How Large is Your Pond?

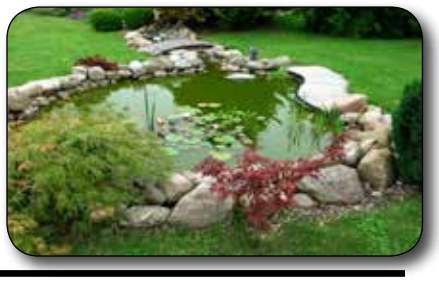
Square Pond: (Length x Width x Depth) x 7.5 = Gallons
Round Pond: (3.1416 x Radius x Radius x Depth) x 7.5 = Gallons
All above measurements should be in feet (not in inches).
1 cubic foot = 7.5 gallons

Flow Rate Method

Flow Rate x Time = Volume
(60 ÷ [seconds to fill 5 gallon bucket] x 5)
x (Minutes to Fill Pond) = Gallons In Pond

J&L Garden Center
The All Season Gift and Garden Center
620 North 500 West Bountiful, Utah 801-292-0421
info@JLGardenCenter.com *www.JLGardenCenter.com*

Pond Care



Listening to moving water; relaxing by cool clear shimmering water; watching fish swimming lazily about; enjoying the serene beauty of water lilies; these are just some the pleasures of water gardening. One stumbling block to enjoying a pond is how to keep the water clear, and how to keep the fish healthy. It is fairly easy. Add the proper ingredients, keep the filter cleaned, and let the pond do most of the work. Constant monitoring - enjoying your pond - is essential in preventing and correcting any problems or concerns that may arise.

Algae Control

First, distinguish between the two basic types of algae. The moss-like algae which grows on the sides of the pond is sometimes desirable, and it is not a type of algae which clouds the water. To prevent excessive growth of this type of algae, add a few scavengers, such as snails or algae eaters. They will eat it.

The unicellular type of algae is the culprit of the *'pea soup green'* or *'cloudy'* water. This type of algae is not desirable and an active program to prevent and eliminate this algae is one key way to help clear the water.

To control algae you need patience, plants, scavengers and a filter system. The most important factor is patience, a new pond (or one just cleaned) will often turn cloudy, and have some algae. Do not just drain the pond each time you get cloudy water. The water must age and the micro-organisms and plant populations must establish themselves. An algaecide can be used during this period to keep the algae growth under control. Remember, an algaecide only acts on existing algae and a single treatment will not keep a pond clear indefinitely. It is only a temporary control and it will not change the conditions in the pond that are causing algae to grow.

Plants

Plants are one secret to clearing up a pond and keeping it clear. They starve the algae by absorbing the carbon dioxide and minerals essential for algae to grow. Submerged grasses are especially effective in controlling algae. Water lilies are also helpful because their pads shade out a good amount of sunlight. This shade helps to keep the water cool and it helps to prevent algae from growing by inhibiting photosynthesis.

A good rule of thumb for the number of submerged grasses is to stock one bunch of grass for every 4 to 6 square feet of pond. Water lilies, or other floating pond plants, should cover 50% to 60% of the surface of the water. Although not extremely effective, artificial water lilies can also help shade the water, and more importantly, artificial water lilies can add a bit of color when your natural water lilies are not blooming.

Scavengers

Scavengers are another important way to help keep pond water clear because they help to eliminate food sources for algae. Do not over-feed the fish in your pond, only feed your fish what they will eat in 5 to 10 minutes. Leftover fish food will rot and foul the water. The grazing hair-like algae will absorb and use the remnants of this left-over food. Scavengers will also eat left-over fish food. This is important because pond fish will not eat any of the left-over food, even if they are not fed for several days.

Filters

Careful selection of the natural methods mentioned above can lead to a clear pond. However, a filter system is a great time-saver in clearing a pond and keeping it clear. Filters remove algae, fish wastes, and any particulate matter clouding the pond. Because a pond filter is so efficient in removing these elements from the pond, the pond is less likely to become cloudy.

There are two main types of pond filters. The most common is just a mechanical filter. This type of filter removes physical materials from the water; leaves, fish waste, free-floating algae, and other floating materials.

