

# Pond Measurements

Proper management of your pond requires that you know its surface area in acres and its volume. Fish stocking and some chemical applications are done using surface area; however, pond volume is often used to determine the amount of chemicals to be used.

If an NRCS conservationist or civil engineer designed and supervised the construction of your pond, that person should be able to provide you with these measurements. Your local USDA Farm Service Agency (FSA) office may have an aerial photo of your pond from which the surface area can be measured. The surface area of an existing pond may also be determined by a survey.

You can determine the surface area by making measurements and using one of the formulas given here. If your pond is rectangular, the surface acreage equals the length in feet times the width in feet, divided by 43,560.

You can usually regard an irregular-shaped pond as a rectangle or square and compute the area from straight boundary lines that approximate the actual shorelines.

If your pond is circular, measure the total distance in feet around the edge of the pond. Multiply this number by itself and divide by 547,390. The result is the surface area in acres.

This formula also works for ponds that are almost round. However, if your pond is more egg-shaped than round, this formula will give you a much larger acreage and will introduce errors in other computations.

Next, you will need to determine the average depth of your pond in feet. Make soundings uniformly spaced over your entire pond surface. This can be done from a boat by using a weighted rope marked off in one-foot increments and lowered to the bottom of the pond. Average at least 15 such readings - this will be the average depth of your pond.

Now you have the measurements necessary to determine the volume of your pond in acre-feet. Simply multiply the surface area in acres by the average depth in feet (surface area in acres x average depth in feet = volume in acre-feet). One acre-foot equals 325,850 gallons.

## **Average Depth:**

Take soundings at intervals along transects. Add the measurements and divide by the number of soundings to determine average depth.

## **Circular:**

Surface acres = (total ft. of shoreline)<sup>2</sup> / 547,390

## **Rectangular:**

Surface acres = length (ft.) x width (ft.) / 43,560