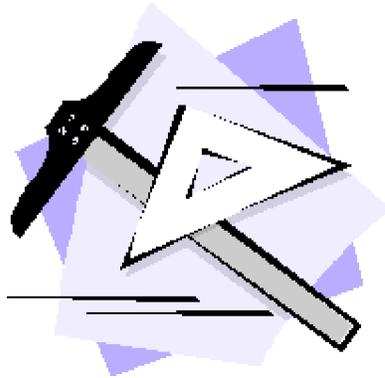




Calculating, Measuring and Spacing

. There are times when you need to know how much edging to buy or how much mulch you will need to cover the perennial bed. And then the instructions on the insecticide tell you to use 2 ounces of the stuff to the gallon. How much is 2 ounces? An herbicide container may tell you to cover 250 square feet with 5 gallons of solution. And just how many pachysandra plants do you need to fill an triangular area 8' x 6' x 3'? Those are just a few of the calculating, measuring and spacing questions you might run into in the garden. So here is a quick reference that should help refresh your memory..



Measuring

First, the basics...

12 inches = 1 foot 3 feet = 1 yard 1 acre = 43, 560 square feet

With chemicals, sometimes you'll need to know some equivalent measurement for liquids...

3 teaspoons = 1 tablespoon

2 tablespoons = 1 ounce

16 tablespoons = 1 cup

2 cups = 1 pint

2 pints = 1 quart

4 quarts = 1 gallon

Hint: To get a lineal measure of a curved line (like when you might need to calculate for edging), make a mark every 5 or 10 feet on your hose and use it as your measuring tape. If the area you are trying to

measure is on a landscape drawing, cut a 12 inch strip of paper and mark inches along it. Then stand it on its edge and curve it along the beds on the drawing like a snake. Just be sure to multiply the measurement you get by the scale of the drawing.

Calculating Area:

Hint: Don't worry about whether or not a square is perfect or the circle is exactly round. You only need an approximate, not an exact measurement.

To find the **area of a square or rectangle**... length x width = square feet (area)

The **area of a circle** equals pie r squared or 3.14 x the radius of the circle x the radius of the circle again (the radius is the distance from the center of the circle to the edge)

To find the area of a right triangle, where two of the three legs meet at a right (90o) angle...look at it as 1/2 of a square or rectangle...ignore the long side and multiply the other two (the ones that meet at a right angle) and divide the answer by half.

The **area of an irregular triangle** can be a little trickier, but all you need to do is divide it into two right triangle and calculate the area of each and add them together.

To calculate the **area of something irregular**, like a bed that wraps around the house, just divide it up into chunks that are either squares, rectangles, triangles or circles. Calculate each area and add them up.

Calculating Volume

The most common reason for calculating volume is to determine how much soil is needed to fill a large planter or area. First determine the surface area, then multiply the area times the depth to get volume.

Example: If you have a rectangular planter that is 3 feet wide x 12 feet long x 2 feet deep. It has 36 ft² surface area. Multiply 36 x 2 = 72 cubic feet.

Filling containers with soil is another volume problem. Look at the container as either a cube or rectangle. H x W x D (all in feet) = volume in cubic feet. If the container is round, like a large flower pot, whiskey barrel or large round raised bed, consider it a cylinder (even if the pot tapers) then calculate the surface area and multiply it by the depth... pie r² x depth = volume of a cylinder.

Calculating Mulch, Soil and Sand Coverage

First, mulches are usually sold either in bags that hold 2 to 3 cubic feet each or by the cubic yard. To figure out how many bags or cubic yards you will need, first you need to figure out how much area you want to cover and how deep you want the mulch. 27 cubic feet = 1 cubic yard and nine-3 cubic foot bags = 1 cubic yard. The 2 cubic foot bag will cover 7 or 8 square feet 3" deep. A 3 cubic foot bag will cover around 12 square feet 3" deep. And 1 cubic yard of mulch will cover approximately 100 square feet 3" deep.

For soil and sand, you can use the same calculations as you did for mulch, but add an extra 25% to allow for settling and packing.

Spacing Plants

A common gardening question is "How many plants do I need to cover a specific area?" With larger plants such as **shrubs**, you just find out the plants' mature width and space them accordingly. For example, a shrub grows 6' wide. If you want to form a hedge where plants grow into each other, plant the shrubs 4-5 feet apart from the center of one plant to the center of the other. If you don't want the plants to overlap, plant them more than 6' apart center to center. When planting trees, once you find out the maximum width at maturity, you can decide where to plant it in relations to other trees, sidewalks, buildings and property lines. Keep in mind that their root systems will extend beyond the outer edges of the crown of the tree.

With groundcovers or beds of annuals, you do the same thing but on a smaller scale. Assuming you want to cover the area you are working with, find out how large the plant will grow in a reasonable amount of time. For instance, with smaller **groundcovers** such as vinca, pachysandra or ivy, an individual plant can be expected to cover an area 9-12 inches across in a good season. If you are in a hurry and want it to fill in quickly, plant them 9 inches on center (from the center of one plant to the center of another). That means you would need 175 plants to cover 100 square feet of ground. For **medium to large groundcovers** that cover 12-18 inches each, if you plant them 1 foot on center, you will need 100 plants for 100 square feet. But if you are patient and willing to wait, you can plant them 18 inches on center and you will only need 45-50 plants to cover the area. Some of the larger groundcovers will cover an area 24 inches wide.

Generally, you plant **annuals** closer than the math would indicate because you want them to fill the area in a reasonable amount of time. The closest **smaller annuals** such as sweet alyssum, ageratum, moss roses and pansies should be planted in a ground bed is 6 inches on center. That would mean 400 plants to fill an area 10 feet by 10 feet. The closest **medium-sized annuals** such as petunias, dianthus and regular marigolds should be planted is 9 inches on center, requiring 175 plants for that same 10 by 10 foot area. And with **large annuals** such as salvias, cleome, large marigolds, seed geraniums and cosmos would be a foot on center, requiring 100 plants to cover a 10 by 10 foot area. Please keep in mind that this is the closest. If you aren't in a rush, space them out further. And also watch out for those exceptions to the rule. For instance, there are now petunias, the Wave series, that can cover a lot more space than the average petunia and Fantasy petunias that are miniatures.