The other type of filter is a biological filter. This type of filter helps to eliminate the algae and it also helps to eliminate the harmful bacteria in the water. This filter uses beneficial bacteria to kill both the harmful bacteria and many types of algae.

Pond Fish

Be careful not to get carried away and buy too many fish for your pond. Fish need room to swim and grow. For a new pond, a good rule of thumb is one inch of fish per square foot of surface area. About one small goldfish per three to four feet of water surface area.

A mature pond can sometimes support two inches of fish per square foot; if you have moving water, a good filtering system, and maintain a balanced biological system.

Placing fish in the pond: Place the bag in the pond for at least 30 minutes, so that the water in the bag gradually matches the temperature of the pond. Open the bag to allow pond water to mix with the water in the bag. **Tip:** You may want to add ***Stress Coat Water Conditioner*** each time you add new fish, to help prevent any problems.

It's important to understand that all fish are diseased. They're all infected by at least one, and often several, species of parasites. These parasites are a natural part of the environment of the fish. Just watch for any symptoms that may indicate a change in balance, one that the fish cannot overcome. Gasping, rubbing, becoming darker or lighter in color, having lesions, appearing emaciated, or exhibiting a listless behavior are

just some of the symptoms to watch for. Preventative treatment is often easier than finding a cure.

Fish should be fed one to three times a day during the feeding months, when water temperatures are above 50º F. **Tip:** Feed only the amount your fish can consume within five minutes. Stop feeding fish in the fall when the water temperature drops below 50º F.

Types of Pond Fish: Goldfish are easy for all ponds. They survive even in poor water conditions; some can grow up to 10 to 12 inches long. There are many varieties of "goldfish" to choose from:

Comets are one of the most popular types of goldfish. They have long slender bodies, and are typically solid orange.

Shubunkins have longer, thinner bodies. There are two types: one has a long tail fin with broad, rounded fin lobes; the other has a short tail fin. They have many different patterns, and many beautiful colors.

Fantails have shorter and rounder bodies. They are noted for their "split" tail, which is typically longer than the common goldfish's tail.

Koi are cousins of the carp family, and can be easily identified by their whiskers. They have vivid coloration, striking patterns, and can grow quite large. The standard Koi colors are black, white, yellow, orange, blue or red. Unfortunately, they do not always survive the harsh winter weather in Utah.

Pond Problems

Sometimes a clear pond will suddenly become cloudy even though it has been clear for several weeks or months. **Several factors can cause this situation.**

1. Overfeeding the fish.
2. A drastic weather change - usually an increase in water temperature during the summer. However, in the spring and fall, the plants are not as active and algae can still take over.
3. A chemical imbalance in the water such as too much ammonia or too high of a pH. Excess ammonia can be a direct result of too many fish for the size of pond you have. The water pH can be influenced by the type of water you add to your pond, tap water, irrigation water, or well water.
4. Toxic gases in the water. Fish need oxygen and plants need carbon dioxide. Keeping a balance of these gases is important in maintaining a pond's health. Toxic gases can be produced by rotting organic matter on the bottom of the pond, a dead fish, or not enough water (air) circulation within the pond system.

Spring Check List

1. As pond temperatures warm into the upper 50 F, start feeding the fish with high carbohydrate / low protein food. As the water warms gradually work up to the higher protein foods.
2. Raise aquatic plant pots from the bottom to warmer surface water.
3. Early spring is the time to remove pond waste and leaves. As the pond temperature begins to rise, the pond detritus begins decomposing rapidly and releasing nutrients into the water. Possible effects from this scenario are robbing the pond of oxygen, releasing toxic gases, and causing an algae bloom.
4. Test the water for both pH and ammonia.
5. Check pumps, lines, and restart filters. Use an inoculant to get Biofilters restarted.
6. Remove filamentous algae by hand or by using a notched stick. If unicellular algae persists consider adding more scavengers, plants, or re-evaluating your filter system.
7. Begin fertilizing pond plants after they start to grow. Divide and repot them if needed.
8. Watch for spawning fish.
9. When plants are growing vigorously, fertilize them once a month until temperatures reach the eighties, then fertilize them twice a month
10. Do not put tropical plants into the pond until the water temperature is 70 F.

