

FORESTRY 101

Woodland Terms: Part 2

Timber Measurements, Products, Harvesting, and Sales

by Doug McLaren

Kentucky woodlands provide many values to owners and the state. The economic value of the trees in your woodland will largely be determined by the products they can produce. Every tree is not equal in the eyes of a professional forester who is evaluating them from a timber perspective. Imagine yourself as a forester walking through your woods evaluating the individual trees. Below are a few of the terms that a forester will share with you when considering the timber management options for your woodlands—look for and understand the terms in bold to improve your forestry knowledge.

Timber Measurements

The tree scale stick, or **Biltmore stick**, is a tool that a forester will often carry into the woods to make tree and log measurements. The Biltmore stick can be used to quickly measure tree height and tree and log diameter. Woodland owners will often hear the term “board feet” when trees or logs are measured. A **board foot** is a unit of wood that measures 12 inches by 12 inches by 1 inch, or equivalent volume. The board foot is the unit of measure used when discussing the volume of trees, logs, and boards.

Various **log rules** have been developed over the years to attempt to accurately determine the number of board feet that can be derived from a log. Each log rule has limitations and advantages, but in Kentucky two log rules dominate, **Doyle** and **International 1/4-inch**. The International 1/4-inch is used primarily for national forest sales, while most private sales utilize Doyle. When making a timber sale, volume is an important factor in the negotiations, along with species,

quality, and the current market situation.

Foresters evaluate the exterior of a standing tree to estimate its quality, looking for visible defects that could reduce the overall tree grade. A **tree grade** is based upon diameter, height, and blemishes and gives some indication of the potential merchantable volume of the tree. Once the tree has been cut down and into merchantable lengths, it becomes a **log**. When the log is on the ground, the end defects can be observed to help in determination of the **log grade**. Tree and log grades are used to predict the amount of high-quality lumber that will be produced and the potential end uses. The higher the tree and log grades, the more potential products and higher dollar value.

Timber Products

Numerous timber products are derived from Kentucky's trees. Three common timber products are sawtimber, pulpwood, and staves. **Sawtimber** includes trees that are generally a minimum of 12 inches in diameter at 4.5 ft. above the ground and are converted to lumber. **Pulpwood**

trees have a smaller diameter and are converted to pulp for the production of paper. **Stave timber** is white oak trees that have a high log grade and larger minimum diameter than sawtimber. The end product will be barrel staves. White oak is used because its wood will prevent liquids from leaking out – an important attribute of barrels. Trees that have a high tree and log value can also be utilized in the veneer industry. Trees that qualify as **veneer** are typically of the highest quality and will be sliced thinly and adhered to a lower quality board to improve the end product's value.



Photo courtesy: Billy Thomas

A board foot is the standard unit of measure when dealing with timber and lumber. It measures 12 inches by 12 inches by 1 inch thick or equivalent volume.

Photo courtesy: Steve Patton

Timber Harvesting

Woodland owners working with a professional forester may be advised as to when a timber harvest or thinning should be made to maintain a healthy and vigorous stand. There are a variety of harvesting alternatives, and the alternative chosen should be based upon the needs of both the woodland owner and the present and postharvesting needs of the woodland. The following alternatives are only a few of the options that landowners and foresters can discuss when planning for a harvest. A woodland owner with a well-designed Forest Stewardship plan will have these discussions before harvesting begins.

Many woodland owners may prefer a **selective harvest**, in which not all the trees are harvested. This type of harvest removes individual trees or small groupings of trees and perpetuates a stand of trees of uneven ages. Landowners utilizing a selective harvest may be able to make more frequent harvests; however, this approach can also result in more damage to the remaining trees and the loss of some species requiring more light. Also, woodland owners should use caution so that a selective harvest does not end up being a high-grade or diameter limit; either can degrade woodlands over the long-term. A **high-grading** harvest simply removes the most valuable trees, and a **diameter-limit** harvest is based solely on a minimum diameter. Neither of these types of harvests considers woodland management concerns. **Clear-cutting** is a harvesting method in which nearly all the stems are removed, regardless of the size or species. A clear-cut may be prescribed by a forester when the existing stand is of low quality and there is a need to start the stand over with more valuable regeneration.

Improper timber harvesting can impact water quality, but that impact can be minimized through the use of **Best Management Practices (BMPs)**.

BMPs are practices that minimize sediment movement on the site due to road construction and the movement of equipment and trees. The majority of water quality issues on a timber harvesting operation arise because of poorly designed roads.

Photo courtesy: Jeff Stringer



Use a professional forester to mark a selective harvest so that the remaining trees and stand are protected.

Timber Sales

A desire to harvest by the woodland owner and the forester is only the beginning of a long list of considerations required to facilitate a successful harvest.

Proper planning will ensure the timber sale meets the need of the owner and the woodlands. All timber sales should be covered by a **written contract** that lays out the issues involved in the actual harvesting of the timber and postharvesting concerns for the residual stand. The contract should specify the method of payment in order to protect the woodland owner and the logger (or timber buyer). In general, tax laws allow the woodland owner to claim the sale of timber as capital gains instead of ordinary income if the timber is held for 12 months prior to the sale and the woodland owner receives a **lump sum payment**, with all the money paid before the harvest. Some contractors suggest a payment referred to as **payment on the shares**, in which the owner and logger share checks from the sawmill based on a predetermined split. Foresters may not suggest share payments because it can lead to confusion on the part of a client who is unfamiliar with issues about the quality, quantity, and species of timber that could be delivered to several different mills.

Foresters will also advise woodland owners on the issues of timber trespass and theft. See UK Forestry's Timber Theft and Trespass webpage www.ca.uky.edu/forestryextension/timbertrespass.php for a thorough discussion of **timber trespass and theft**.

The management of woodlands can be fun and profitable. Work with a professional forester to design and implement a Forest Stewardship plan for your woodlands. It is never too late to begin!

For additional Woodland Terms see Kentucky Woodlands Magazine Volume 4 Issue 3 or visit online at www.ca.uky.edu/KYWoodlandsmagazine/Vol4_No_3/FOR101pg16-17.pdf

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Woodland Terms:

- Board Foot
- Tree grade
- High-grading
- Clear cutting
- Selective harvest



Visit www.ca.uky.edu/forestryextension/Publications/for109.pdf to view this publication.



Photo courtesy: Daniel Bowker
Best Management Practices (BMPs) such as the water bars shown in this image are designed to protect water quality during timber harvesting operations. BMPs significantly reduce the main water quality issue (sedimentation) associated with timber harvesting.