FORESTRY FACTS

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What Is A Chain?

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A chain is a unit of measure commonly used by foresters to determine horizontal distances. However, the chain is seldom used by others, being replaced by feet and other units. This is unfortunate because the chain, for many purposes, is a more convenient unit.

The chain has a history of use in early surveys. In fact the original tool for measuring distances in the woods of the United States and Canada was commonly the Gunter's Chain. This chain was 66 feet long and composed of 100 links of stout wire, each 7.92 inches long. Today's "chain," also 66 feet long, is actually a steel tape that is either coiled or retracted on a reel for carrying.

Why a unit of measure having such an odd length of 66 feet? This can best be explained by looking at some of the conversions that are possible with the chain. First, let's look at distance:

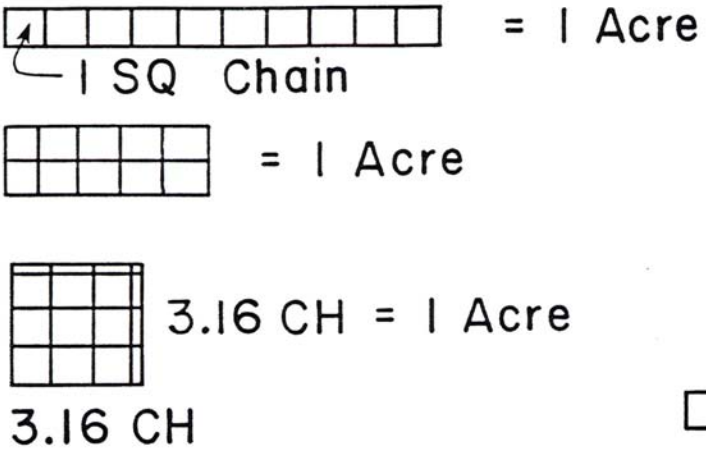
Since a rod equals 16 ½ feet, a chain contains exactly 4 rods; 66/16.5 = 4.0

A mile is 5,280 feet long, therefore a mile contains exactly 80 chains; 5,280/66=80.

What really makes the chain a handy unit of measure is when it is used to measure areas:

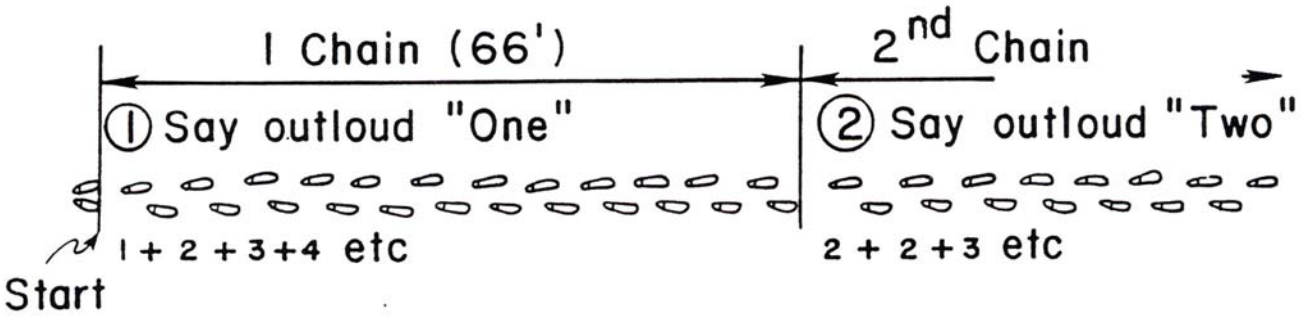
One square chain (a square having sides that are each 1 chain, or 66 feet in length) contains 4,356 square feet; 66' x 66' = 4,356.

Since one acre contains 43,560 square feet, it also contains exactly 10 square chains; 43,560/4,356=10 (see diagram on page 2).



Therefore, with such useful conversions as 80 chains per mile and 10 square chains per acre, it's no wonder that this unit has survived over the years.

You can borrow or purchase a steel tape graduated in chains for use in determining distances and areas in your woodlot, or you can learn to pace the distances. The latter is less accurate, but may suffice for many purposes other than legal surveys. To learn pacing lay off a 66-foot distance in your woods and mark the ends with stakes. Then walk between the stakes, counting your paces (one pace equals two steps) as you go. You may want to repeat the process a few times and average the results. A word of caution, determine your pacing for a comfortable stride, not one that you normally don't use or can't maintain.



If your land is hilly, you'll want to practice this on steeper ground as well. In this case you must be sure to lay off the 66-foot distance horizontally and not along the slope. This may require measuring the 66 feet in several shorter horizontal segments - called "breaking chain" by surveyors.

Once you've determined the number of paces it takes for you to walk one chain, you're ready to measure distances and areas in the woodlot.

For example, suppose you're curious about the number of acres actually harvested during your last timber sale. If the area is roughly rectangular in shape you can pace the length and width and multiply the two to get the area. If in this example, the width is 12 chains and the length is 15 chains, you would multiply 12 x 15 and obtain 180 square chains in the harvested area. This can easily be converted to acres by dividing 180 by 10, resulting in 18 acres. The acreage of irregular shaped areas can be estimated by partitioning the area into smaller rectangles. Then, estimate the acres in each (as above) and add the results to get a total.