Summer check List

1. As water evaporates, refill it as needed.
2. Fertilize the lilies every two weeks when the water temperature is in the 80's. Other pond plants only need fertilizer once a month.
3. Prune the old or decaying leaves and spent blossoms.
4. Feed the fish what they will eat in 5 to 10 minutes, this can be split into several feedings. Fish are active in the summer and will benefit from high protein and color enhancing foods.
5. Clean the filter as the pond dictates.
6. Check the submersible pump for debris in the impellers.
7. Be on the alert for unwanted summertime pests.

Fall check List

1. Feed fish high protein food in early fall, switch to low protein-high carbohydrate food as winter approaches. Color enhancing food is not necessary in the fall.
2. Stop feeding fish when water temperature is below 50F.
3. If fish are to be left in the pond through the winter, make sure to keep an opening in the ice to provide a place for oxygen to enter and to allow other gases to escape.
4. Keep lilies well pruned, cut back frost killed foliage and set pots in the bottom of the pond for the winter.
5. Clean the pond as much as possible. Make sure you remove as much bottom debris as possible.
6. After two or three freezes check tropical lilies. Store tubers in plastic bags filled with water in a cool spot for the winter.
7. Remove falling leaves from pond as often as possible.

Winter Check List

1. Consider a stock tank warmer, or a pond deicing device, to keep an open area free of ice.
2. Let a small pump run all winter with a tube near the surface, to prevent ice from completely covering the pond.
3. Do not break ice with a hammer. The shock waves may kill your fish.
4. Let a ball float on the pond. Remove the ball each morning and replace it every night to help maintain a hole in the ice.

5. Do not feed your fish during the winter.

Pond Chemicals

Occasionally Mother Nature needs a little help keeping a pond in proper balance. There are a few products that are very effective to help restore, or to maintain, the proper balance in your pond.

Algae Fix A product specially developed to control many types of algae in ponds containing live fish and plants. It effectively controls green water algae blooms. It helps keep pond water clean and clear. Weekly, or monthly doses of Algaefix will control algae growth and reduce maintenance.

Ecofix Makes pond water clean and clear. It breaks down dead algae and increases the concentration of dissolved oxygen in pond water. It helps create a healthy ecosystem for pond fish.

Pond Zyme. This product contains a natural bacteria that speeds up the biological development in the pond. It breaks down fish waste, dead algae and other debris, that causes cloudy water and sludge build-up. It helps keeps pond water clean and clear.

Stress Coat A unique water conditioner that replaces the natural slime coating on the skin of pond fish when it has been damaged by handling, netting, or other forms of stress. It removes chlorine and helps condition tap water. It contains Aloe Vera to help heal torn fins and skin wounds. It helps prevent the loss of internal fluids & electrolytes. It helps protect damaged tissue of fish against external disease-causing organisms. Use this product when setting up a pond, adding new fish, or changing pond water.

Accu-Clear Helps maintain crystal-clear pond water. It quickly clears cloudy pond water. It helps filters function more efficiently. It works by causing tiny suspended cloud particles in pond water to clump together. The clusters quickly fall to the bottom.

Barley Straw. Barley is a type of straw that continuously releases compounds into the water that prevents algae. It takes about four to eight weeks to start working, so be sure to use this product before the water becomes cloudy. It is available in the straw form, pellet form, or in a liquid form.

Green Clean An algaecide that works instantly, even on tough algae. Green Clean works on contact to control all types of algae, especially String Algae. It works great in water gardens, ornamental ponds, fountains, and in most other water features. It is water activated and is safe for all animals, once it is in its liquid form. Green Clean does not harm fish or other aquatic life. Green Clean algaecide also releases vital oxygen into the water as it biodegrades.

Pond Salt adds natural electrolytes, improves gill function, and reduces fish stress. Electrolytes such as potassium, sodium, chloride, calcium and magnesium are absorbed by fish through their gills. These electrolytes are essential for the uptake of oxygen, and the release of carbon dioxide. The lack of electrolytes can cause serious health problems for pond fish. Pond Salt can also be used to help reduce the toxicity of nitrites.

