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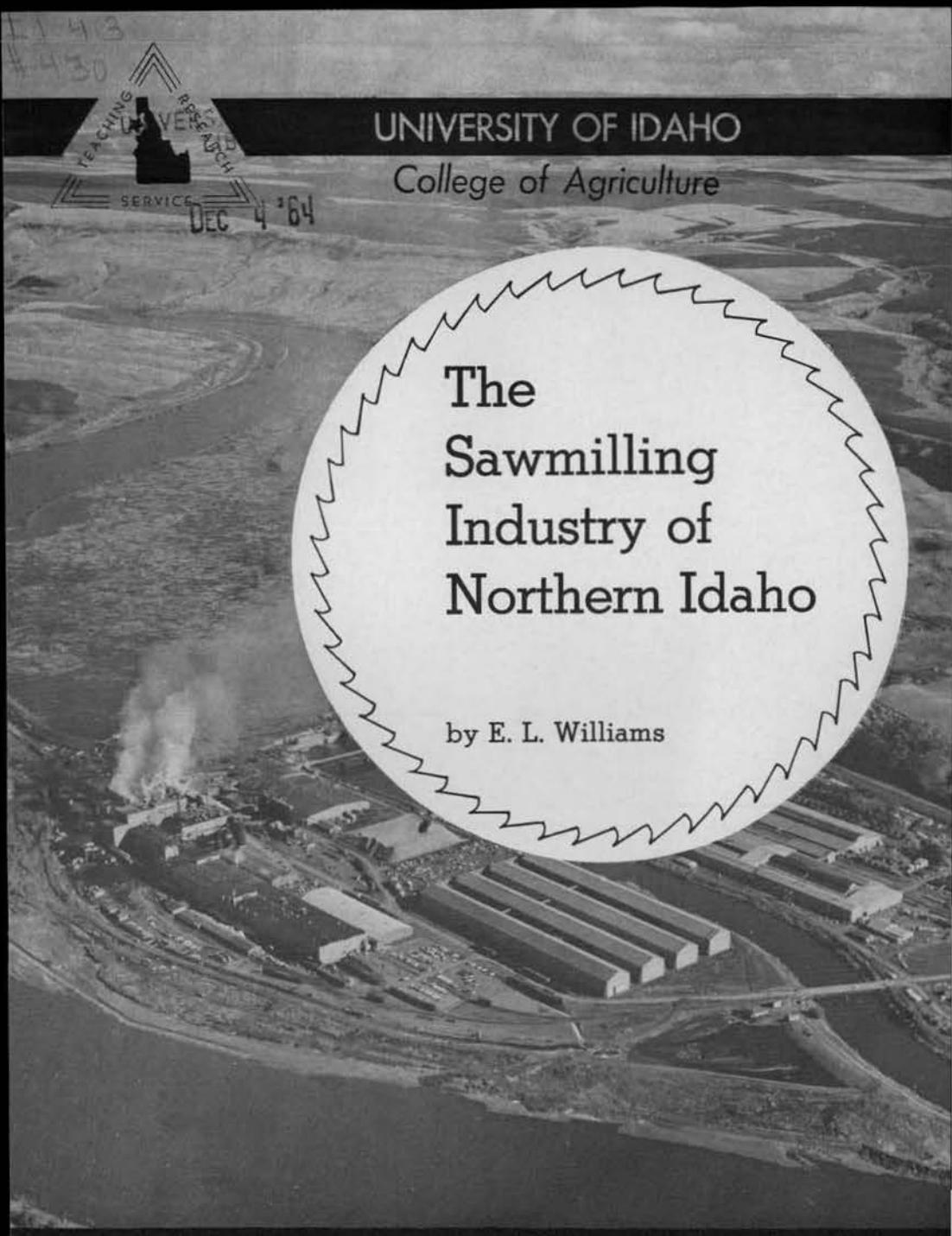

The Sawmilling Industry of Northern Idaho

by E. L. Williams

IDAHO Agricultural Experiment Station

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This bulletin is a contribution to Regional Marketing Project, WM-42, "The Market Structure and Marketing Practices Associated with Initial Processors of Timber Obtained from Small Woodlands." This study is being conducted at California, Colorado, Idaho, New Mexico, Oregon, Utah, and Washington. It is a cooperative effort between the College of Agriculture, Agricultural Experiment Station and the College of Forestry, Forest, Wildlife, and Range Experiment Station at the University of Idaho.

This study was made possible through the cooperation of 143 sawmills operating in northern Idaho.

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The Northern Idaho Sawmilling Industry

E. L. Williams

Introduction

Sawmilling is one of the oldest industries in northern Idaho. The first sawmill was built by the missionary Henry Harmon Spalding at Spalding, Idaho, and the first board from that mill was produced on April 1, 1840.

Since this early beginning, instability has been a characteristic of northern Idaho sawmilling. To better understand the industry and to overcome its variations, a study was begun to examine all facets of the business—log supply, milling facilities, production, and lumber sales. It was felt that a better understanding of the industry could lead the way to greater stability.

Until recent years, the high point for the northern Idaho lumber industry was 1925 when 955 million board feet were produced.[1] This level was not reached again until 1954.[2] One year, 1932, the total production was only 210 million board feet.[1] During the study period, 1955 to 1959, the average cut was 1.2 billion board feet per year.

The northern Idaho industry has been white pine oriented. The area had the largest virgin stands of white pine extant, and its importance to the industry was demonstrated during the depression when it yielded 80 percent of the cut. Previously, white pine accounted for only 40 percent of the cut. Now it has dwindled since 1935 until it has accounted for only about 20 percent of the cut in recent years. More significant, however, in terms of the industry, is the fact that all mills presently producing more than 100,000 board feet per shift have operated since 1928 and therefore "lived" on white pine during the depression.

