

CIRCUMFERENCE

Introduction to Circumference

Circumference (also called girth) is easy to measure whether done with outstretched arms, a string, or a tape, for single upright trunks on level ground. But good measurements can be surprising difficult to get for trees with complex shapes or in difficult terrain.

Measurements are complicated by: (1) tree form, (2) whether a trunk is upright or leaning, (3) single or multiple stems, (4) whether or not the tree is on level or sloping ground, and (5) obstructions that limit access to the trunk.

Basic Circumference ● ●

Wrap a diameter tape around the trunk at 4.5 feet above mid-slope of the tree's base and take the measurement in inches.

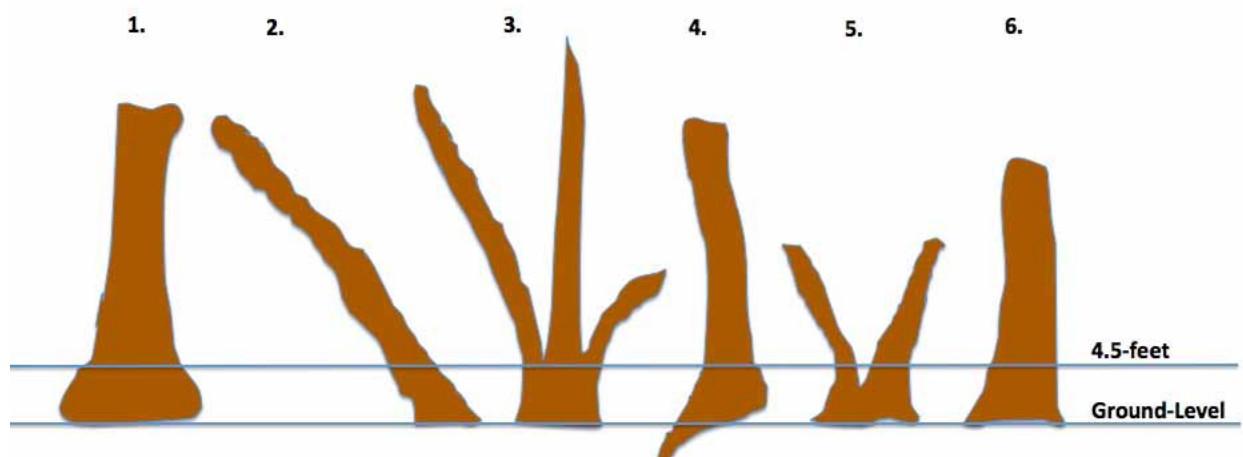
When the trunk is leaning, wrap the tape at 90 degrees to the axis of the lean, instead of parallel to the ground.

The choice of the 4.5-foot height is for convenience. It is approximately chest height, as reflected in the forestry term “diameter at breast height”, or DBH.

With trees that exhibit rounded, knotty growths, or burls, limb extensions or any other abnormalities at 4.5 feet above ground level, measure the smallest circumference between 4.5 feet and the ground.

The diagram below gives an idea of the variety of trunk forms we cover.

Diagram of Trunk Forms



Forms 1 and 6 are straightforward.

Forms 2 and 4 require the tape to be wrapped at an angle that is 90 degrees to the axis of the trunk (not shown here), and therefore not parallel to the ground.

For form 4, the tree is also on sloping ground, a situation we discuss in detail on page 8.

Form 3 appears straightforward, but a problem arises if the three trunks appear to represent the fusion of separate trees, i.e. three trunks pressed together. In this situation, we measure the largest trunk.

Form 5 has the potential to also be separate trees, but if considered one, measurement at 4.5 feet would include the open space between the trunks. We must avoid this, and use Rule #2 below.

Measurement Guidelines for Multi-trunk Trees ● ●

1. If we conclude that a form actually represents two or more trees that have their trunks pressing together, we measure the largest trunk.
2. If we conclude that the form is a single tree, but splits below 4.5 feet, we measure at the narrowest point between the split and the ground.
3. If we conclude that it is a single tree and the split is above 4.5 feet, we measure the trunk at 4.5 feet.
4. To decide whether a multi-trunk form represents more than one tree, we employ a Pith Test, discussed on page 11.

Standard Circumference Measurement for Trees on Sloping Ground



Mid-slope Rule ●

Locate mid-slope, and go up 4.5 feet to reach measuring height.

Mid-slope is where we judge the seed to have fallen. The mid-slope rule evens the playing field for comparing trees in different terrain by starting where growth began. In contrast, the forestry profession typically goes 4.5 feet above the upslope point.

Measuring circumference on sloping ground takes its simplest form for a single-trunk tree where 4.5 feet above mid-slope is above the location where the trunk touches the ground on the uphill side.