More Resources

http://www.pondvolumecalculator.com/
http://www.pond.com/calculator
http://www.apifishcare.com/pond
https://www.microbelift.com/products/pond-and-water-garden/
http://agreenbrain.com/pondcare.html
http://www.dannermfg.com/store/products/danner/BY_FUNCTION/water-gardening/default.aspx
http://www.tetra-fish.com/Pond/pond-support-help/frequently-asked-pond-fish-care-questions.aspx

Pond De-Icer Information -

Written and provided by Farm Innovators Company
http://www.farminnovators.com/catalog/About%20Pond%20Deicers.pdf

Photo Credit: Farm Innovators

About your Pond De-Icer

- A pond de-icer is designed to keep open a vent hole in the ice to release the harmful gasses from underneath. Even the smallest of holes will suffice. By allowing your pond to completely freeze over during the winter months, the harmful gases produced by fish waste and plant decay cannot escape the ice, becoming deadly to your costly fish and plants.
- The Models P-418, PS-200, and P-429 are intended for use in ponds of 600 gallons or less. A pond larger than 600 gallons will require the use of two de-icers tied together to act as one. The Model P-500 is intended for ponds of 50 gallons or less.
- De-icers must be protected from the wind. The wind steals the heat faster than the de-icer can put it off. If not protected from the wind, a de-icer will not function to its fullest capabilities. See other side for helpful hints on wind barriers.
- Placement of the de-icer is critical. Place your de-icer at the edge of your pond, touching the liner, in the shallowest area. The de-icer is "safe in plastic and rubber" and will not harm the pond or liner. This will enable the unit to operate more efficiently by reflecting heat off the side of the pond or liner. DO NOT drag a submergible de-icer along the bottom of your pond as its legs may snag and damage the liner.
- Keep your de-icers heating element clean of mineral build-up, such as lime. Lime build up is the leading cause of de-icer failure and will void the warranty if the unit is not properly cleaned and maintained.
- Never try to repair your de-icer yourself for this will void the warranty. Call us first at **1-800-277-8401** should you have any concerns or questions.

Trouble shooting i

Please do not assume the de-icer is defective if it should not perform to your expectations. Please see **"Air Test"** below. This test is the **only** way to tell if a de-icer is truly defective or not.

Eliminate the harmful effects of the wind: Build a "wind barrier" for the de-icer. We recommend placing a sheet of plywood covering the corner of the pond with the de-icer positioned underneath. Be careful to not completely cover the pond as to not allow the toxic gases to escape.

Keep the de-icer clean of lime build-up. Lime build-up will "smother" the de-icer, which will not allow the heat to escape thus making it work less effectively. White vinegar or Lime-Away used with a brush can be utilized to remove the lime. The cleaner your de-icer is, the more efficiently it will perform and the longer it will last.

Watch your power supply. Low power, extension cords or defective housing wires will greatly reduce the effectiveness of any de-icer.

Before returning your de-icer for a warranty claim, first perform the **"Air Test"** to verify it is truly the de-icer that is malfunctioning. Place the de-icer in the freezer for one hour. Take it out of the freezer and plug it in. If it heats up, it is working perfectly fine and to its fullest capacity. Should your de-icer pass this test, review the above trouble shooting techniques to correct the performance problems.

Save on Electricity Costs with the ThermoCube!!

To save electricity in larger ponds, purchase the ThermoCube, Model TC-3. It will pay for itself in the first months of usage in energy savings. It is a thermostatically controlled outlet designed to operate based on air temperature. Plug your de-icer into the TC-3 and it will cut the power to your de-icer when the air temperature reaches 45 degrees. (Much sooner than your water will reach 45 degrees). The Model TC-3 can be ordered by calling 1-800-277-8401.

Frequently Asked Pond Fish Care Questions

Written and provided by

Tetra Pond Company

http://www.tetra-fish.com/Pond/pond-support-help/frequently-asked-pond-fish-care-questions.aspx

Q. How many fish can I have in my pond?

Be careful not to get carried away and overstock your pond. Fish need room to swim and grow.

