



Cooperative Extension Service

Oregon State University

Corvallis

## GROWING RED ALDER FOR PROFIT

*from Wash State University* Extension Circular 775 June 1964



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Red alder used to be a "weed" tree because there was almost no market for it. Now, however, it can be a "money" tree. Market outlets in western Oregon and Washington have expanded greatly.

In the ten years from 1952 to 1962, the volume of red alder harvested rose to 25 times the 1952 rate. Nineteen of the 53 Pacific Northwest pulp mills now use it. Red alder is also used as a furniture wood.

This means it's now profitable to grow red alder as a crop tree in areas where it flourishes and grows rapidly.

On most western Oregon and Washington sites, conifers such as Douglas-fir are a more profitable crop tree than red alder. But some sites, because of their more favorable moisture conditions, are better suited to red alder.

## HOW RED ALDER GROWS

Red alder prefers moist, well-drained growing sites with acid soil. It grows best at elevations below 1500 feet and usually grows taller and is more vigorous on the lower slopes and well-drained bottoms.

This tree demands full crown exposure to sunlight throughout its lifetime. It regenerates easily with sun, moisture, and exposed mineral soil. If the soil is deep, fertile, and well drained, early growth is very rapid.

Red alder is a fast-growing, short-lived tree. It reaches "old age" at 50 to 60 years and often becomes large enough for pulpwood at 25 to 35 years.

## JUDGING THE VALUE OF STANDS

Some stands of red alder are worth managing. Others won't pay for improvement practices or may even need to be clear-cut and replanted to Douglas-fir.

A numerical rating known as the "site index" can be used to judge the growth potential of a natural stand of pure alder. The site index number is the same as the height of the trees at 50 years.

To find the site index number for stands of other ages, determine the height and age of the five to ten largest trees and then use Table 1 to determine the site index. For example, if a stand is 25 years old and the average height of the largest trees is 65 feet, the site index is 90.

Table 2 shows the pulpwood yield that can be expected from natural, fully stocked stands of alder on the different sites. For instance, if the site index is 90 and the trees are held until they are 35 years old, they should yield 3,500 cubic feet of pulpwood per acre—or 39 cords (90 cubic feet = 1 cord). If the trees are held until they are 40 years old, they should yield 4,030 cubic feet.

Table 3 shows the sawlog yield that can be expected on the various sites. If the stand is thinned, the waiting periods for the yields shown in both Table 2 and Table 3 will most likely be shortened.

## EARLY THINNING FOR HIGH-VALUE STANDS

Early thinning in crowded stands will generally increase board foot volume on the better red alder sites. All stands respond to thinning if done early enough, but since the cost of thinning is about the same on poor sites as on the better ones, the returns

TABLE 1—SITE INDEX FOR RED ALDER

Age years	Average Height—Dominant and Codominant Trees					
	feet					
10	27	31	35	39	43	47
15	37	42	47	52	58	63
20	44	50	57	63	69	76
25	50	58	65	72	79	86
30	56	63	71	79	87	95
35	60	69	77	86	94	103
40	64	73	82	91	100	109
45	67	77	86	96	105	115
50	70	80	90	100	110	120
55	73	83	93	104	114	124
60	75	86	96	107	118	128
65	77	88	99	110	121	132
70	79	90	101	113	124	135
75	80	92	103	115	126	138
Site Index	70	80	90	100	110	120

TABLE 2—PULPWOOD YIELD PER ACRE  
For All Trees Larger Than 5 1/2 Inches D.8.H.

Age years	Site Index					
	70	80	90	100	110	120
	cubic feet					
10			120	240	350	470
15	470	680	900	1,110	1,320	1,530
20	1,010	1,320	1,620	1,930	2,240	2,540
25	1,500	1,900	2,300	2,700	3,100	3,500
30	1,940	2,430	2,930	3,420	3,920	4,410
35	2,320	2,910	3,500	4,090	4,680	5,270
40	2,660	3,350	4,030	4,720	5,400	6,080
45	2,950	3,730	4,510	5,290	6,070	6,840
50	3,190	4,060	4,940	5,810	6,680	7,560
55	3,380	4,350	5,320	6,280	7,250	8,220
60	3,520	4,580	5,640	6,710	7,770	8,830
65	3,610	4,770	5,920	7,080	8,240	9,390
70	.....	4,900	6,150	7,400	8,650	9,900
75	.....	.....	6,330	7,680	9,020	10,360

TABLE 3—SAWLOG YIELD PER ACRE  
For All Trees Larger Than 9 1/2 Inches D.8.H.

Age years	Site Index					
	70	80	90	100	110	120
	board feet					
20			100	1,200	2,400	3,500
25	200	1,800	3,500	5,200	6,900	8,800
30	2,400	4,600	6,800	9,200	11,700	14,300
35	4,500	7,300	10,300	13,400	16,600	20,000
40	6,500	10,000	13,700	17,600	21,700	26,000
45	8,400	12,700	17,100	21,900	26,900	32,100
50	10,300	15,300	20,600	26,200	32,100	38,400
55	12,000	17,800	24,000	30,500	37,500	44,800
60	13,600	20,200	27,300	34,900	42,900	51,700
65	15,100	22,500	30,600	39,200	48,100	56,800
70	16,400	24,700	33,800	42,800	52,100	61,900
75	17,500	26,800	36,100	45,700	55,900	66,800



Dense young alder stands, growing on good sites, grow faster after an early pre-commercial thinning and become ready for market sooner.

from thinning are much greater on the better growing sites.

Thinning maintains fast growth of the better trees in red alder stands being held for market. It allows the trees that remain to keep the fullness of crown so necessary to rapid increase in wood volume.

Light pre-commercial thinnings between the ages of 12 and 20 years seem to offer promise. Indications are that less response can be expected in alder stands that are thinned as they approach maturity.

#### REPLACING LOW-VALUE STANDS

If the site index is low, another species would probably be more profitable. If the alder is less than 20 years old, bulldoze, clear-cut, or spray and replant with Douglas-fir or other conifer seedlings. However, if the stand has 20 years or more growth, it may be better to keep it, even though the site index is low.

#### RED ALDER IN MIXED STANDS

When red alder occurs in mixed stands, it sometimes overtops higher value species. In this case, red alder would be the first tree to be thinned out of the stand to release the more valuable species.

#### HARVEST AND REGENERATION

As the trees approach maturity and vigor lessens, red alder stands should be harvested.

On the highest quality growing sites, where early growth is very rapid, and where a short-term wood crop is desired, it may prove profitable to regenerate back to red alder. In this case, enough seed trees should be left during harvest cutting to restock the area by natural means. To get alder re-established, a favorable seedbed of exposed mineral soil is necessary.

If a new crop of Douglas-fir is desired, all red alder trees should be clear-cut, whether merchantable or not. This serves to reduce an undesired seed source and eliminates any overhead shade for the next crop of conifer seedlings.

Immediately after clear-cutting, the area should be promptly regenerated by hand-planting sturdy Douglas-fir seedlings. Larger planting stock has a better chance of surviving the early competition of brush, grass, and hardwood seedlings.

*This circular was published jointly by Washington State University and Oregon State University. It was prepared by the Washington Woodland Council, a group representing federal, state, and private organizations, in cooperation with the Extension forestry specialists of Washington State University and Oregon State University.*

Cooperative Extension work in Agriculture and Home Economics, F. E. Price, Director, Oregon State University and the United States Department of Agriculture, cooperating. Printed and distributed in furtherance of the Acts of May 8 and June 30, 1914.