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How Old Is My Tree?

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If you know when the tree was planted and the age of the tree at the time of planting, obviously, you can easily and accurately determine its age. Most trees are between 5 – 10 years when they come out of the nursery. The second most accurate way to estimate tree age is to count the annual rings of wood growth. However, we don't want to injure or cut the tree down just to figure out its birthday.

Annual rings can be counted using two different methods. You can extract a core from the live tree using an increment borer, which can leave wounds in the tree. Or, dead trees and trees which have been removed enable ring counting on the stump. Although counting rings provides an accurate estimate of age, most people do not have access to an increment borer for live trees or the tree must be cut down.

By following these easy steps, you can get a rough estimate of a live, standing trees age, without knowing when the tree was planted and without injuring or cutting the tree down.

STEP 1. Measure the circumference (c) of the tree trunk using a measuring tape that measures in feet and inches. This should be done at 4.5 feet above the ground or slightly below shoulder height. This is known to arborist as the DBH or Diameter at Breast Height.

EXAMPLE:

Our white oak tree measures 5 feet, 10 inches in circumference.

c = 5 feet, 10 inches or, 70 inches

STEP 2. Calculate the diameter (d). Divide the circumference by 3.14, a constant known as "pi". Formula: c / 3.14 = d. For the white oak if the diameter is 70 inches/3.14 = 22 inches DBH.

STEP 3. Multiply the diameter of the tree by the *growth factor* as determined by species.

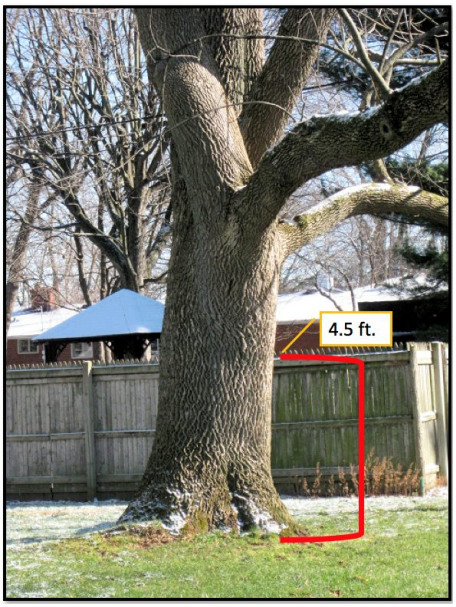

Figure 1. Measure trunk circumference at 4.5 feet above the ground

Figure 2. Use a tape measure to determine circumference or diameter.

This is where we have so many variables that affect the accuracy of our answer. Growth factor tables assume a consistent or linear relationship of diameter increment to years of growth. This assumes little variation in the many problems which can affect

tree growth.

Woodland trees and urban trees grow quite differently. Trees in our neighborhoods, along streets and in the parks, are often under more stress and grow more slowly. Natural woodland trees are on undisturbed sites with less pressure. Tree growth rates are affected tremendously by conditions such as water availability, climate, soil conditions, root stress, competition for light, and overall plant vigor. Further, the growth rates of species within genera can vary significantly. A white oak growing in a moist, well drained site will grow faster and be younger than a similar white oak in a dry, stressed tree lawn. So, only use this formula as a very rough estimate of a tree's age.

Also, trees growing in a woodland environment typically have a restricted crown and therefore increase in circumference at about half of the rate of full, open-grown tree found in a park or residential landscape. History tells us there are very few trees much older than about 250 years in the Midwest due to the early settlers clearing our forests for farm fields.

Back to our white oak tree. We determined that the tree has a 22" DBH, so you would then multiply it by the growth factor of 5.0 (refer to table below), and our answer is 110 years old! This oak tree is considered as a youngster for white oaks. Under perfect conditions, a white oak tree can live to be 300 or more years old. However, under urban conditions, most white oak trees may only live to be around 150 years old. So, this may be a more accurate number if the tree were in perfect, natural growing conditions. However, if our tree is in a park or residential area where the tree may be more stressed or crowded, it is likely the calculation of age is a little high. Often, I will apply my "urban forest factor" of deducting 25% from the age calculation. This is an anecdotal deduction based on experience with aging trees in different environmental situations. If we apply this factor, the tree is aged at about 83 years old. So somewhere in that range would be a good guess. Again, it's all a fun estimation.

Formula for Aging Trees:
Diameter = Circumference divided by 3.14

Formula: DBH X Growth Factor

Tree Species	Growth Factor	Tree Species	Growth Factor
Red Maple	4.5	White Oak	5.0
Silver Maple	3.0	Red Oak	4.0
Sugar Maple	5.0	Pin Oak	3.0
River Birch	3.5	Linden or Basswood	3.0
White Birch	5.0	American Elm	4.0
Shagbark Hickory	7.5	Ironwood	7.0
Green Ash	4.0	Cottonwood	2.0
Black Walnut	4.5	Dogwood	7.0
Black Cherry	5.0	Redbud	7.0