

A pond made from flexible pond liner does not need to be emptied. The liner will flex with the freeze and thaw cycles. A pond made with a rigid liner will need to be emptied so the liner does not crack.

### **How do I overwinter floating plants or tropical water lilies?**

Tropical plants and floating plants must be kept moist to wet in temperatures above freezing, often with supplemental light. Because this is hard to do successfully, most homeowners compost their plants in the fall and purchase new ones in the spring.

**NOTE:** Avoid placing these plants into surrounding waters. Dispose of them properly by placing in the yard waste or compost pile.

### **How do I overwinter fish in the water garden?**

In the Midwest, you will need to install an air pump or heater (which can be expensive to operate), leave the fish in the pond, or remove the fish. If the fish are left in a pond without a pump or heater, the water must be at least 4 feet deep so the pond will not completely freeze to the bottom and kill the fish. If you use the air pump or heater, check it occasionally to make sure it is functioning properly. If the pond is shallow, bring the fish indoors before winter and keep them in a tank suited to the size and number of fish. These tanks are often placed in unheated garages. Remember that if you have a large pond, with lots of fish, you will need a large aquarium to maintain them during the winter.

**NOTE:** Do not release water garden fish into surrounding waters. Dispose of them properly by placing in the trash. Releasing your non-native fish into area waters may cause an ecological problem.

## **Where can I find more information about water gardens?**

Check these Web sites:

Iowa State University Extension  
Distribution Center—

[www.extension.iastate.edu/store](http://www.extension.iastate.edu/store)

See especially

*Rain Gardens: Filtering and Recycling Rain Water*  
(RG 605)

*Water Gardens: Aquatic Plants* (RG 604)

Iowa State University Horticulture—

[www.yardandgarden.extension.iastate.edu](http://www.yardandgarden.extension.iastate.edu)

Reiman Gardens—

[www.reimangardens.iastate.edu](http://www.reimangardens.iastate.edu)

Rich Clayton—

[www.public.iastate.edu/~rclayton/](http://www.public.iastate.edu/~rclayton/)

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# **Water Gardens: FAQs**



IOWA STATE UNIVERSITY  
University Extension

**O**rnamental water features in the Midwest have grown in popularity in recent years. They take many forms: containers, ponds, waterfalls, pond-less waterfalls, and others. For any of these to be enjoyable and successful, many factors must be considered, including water quality, fish health, plant health, sun, and aeration. The inter-relatedness of these factors also leads to a variety of questions and problems.

### **What size of pump do I need?**

When choosing a pump for your water feature, calculate the total volume of water that your feature holds and the amount of head pressure that the pump will need to overcome. Head pressure is the height from where the pump draws water to where it pumps it out. For a healthy water feature, you will want a pump that will move at least ½ to 1 exchange of the volume per hour. Most of the pumps sold today have a pressure rating graph that can be used to cross-reference the head pressure with the gallons pumped to find the pump size you will need. The addition of fountains or large waterfalls will create a need for a larger (or second) pump.

**Example:** A pond that holds 500 gallons of water and has a waterfall that is 3 feet above the pump intake will need a pump that moves 250 to 500 gallons of water per hour rated for the required head pressure (3 feet).

### **Do I need to add chemicals when I first fill my pond?**

Chemicals are not usually needed when setting up a water feature. No matter what water source is used to fill the feature (tap or well water), you will need to wait 2 to 3 weeks for the natural filtration process to begin before you add fish.

### **Should I drain the water from my roof into the water feature?**

This is not recommended for a pond containing fish. If you want to use roof-drained water, consider making a rain garden.

### **How do I plant my aquatic plants in the pond?**

Most water plants are placed in containers or crates that are then set in the water



feature. A layer of gravel or rock is placed on top of the soil to prevent soil loss upon entering the pond.

### **Should I add gravel to my pond?**

Opinions vary on this topic. Gravel adds a visual enhancement to the ornamental water feature and also can act as a filter by creating surface area for beneficial bacteria to grow on. The bacteria convert ammonia to less toxic forms. However, gravel needs to be cleaned frequently throughout the season. If fish are stocked in the pond, clean only a portion of the gravel at a time. Removing too much bacteria from the gravel leads to an increase in ammonia levels that can cause a fish kill.

### **How many fish can my pond hold?**

The number of fish that an ornamental pond can support is known as the pond's carrying capacity and is usually determined by the surface area (in square feet) of the pond. An un-aerated pond has a suggested carrying capacity of less than 2 inches of fish per square foot surface area; for aerated ponds the recommendation is less than 4 to 6 inches of fish per square foot. Koi require more space than goldfish.

**Example:** An aerated pond with 10 square feet of surface area would hold up to 50 inches of fish.

### **Should I use barley straw to control algae?**

Barley straw has recently come to the attention of pond owners as a potential control for algae. Presently, however, the results are inconclusive. For more information see: <http://www.bttny.purdue.edu/pubs/APM/APM-1-W.pdf>

### **Will city water hurt my fish or plants when I re-fill the pond?**

City tap water usually contains chlorine and chloramines. To remove chlorine from city tap water, you can add a dechlorinator. Chlorine also will dissipate in a couple days. If you are only adding a few gallons, you can fill a container with tap water, wait a day or two for the chlorine to dissipate, and then add to the water feature containing fish. Chloramines on the other hand, need to be removed by adding a chloramine remover before adding the water to any water feature containing fish. Tap water should not have an effect on the plants you might have in your water feature. However, high levels of chlorine can be harmful.

### **Why is my water green with algae? How can I control it?**

A heavy algae bloom is usually a sign of too many nutrients in the water. These nutrients can be controlled by feeding the fish less, flushing with fresh water, adding more aquatic plants, and/or reducing the number of fish. Chemicals can be used for short-term control but choose only those that are safe for fish and plants.

### **Do I need to clean out my pond every year?**

Yearly maintenance in ornamental ponds in the Midwest depends on the pond contents. Remove dead fish, plants, and leaves before they decompose. Additionally, you might want to siphon out any of the "muck" left in the bottom of the pond in the spring. Any dead or dying material or waste feed in the pond requires oxygen to break down, meaning less oxygen is available for any fish that are present.

### **How do I winterize the pond – pump and liner?**

In the Midwest, you will want to remove the pump and drain all of the plumbing. Containers used as water features should be emptied to prevent cracking or breaking when the water freezes.