Young Stand Thinning Strategies

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By withrowb August 5, 2016

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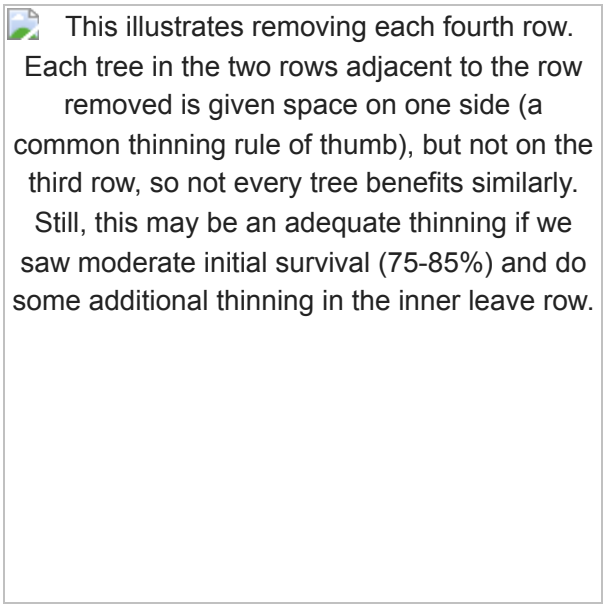
Continuing on the general theme of young stand management and especially the need for thinning, I'd like to look at strategies for thinning a young stand. Let's start with some things to keep in mind about Young Stand Thinning or YST (also called precommercial thinning or PCT):

- The idea of young stand thinning (YST) is to avoid harmful overcrowding later by removing excess trees early on.
- The impact of thinning out a tree is very local. The overall stocking level (trees per acre) can be misleading. It is the spacing among immediate neighbors that counts.
- The greatest benefit of YST is increased growing space rather than selection among trees. Creating more growing space to benefit as many leave trees as possible is the primary goal. Culling is secondary.
- YST is key to achieving longer rotations and many non-timber objectives many family forest landowners desire.

As discussed previously , the common practice of planting Douglas-fir on a 10×10 grid gives about 440 trees per acre (tpa), which is too many trees to carry to an initial thinning harvest. We plant extra trees to allow for seedling losses in the establishment phase, but depending on survival, we will likely be well above our target for the initial thinning harvest (250-300tpa). So we need to remove 1/4 to 1/3 of the trees in a YST if trees are to reach a usable size before they become overcrowded. There are several approaches to that.

If we have a plantation with a regular and uniform planting pattern, a very simple and efficient approach to this is row removal. Removing every fourth row would reduce to 75% of original trees/planting spaces (reducing from 440 tpa to 330 tpa) and removing every third row would reduce to 67% (from 440 tpa to 295 tpa). Each is illustrated below.

Besides the mechanical and intellectual ease of row thinning, it can have added benefits if you are a little late in doing the job, and having trouble getting the larger trees to fall to the ground. Felling a row gives room to fell trees into an open space.


This illustrates removing each fourth row. Each tree in the two rows adjacent to the row removed is given space on one side (a common thinning rule of thumb), but not on the third row, so not every tree benefits similarly. Still, this may be an adequate thinning if we saw moderate initial survival (75-85%) and do some additional thinning in the inner leave row.

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Another systematic and only slightly less straight forward approach is to remove every third or fourth tree in a row. That sound too easy? By saying you will choose any one of every 3 or 4 trees in each row, you can do some limited selection and remove small or defective trees preferentially. But don't get carried away, stay focused on the main goal of removing one of each group of three or four trees, not culling. That comes later. When you come upon a gap with a missing tree (previously thinned by deer, voles or drought) you may count it as a removal and move on, or not, depending on you actual stocking, your target stocking, and how many trees you need to remove. You can also take a couple rows at a time and consider the 3 or 4 spaces in each row as a group of 6 or 8 from which to choose your two trees to thin out.