Rule of Thumb: To account for all kinds of fish, keep your fish load under one-inch of fish length (excluding the tail fins) for every one square foot of water surface – about one goldfish per three to four feet of water surface area. Because Koi grow larger, place one Koi for every 10 square feet of surface area. Typically, Koi should be in ponds that are at least 1,000 gallons.

Avoid Overstocking the Pond

To maintain healthy fish and clear water, do not overload the ecosystem with too many fish. For a new pond, a good rule of thumb is one inch of fish per square foot of surface area. Once the pond is built, pond owners can add a few fish at a time over a 30-day period, allowing time for the pond and filter to be biologically ready to support the additional aquatic life. A mature pond can support two to three inches of fish per square foot. If your fish population exceeds these guidelines, you may need to increase the size of your filter.

Q. How do I add fish to my pond?

Selecting the fish: Be sure the fish dealer has brought the new fish into the store using sound quarantine procedures. You want to avoid adding diseased fish into your pond where they could infect the other fish. Avoid purchasing fish that are listless, pale in color, gasping or have fins folded back. If the tank contains several dead fish, purchase your fish elsewhere. A healthy fish is active and bright and has outstretched fins. If you are uncertain about the health of a fish that you plan to introduce into your pond, you may want to keep these fish quarantined in a tub of pond water and treat with TetraPond® Pond Fish Treatment. If after a week of observation, your fish shows no signs of illness, you may add the fish to the pond.

Preparing your pond for fish: Be sure that the water in your pond has been treated for chlorine and chloramines using a product such as TetraPond® AquaSafe®. If it is a new pond, make sure the pond and filter have been running for at least two weeks to allow the beneficial bacteria to colonize.

Taking your fish home: Typically you will buy a pond fish in a plastic bag of water from your fish dealer. Minimize the amount of time from the store to your pond.

Placing fish in the pond: Place the bag in the water for at least 30 minutes so that the water in the bag gradually matches the temperature of the pond. Open the bag to allow pond water to mix with the water in the bag for a few minutes. Gently pour the fish into their new home.

Q. What type of fish should I put in my pond?

Goldfish: These larger hardy goldfish do relatively well in poorer water conditions. They are known as good swimmers. Purchase fish that are at least two to three inches long; some can grow up to 10 to 12 inches long. There are many varieties of "goldfish" to choose from:

Comets, one of the most popular types of goldfish, have long slender bodies and are typically solid orange and metallic in appearance.

Shubunkin have longer, thinner bodies and are typically shaped like the common goldfish. There are two types: one has a long tail fin with broad, rounded fin lobes; the other has a short tail fin. They are primarily bred for their beautiful colors.

Fantails have shorter and rounder bodies and are distinguished by their "split" caudal fin, or tail, which is typically longer than the common goldfish's tail.

Koi: Koi, or Cyprinus carpio, are ornate cousins of the carp family and can be easily identified by their whiskers. Their vivid coloration, striking patterns, longevity and impressive size make them popular pets. Standard Koi colors are black, white, yellow, orange, blue or red.

Taisho Sanke: Pure white Koi with distinct red and black markings.

Ohgon or neon Koi: Usually yellow, orange or gold metallic.

Butterfly Koi: Distinguished by their long butterfly fins.

Metallic Koi: Arguably the most eye-catching, their reflective silver or gold pinecone patterned scales give the pond luster.

Q. Should I change the fish diet during the year?

Yes, especially if you live in an area where the water temperature will dip below 50oF during the winter.

Change the diet based on water temperature:

In the fall when water temperatures fall below 50o F, switch your fish food to a quality wheat germ-based food, such as TetraPond® Spring & Fall Diet.

When temperatures fall below 39o F, stop feeding fish entirely.

In the spring, when water temperatures are consistently above 39o F, resume feeding wheatgerm-based foods.

When temperatures are above 50o F, you may feed your fish any of the TetraPond food diets. Use the TetraPond feeding thermometer to help guide you with food selection.

TetraPond® Spring & Fall Diet transitions fish in and out of cold temperatures. Compared with an animal protein-based food, a wheat germ food like Pond Spring & Fall Diet will spend 25% less time in the intestine. Good quality wheat germ products are formed from easily digestible plant ingredients, enhancing digestion and reducing the time it takes for the nutrients to be absorbed.

