



*early  
thinning  
in  
douglas  
fir  
woodlands*

COOPERATIVE EXTENSION SERVICE

OREGON STATE UNIVERSITY, CORVALLIS

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**Most young woodlands are too crowded. The trees compete with each other and growth slows. Early thinning will boost future profits even though the trees that come out now are too small to sell.**

PER-ACRE MEASUREMENTS OF THINNED AND UNTHINNED 42-YEAR-OLD DOUGLAS FIR STANDS

Treatment of Douglas Fir Stand	Average Diameter of Trees	Total Number Trees	TREES 7 INCHES & OVER IN DIAMETER		TREES 12 INCHES & OVER		Value at \$15/M bd. ft.
			Removed Earlier	Presently Standing	Presently Standing	Presently Standing	
	Inches	Number	Cords	Cords	International Board Feet	Scribner Board Feet	Dollars
UNTHINNED	7.8	554	None	53	25,000	6,100	\$ 90.00
THINNED*	13.3	207	26	73	37,000	25,500	\$375.00

\*This stand was thinned frequently, starting when the trees were 13 years old.

### Early Thinning Speeds Growth and Increases Profits

Douglas fir generally grows in even-aged stands. The trees are all within 1 to 10 years of the same age. So they compete with each other for light, water, and soil nutrients.

As they grow, some of the trees become taller and larger. They suppress or eliminate the smaller trees.

By the time a dense stand reaches 15 to 20 years of age, even the larger trees compete with each other. As a result, all trees grow at a slower rate and take longer to reach commercial size.

Early thinning reduces this competition. Thinning lets each remaining tree grow to merchantable size more quickly. The sooner overcrowded stands are thinned, the greater future profits.

Part of a Douglas fir stand on a rather poor growing site at Wind River was thinned when the trees were 9 years old. Before thinning the trees were 3 to 4 feet apart; after thinning, about 8 feet. When the trees were 42 years old, the

thinned area was compared with the unthinned area.

The unthinned trees averaged 5.1 inches in diameter breast high and 11,100 international board feet per acre. The thinned trees averaged 7.8 inches d.b.h. and 23,650 international board feet. If this stand had been thinned frequently, yields would have been even greater.

Spacing test at the Wind River Experimental Forest. The trees are 35 years old. The stand at the left is spaced 4 by 4 feet; the one at the right 10 by 10 feet.

The 4 x 4 stand at the left has 1,790 trees per acre; the average diameter breast high is 4.1 inches; and the volume is 1,322 board feet per acre.

The 10 x 10 stand on the right has only 401 trees per acre; but the average diameter breast high is 7.5 inches and the volume is 13,202 board feet.

The trees were planted to these spacings when they were 2 years old.

Another Douglas fir stand on an average growing site was thinned frequently, starting when the trees were 13 years old. When the trees were 42 years old, they were compared with a normal, unthinned stand on the same kind of site.

In the unthinned stand, the trees 12 or more inches in diameter were worth \$90 per acre. In the thinned stand, they were worth \$375.



## **Leave the Best Trees**

Start thinning when the trees are from 10 to 20 years old. Leave the larger, well spaced trees. Thin to give them enough growing room. The first trees to take out are these:

- Poorly formed, badly injured, or diseased trees.
- Rough, limby trees where you still have better shaped, larger trees to leave.
- Competing species of less value.
- Overcrowded, smaller trees.

After these trees are out, it will probably be necessary to remove a few overcrowded, larger trees to get the spacing needed for best growth. Remember, spacing distances are averages. Keeping a good crop tree is more important than having the exact spacing.

Try to fall all trees in the same direction to avoid a criss-cross, jack-straw effect. Lop and scatter the unmarketable trees that are cut out. This hastens decay and reduces the fire hazard.

## **Decide on the Spacing**

The spacing to use depends on how often you plan to thin the stand. Thinning frequently is best, but one thinning is better than none.

*Frequent thinnings* keep the trees growing at top speed and eliminate any possibility of thinning so much at one time that windthrow, sunscald, or brush growth become problems.

Start thinning when the trees are around 5 to 6 feet tall. At this stage, 8-foot spacing between trees is adequate. This spacing gives about 680 trees per acre. Additional thinnings every 5 years or so are desirable.

*A single thinning* takes less out-of-pocket money than frequent thinnings. The spacing to use for a single pre-commercial thinning depends on likely future markets in your area.

## SPACINGS FOR SINGLE THINNINGS

Diameter Wanted <i>Inches</i>	Spacing Needed <i>Feet</i>	Area Needed Per Tree <i>Square Feet</i>	Trees Per Acre <i>Number</i>
7	10 x 10	100	436
8	11 x 11	121	360
9	12 x 12	144	303
10	13 x 13	169	258

The size product that can be sold at the first commercial thinning varies from place to place.

Today, trees that are 10 inches in diameter should find ready markets as pulp, poles, or saw logs. If the trees in your stand range from 2 to 8 inches in diameter and you want 10-inch trees for the first commercial thinning, use about a 13-foot spacing.

If you have a market for trees that are less than 10 inches in diameter, thin to the spacing that will provide a commercial product at the next thinning.

Removing too many trees, or too few, will reduce the future profits per acre. It is always best to get a forester's advice before thinning.

### **Commercial Thinnings**

Later thinnings that yield merchantable products give additional growing space and provide some profit. Make commercial thinnings at intervals of 3 to 10 years, or longer, according to the needs of the stand and markets available.

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