

# Research Note

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## DOUGLAS-FIR SITE AS A BASIS FOR SELECTING CHRISTMAS TREE LANDS

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Owners of Douglas-fir reproduction stands often ask, "Is this land suited for Christmas tree production, or should I hold it for timber?" In answering this question, foresters will find a consideration of site will usually be helpful as a supplement to personal judgment and experience. The following table shows how some of the stand characteristics, important for both Christmas trees and timber, vary by site class.

### Development of fully stocked stands of Douglas-fir by site class<sup>1/</sup>

Site class	Time to grow 5 feet tall	Average height		Average leader length		Trees per acre		Average d.b.h. 100 years	Yield per acre 100 years
		10 years	20 years	0 - 10 years	10 - 20 years	20 years	100 years		
	(years)	(feet)	(feet)	(in.)	(in.)	(No.)	(No.)	(in.)	(bd. ft.) <sup>2/</sup>
I	7	14	52	17	45	571	75	27.6	115,100
II	8	10	44	12	41	880	123	21.2	90,400
III	9	7	37	9	36	1,460	184	16.9	62,800
IV	10	5	29	6	29	3,069	271	12.8	31,400
V	11	4	21	5	20	6,920	403	9.4	9,600

<sup>1/</sup> Based on U.S. Dept. Agric. Tech. Bul. 201, Yield of Douglas-fir in the Pacific Northwest, by R. E. McArdle, W. H. Meyer, and D. Bruce. Oct. 1949.

<sup>2/</sup> Scribner rule, trees 12 inches d.b.h. and over.

Several observations can be drawn from these site comparisons:

(1) Effect of site on height growth is less pronounced during the seedling stage. On site I, for example, the average tree grows 14 feet during the first 10 years, compared to 38 feet during the second decade. In the first year after germination, seedlings usually grow only 2 to 4 inches, no matter how good the site.

(2) On site V, volume growth is usually too slow to produce commercial timber in a reasonable time. Lands of this class are therefore often best suited to Christmas tree farming. On the other hand, rapid growth on good sites makes the land ideal for timber crops, but unsuited for Christmas trees. The intermediate sites III and IV, where both uses may be possible, are more questionable. Drastic cultural practices are sometimes employed to reduce height growth on these average sites and thus produce saleable Christmas trees. As a rule, if growth is so fast that heavy scarring and severe pruning are necessary to reduce leader growth, the area is probably better suited for timber production. In general, leader length or distance between whorls in Christmas tree stands should not be over 1 foot.

(3) Some of the finest Christmas tree grow on sites lower than Class V where a uniform height growth of about 6 inches per year is not uncommon. This growth rate is ideal for high quality Christmas trees.

(4) Other advantages of growing Christmas trees on poor sites are: Ease of getting reproduction if suitable seed trees are present; dense stocking or large number of seedlings and small trees produced on each acre; reduced competition from alder, weeds, and rank brush; ease of building truck trails in dry, gravelly soils; and lower cost per tree for cultural treatment.

(5) Christmas tree plantations are affected by site in a slightly different way. Where seedlings are planted on extremely poor, dry sites, very few survive. It is probably better to select an average site and depend on cultural practices and early cutting to avoid excessive growth. On the other hand, Douglas-fir trees planted on good sites usually grow so fast that very few marketable specimens are produced. Seed source of planting stock, also, has a pronounced effect on form and growth.

(6) Lands in the better site classes judged to be best suited for growing timber should not be repeatedly high-graded for Christmas trees. During the early years in the life of reproduction stands, a limited number of Christmas trees can be cut if they are judiciously selected and properly spaced so as to benefit the future timber crop. If done with discrimination such cutting serves as an early thinning. One way to mark trees that should not be cut is to spray foliage with orange paint. This makes trees useless for the Christmas market.

(7) Economics are always a determining factor, but it is not good forest management to sacrifice high future values for small, immediate returns. This is a temptation to many woodlot owners in dealing with young timber stands as well as Christmas trees.