

## Useful Forestry Measurements

**Acre:** A unit of area equaling 43,560 square feet or 10 square chains.

**Basal Area:** The area, usually in square feet, of the cross-section of a tree stem near its base, generally at breast height and inclusive of bark. The basal area per acre measurement gives you some idea of crowding of trees in a stand.

**Board Foot:** A unit of area for measuring lumber equaling 12 inches by 12 inches by 1 inch.

**Chain:** A unit of length. A surveyor's chain equals 66 feet or 1/80-mile.

**Cord:** A pile of stacked wood measuring 4 feet by 4 feet by 8 feet when originally conceived.

**Cubic Foot:** A unit of volume measure, wood equivalent to a solid cube that measures 12 inches by 12 inches by 12 inches or 1,728 cubic inches.

**Cunit:** A volume of wood measuring 3 feet and 1-1/2 inches by 4 feet by 8 feet and containing 100 solid cubic feet of wood.

**D.B.H. (diameter breast height):** The measurement of a tree's diameter at 4-1/2 feet above the ground line.

**M.B.F. (thousand board feet):** A unit of measure containing 1,000 board feet.

**Section:** A unit of area containing 640 acres or one square mile.

**Square Foot:** A unit of area equaling 144 square inches.

**Township:** A unit of land area covering 23,040 acres or 36 sections.

## Equations

### **Cords per acre (based on 10 Basal Area Factor (BAF) angle gauge)**

**(# of 8 ft sticks + # of trees)/(2 x # plots)**

### **Based on 10 Basal Area Factor Angle Gauge**

**Example:**

**$(217+30)/(2 \times 5) = 24.7$  cords/acre**

### **BF per acre**

**$((\# \text{ of 8 ft logs} + \# \text{ of trees})/(2 \times \# \text{ plots})) \times 500$  Bd ft**

**Example:**

**$((150 \times 2) + 30)/(2 \times 5) \times 500 = 9000$  BF/acre or 9 MBF/acre**

## Useful Resources

- Compass information from, “OA Guide to Map & Compass – Part 2” part of The Backpacker’s Field Manual by Rick Curtis published by Random House 1998  
<http://www.princeton.edu/~oa/manual/mapcompass.shtml>
- “Sampling and Measuring Timber in Private Woodland” University of Minnesota Extension publication FO-03025,  
<http://www.extension.umn.edu/distribution/naturalresources/components/DD3025-02.html>
- Declination calculator, <http://www.ngdc.noaa.gov/seg/geomag/jsp/Declination.jsp>
- MN DNR Airphotos Online, <http://www.dnr.state.mn.us/airphotos/index.html>