Why you should not feed when temperatures are below 39o F? Fish should only be fed when they are active and looking for food. No food should be offered if the fish are motionless near the bottom of your pond. When water temperatures are below 39o F, they will not be actively seeking food. Feeding fish below 39o F can lead to metabolic disorders. During the winter, fish will "hibernate." Their digestive systems virtually stop, so food does not digest and can actually kill the fish.

Q. What should I do with my fish in the winter?

In most parts of the U.S., it is fine to keep your fish in your pond, providing the depth of the pond is deep enough so that the water does not freeze to the bottom. Unless you live in an area where your pond will be exposed to extreme cold, 18 inches depth is sufficient. In extremely cold areas, be sure your pond has areas 24 inches or more of depth.

Koi, Shubunkins and most goldfish survive winter by remaining inactive. Do not feed your fish when water temperatures are below 39o F. (See Fish Care questions about changing the diet during colder months.)

Use a pond de-icer to keep an area of the pond ice-free to allow for toxic gases to escape the pond.

Some fish, such as fancy goldfish, should be brought indoors during the winter. Check with your local fish dealer for advice on your specific fish.

Q. How much and how often should I feed my fish?

Fish should be fed one to three times a day during the feeding months, when water temperatures are 39o F and above. Rule of thumb: Feed only the amount your fish can consume within five minutes.

Q. How can I keep my fish healthy?

Maintaining fish in good condition should be the aim of every pond keeper. Pond fish are sensitive to a variety of factors, such as water quality and nutrition, that can weaken immune systems and make them susceptible to disease.

Water quality: Particularly important to water quality, and consequently fish health, are raised pollutant levels (i.e. ammonia, nitrite and nitrate) and sudden changes (or unsuitable values) of water pH and hardness.

Ammonia and nitrate levels: Excessive ammonia can have adverse effects on the fish. In most cases, fish will show severe signs of irritation and occasionally reddening on the skin and fins. Raised nitrite levels can be directly toxic to the fish. It leads to irritation of the gill and skin membranes and a reduced ability of blood to transport oxygen. At lower concentrations, fish immunity will be weakened, allowing parasite numbers to increase. Nitrates are unlikely to be directly toxic to pond fish, unless the concentration is greater than 50mg/liter. At lower levels, fish are weakened and prone to disease, poor coloration and poor growth.

All fish are diseased: It's important to understand that all fish are diseased. They're all infected by at least one, and often several, species of parasites. These parasites are a natural part of the environment of the fish.

Q. How can I maintain a good pH balance?

Within sensible limits, the water's pH is not critical for Koi; they happily survive in pH values ranging from 6.5 to 8.5. In a pond containing dense algae or plant growth, pH changes considerably in a 24-hour period. Plants and algae consume the bicarbonates that buffer the pH. At nighttime they respire, producing carbon dioxide which causes the pH to drop. During the day, they photosynthesize (use carbon dioxide and water to produce carbohydrates and oxygen), using up any carbon dioxide and allowing the water to return to its natural pH. Therefore the pH at dawn is likely to be considerably lower than at dusk. Because this change occurs slowly, it does not harm the fish. Use a TetraPond Pond Test Kit to quickly and easily monitor your pond's pH level.

If the pH is outside the acceptable levels, altering the water quality may be necessary. Whenever possible, find the cause and remove it rather than trying to alter the quality of the water itself. A sudden rise or a high pH often results from the water coming into contact with untreated cement or limestone that is either present in the pond or surrounding area. The solution? Use a sealant on any cement in the pond and take precautions to drain water away from the pond. Conversely, a drop in pH may be caused by a buildup of organic debris, garden runoff, heavy rainfall or perhaps a malfunctioning filter.

Q. How do I know if my fish is ill and how do I diagnose the problem?

The following are symptoms of fish illness:

Gasping Rubbing Becoming darker or lighter in color

Appearing emaciated Exhibiting listless behavior

Tips on diagnosing fish illness:

Prompt treatment requires quick and correct identification of the problem. Pay special attention to the time of disease onset and how quickly it spreads throughout the pond. See Tetra's fish illness guide here. Pond Fish can be afflicted with similar illness and diseases as Aquarium fish. This guide can help you spot them.

