sun, temperature, water, and type of plant. Each plant varies on its requirements. It should be noted that fertilizers are not used to correct cultural problems. So, if the environment is not right, the use of fertilizers will not help the plant. Also remember that overfertilization can lead to algae problems.

Generally, slow release tablets or granular fertilizers with an analysis of 20-10-5, 5-10-5, 10-6-4, or 12-8-8 are all acceptable. The recommended rate for water lilies and lotus at the time of planting is four ounces of fertilizer for every one cubic foot of soil mixed into the soil. After that, monthly applications can be made up until about August. Tablet forms of fertilizer are the most convenient to use as they can be pushed into the soil. Granular forms of fertilizer can be wrapped in some type of biodegradable paper such as a coffee filter to make application easier. These can also be easily pushed into the soil. Emergent water plants can be fertilized at planting and once at midseason at about half the rate recommended for water lilies.

Overwintering and Storing Aquatic Plants

There are several ways to store hardy water lilies and emergent aquatic plants. For all the methods that can be found, there are some basic requirements that must be met and remain the same in all cases. One, the plants must go dormant by keeping them in a cool location (50 degrees maximum). Also, they must not be allowed to dry out and, their roots must not be allowed to freeze.

In shallow ponds and container aquatic gardens, plants will need to be brought in for the winter. Just after the first frost, lift the containers from the pond and leave the plants in the pot. Trim off all dead leaves and stems. Place the container in plastic bags to retain moisture and store in a cool basement or other area where the temperatures don't go above 50 degrees or below freezing. Check periodically to make sure that there is plenty of moisture in the bag. Maintain these conditions until spring.

Another way to overwinter these plants is to remove the rhizomes from the pots, prune all old leaves and stems, and store them in damp sphagnum moss placed in plastic bags. Store in an area that is cool (50 degrees) until spring.

Tropical water lilies are handled differently because of their tropical nature. Prior to the first frost, remove these plants from their pots and trim off most of the leaves and roots. Repot into smaller containers and store in an aquarium tank or other container where they get plenty of light and where the temperature can be maintained at about 68 degrees. Some tropical water lilies produce walnut-sized tubers. These can be removed and stored in water at 55-60 degrees for the winter. When placed in warm water (70-75 degrees), they will sprout. They can then be potted in small pots and move to the pond at the appropriate time.