

Basal Area

Basal area per tree is the cross-sectional area of a tree at breast height. It can be calculated from Diameter at breast height (**DBH**) by the following English formula:

$$BA = \left(\frac{\pi}{4 * 144} \right) * DBH^2$$
$$BA = 0.005454154 * DBH^2$$

where:

BA is basal area per tree in square feet.

DBH is the diameter at breast height in inches.

π is the constant 3.1415.

It can be calculated from Diameter at breast height (**DBH**) by the following metric formula:

$$BA = \left(\frac{\pi}{4 * 10000} \right) * DBH^2$$
$$BA = 0.00007854 * DBH^2$$

where:

BA is basal area per tree in square meters.

DBH is the diameter at breast height in centimeters.

π is the constant 3.1415.

Basal area per acre is the sum of all the basal area per tree in the acre. **Basal area per acre or hectare** is a standard measure of the size-density relationship in a stand.

$$BA/unit = \sum_{i=1}^n BA_i w_i$$

where:

BA/ac is the Basal area per acre,

BA_i is the Basal area per tree for the *i*th tree

W_i is the sample expansion factor weight.

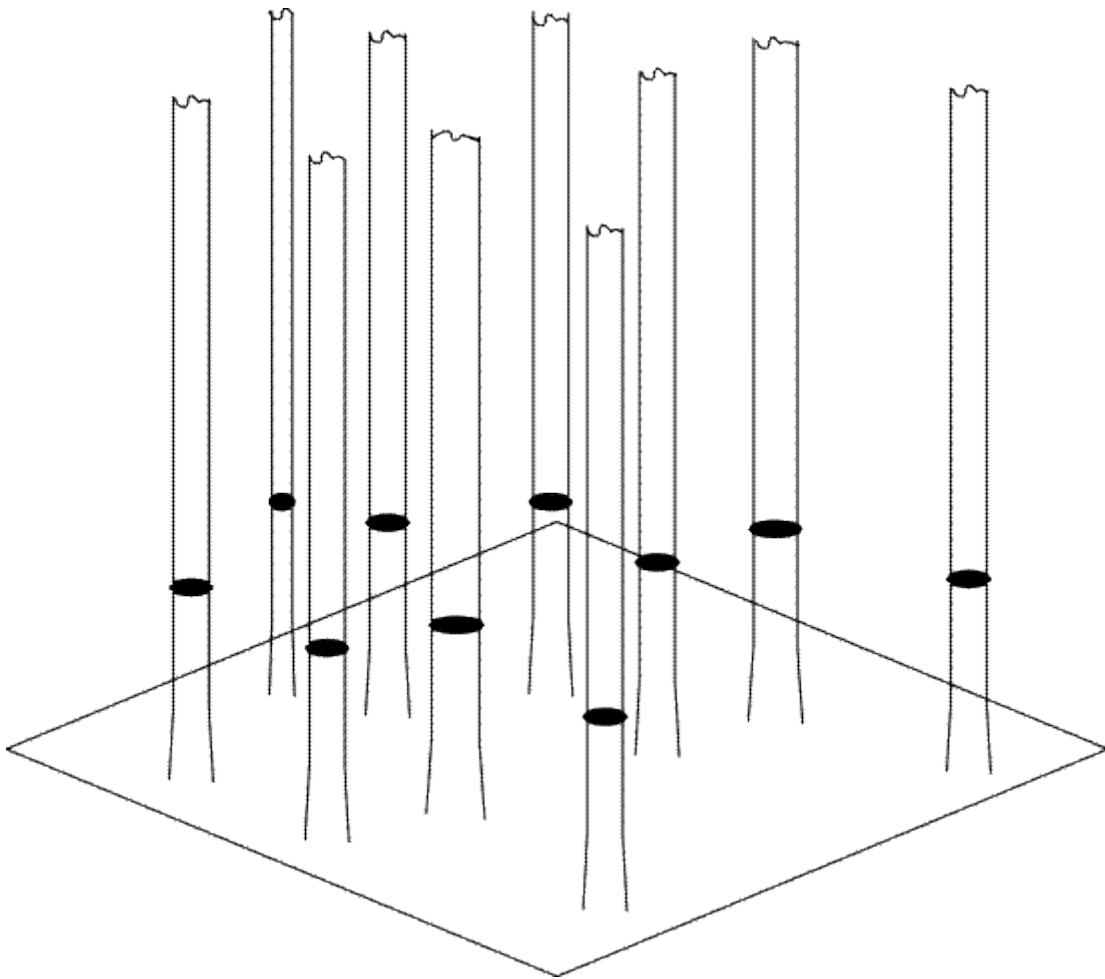


Figure 1. An illustration of the basal area per acre. The basal area per tree is the cross-sectional area of each tree at breast height (the black ellipses). Basal area per acre would be the sum of these cross-sectional areas for all tree in an acre.