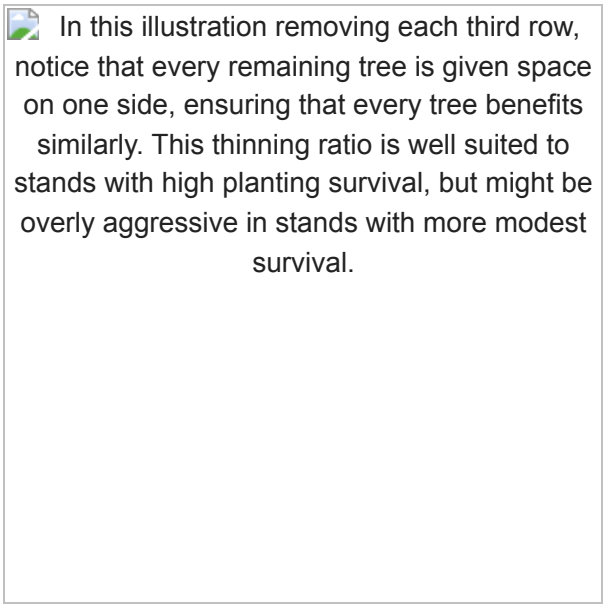
So there you have a few simple approaches that will allow you to expand the growing space and effectively redistribute resources among your leave trees through YST. Each can be done with a minimal amount of thought and debate. There are other schemes that also work. But the point is to choose an approach that makes sense to you, one that you can do consistently, effectively and efficiently. The earlier you do it (maybe around age 10 in western Oregon) the more efficient and beneficial it will be.

Remember, the idea of YST is to make room for trees to grow without harmful competition until more can be removed in the first thinning harvest, which should then pay for itself. It is at that initial thinning harvest that you can make more complicated decisions about spacing and arrangement to reflect your long term goals for a stand, such as habitat diversity or timber quality.

Young stand thinning is not all that complicated, but it does seem hard for people to get done. If you have too many trees it is a very important step towards keeping you on track. Without it, it is often harder to achieve many landowners' goals, especially those relating to aesthetics or habitat diversity.

Continue on to this article to find out how to estimate the density of your trees with a sample plot.

Continue on to this article to read about some potential challenges to consider in doing a young stand thinning.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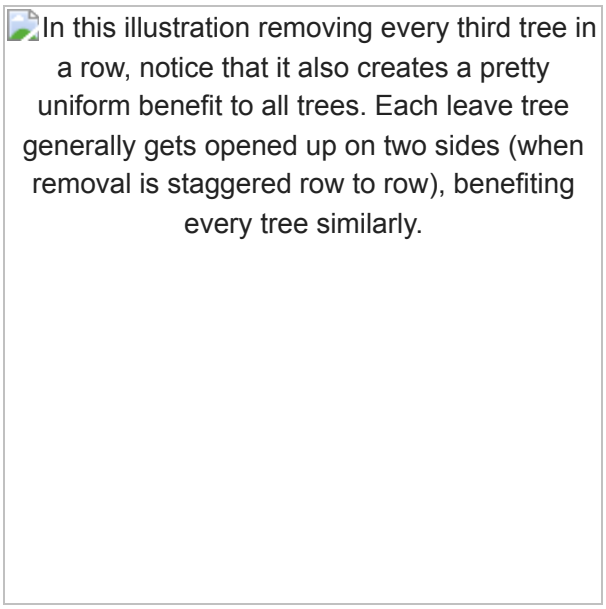
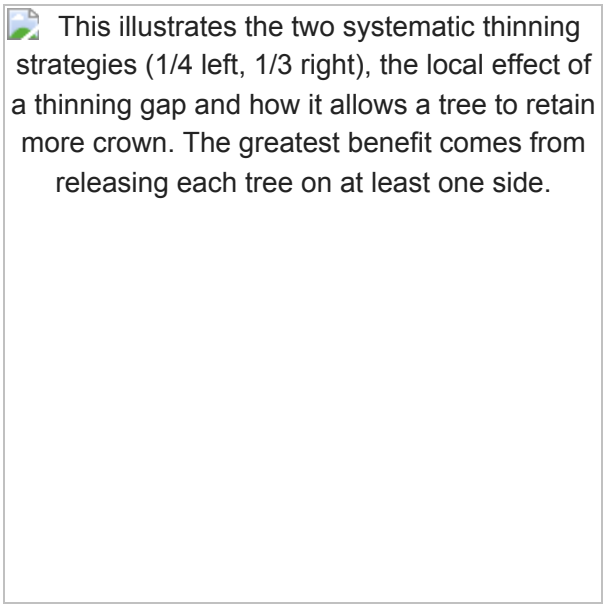


In this illustration removing every third tree in a row, notice that it also creates a pretty uniform benefit to all trees. Each leave tree generally gets opened up on two sides (when removal is staggered row to row), benefiting every tree similarly.



This illustrates the two systematic thinning strategies (1/4 left, 1/3 right), the local effect of a thinning gap and how it allows a tree to retain more crown. The greatest benefit comes from releasing each tree on at least one side.