Use these guidelines to find the cause:

If one or two fish are affected and the symptoms do not spread to any other fish, then the cause may be a noninfectious disease or malformation.

If a small number of fish are affected initially, but the number gradually increases, then the cause may be an infectious disease.

If all fish are affected (or all fish of the same species/size) and the illness has spread very quickly, then the cause may be poor water quality.

Examine fish for signs of parasites. Place the affected fish in a large clear plastic bag so they can be easily viewed from all sides.

Q. How do I treat for fish illnesses?

Immediately remove and quarantine badly diseased fish to prevent the spread of disease. When two or three fish are affected or the disease is infectious:

Change 25 to 30 percent of the water and remove any excess debris. Use a water treatment that neutralizes the heavy metals, chlorine and chloramines from tap water, so fish will not be harmed.?

Treat the entire pond with a remedy that destroys harmful bacteria, parasites and fungus.

Q. Why are my fish disappearing?

This is usually due to predators. The most common predators include herons, raccoons and ducks. If you suspect a problem, you may want to consider investing in a motion detector sprinkler. Note: These devices are not selective and work on people and pets as well.

Q. Do my fish need hiding places?

Yes – a fish's natural behavior is to avoid open spaces because it is vulnerable and tends to get eaten when out in the open. Predatory birds can empty a pond. Aquatic plants like water lilies and iris roots offer shelter. Large clay pots placed on their side or black plastic crates can also serve this purpose

Q. How should I deal with pests like raccoons, herons or ducks?

If you suspect a problem, you may want to consider investing in a motion detector sprinkler. Note: These devices are not selective and work on people and pets as well.

Q. How do I tell a male from a female goldfish/Koi?

It is virtually impossible to determine the sex of a goldfish. The usual way is to wait until spawning behavior starts, usually in algae-laden ponds in the spring when days grow longer and the water temperature rises. The female will appear plumper and the males will chase the females, butting them to induce the release of eggs.

Q. Why is one fish chasing another one?

Spawning behavior can look like one fish is chasing another. You'll usually observe this behavior in algae-laden ponds in the spring when days grow longer and water temperature rises. The female will appear plumper, and the males will chase the females, butting them to induce the release of eggs.

Written and provided by

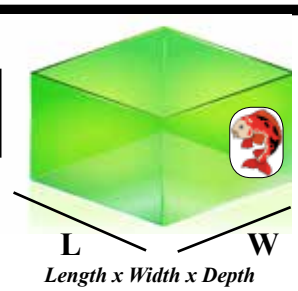
Tetra Pond Company

http://www.tetra-fish.com/Pond/pond-support-help/frequently-asked-pond-fish-care-questions.aspx

Pond Volume

How Big Is Your Pond?

1 cubic foot = 7.5 gallons



Length x Width x Depth

Square or Rectangle Pond:

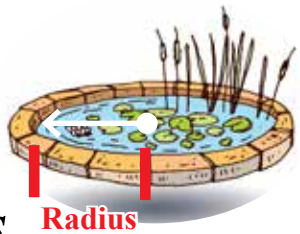
Length x Width x Depth x 7.5 gallons = ***Gallons***

Make all measurements in 'Feet'

Round Pond:

3.1416 x Radius x Radius

x Depth x 7.5 gallons = ***Gallons***



Make all measurements in 'Feet'

Calculate Pond Volume by the Flow Rate Method

Flow Rate x Time = Volume

Flow Rate *(60 ÷ (seconds to fill a 5 gallon bucket)) x 5 gallons)*

x Time *(Minutes to Fill Pond)*

= Gallons In Pond

http://www.pondvolumecalculator.com/
http://www.pond.com/calculator
http://www.apifishcare.com/pond
https://www.microbelift.com/products/pond-and-water-garden/

How Much Water?
Water Volume Calculation

1. Length x Width x Depth = Cubic Feet of Water
2. Multiply Cubic Feet by 7.5 = Water Volume

J&L Garden Center

The All Season Gift and Garden Center

620 North 500 West Bountiful, Utah 801-292-0421

info@JLGardenCenter.com *www.JLGardenCenter.com*