The ten northern Idaho counties in the area studied contain 12.6 million acres. Ten and two-tenths million acres (81 percent) are classified as forest land. Of this acreage 7.8 million acres (77 percent) are classified as commercial forest land. The lower elevations and western edge of the area are farming areas. Generally, private and state owned forest lands border this farming area, while further to the east in the higher, more rugged and less accessible areas, the forest lands are under federal ownership.

[1] Hutchinson, S. Blair, "A Century of Lumbering in Northern Idaho," *The Timberman*, XXXIX.
[2] U.S. Dept. of Commerce, Lumber Production and Mill Stocks, Summary for 1951, Series M13G-01.

The earliest cutting was done along the main river drainages. Lumber producing centers were first located along the Clearwater and Kootenai rivers and Coeur d'Alene and Pend Oreille lakes. The most accessible timber was cut first and as the industry progressed the supply of timber became increasingly remote and more expensive to obtain.

The larger mills in operation today are established along the western edge of the study area where they have been operating for 30 or more years, even though they are now in agricultural areas. Smaller mills are generally located closer to the log supply in the area of private and state forest lands.

In 1960 there were 146 sawmills operating in the study area on a commercial basis which were in production during the period of 1955 to 1959. These mills showed wide variation in size, facilities, log source, and lumber sales.

An effort was made to contact every mill in northern Idaho which operated during the study period and was still operating in 1960 at the time of interviewing. All but three mills were contacted and since these three were very small units, over 99.5 percent of the production was included in the study. Schedules were taken in personal interviews with the management at each mill.

The Sawmills

Size and Type

The study area's lumbering industry was composed of many small mills and only six were producing more than 100 thousand board feet per day (See Table 1). Seventy percent sawed less than 40 thousand board feet per day.

The first two mills established in northern Idaho which are still operating were in the Coeur d'Alene area. They were established in 1890 and 1891. The six mills reporting a daily production of 100 thousand board feet or more were all established before 1928.

Table 1. Number of Mills by Size and Type.

Mill production per 8-hour shift	Conventional & combination[1]	Stud
0 - 9 M	29	—
10 - 19 M	29	2
20 - 39 M	37	5
40 - 59 M	18	2
60 - 99 M	14	1
100 - 300 M	6	—
Total	133	10

[1] Combination mills were those which had special facilities for producing studs operating in conjunction with a conventional carriage mill.

The initial move to specialized-type mills in the area occurred in 1953 with the building of the first stud mill. The first Swedish gang mill which is still in operation, was established in 1956.

Location

Northern Idaho can be divided into three marketing areas for the sawmilling industry. Sandpoint is the center of the northern area, Coeur d'Alene of the central area, and Lewiston of the southern.

The greatest concentration of small mills was in the northern area, but most of the mills sawing over 60 thousand board feet per day were in the Lewiston marketing area. As might be expected, the output per man-day increased from north to south.

Equipment

Numerous changes have been made in the mills in the past. Thirty-one of the 143 mills had built a new mill sometime since the first mills were built on their present locations. While there has been continuous change in the mills there has been amazing basic similarity maintained through the years. A small mill located near Grangeville was first erected in 1927. A mill of similar capacity erected today would be practically identical to this one. The first major departure in sawmilling method in the study area was brought in by the stud mill in 1953.

Forty-seven of the sawmills had band headsaws. The rest had circular headsaws except for two Swedish gang mills. All but three of the band mills were in three largest classes of mills.

A trend toward combination mills has developed. There were nine combination mills in 1960 and several operators expressed intent to add stud mills to present conventional mill operations. This makes it possible to efficiently saw small logs and still secure the higher values from logs containing high grade lumber.

Table 2 shows the variations in equipment for the mills in the study. The headsaw was the only piece of equipment found in every mill.

All the mills producing 100 thousand board feet or more per year were band mills. There were only three mills cutting under 20 thousand board feet per day that had band headsaws and in each case the owner was able to maintain the saws.

Table 2. Number of Mills Having Particular Equipment Items, by Size Class.

	Mill Class by Daily Capacity in Thousand Board Feet						
Mill Equipment	**0-9**	**10-19**	**20-39**	**40-59**	**60-99**	**over 100**	**Total**
Gang or Re-saw	1	3	13	7	15	6	45
Edger	25	31	40	19	12	6	133
Trimmer	6	25	40	17	12	6	106
Planer	3	9	24	13	10	6	65
Dry Kiln	—	—	9	13	9	6	37
Chipper	—	—	1	5	2	5	13

There were several small mills with unique labor saving devices and one is worthy of special mention. This mill is operated by one man and produces 3,500 board feet per day. The mill has a live deck, vertical edger, mechanical edging picker, trimmer, and partial lumber sorter all operated from one position. The mill is based on the man's mechanical ability and ingenuity.

Output Rates

Output per man-day was extremely variable (See Table 3). The high was 10,830 board feet and the low was 1,000 board feet per man-day. Generally the specialized mills were getting the greatest output per man-day. The stud mills showed about 80 percent greater productivity than conventional mills of comparable size.

Table 3. Production in Board Feet per Man-Day by Mill Size and Type.

	Per Man Per Day Output in Board Feet Production (By Mill Size Class)					
Type of Mill	**0-9M**	**10-19M**	**20-39M**	**40-59M**	**60-99M**	**100-300M**
Conventional & Combination	1718	2799	3489	3554	5262	4288
	(29)*	(29)	(37)	(17)	(13)	(6)
Stud		3542	6559	5000	10,834	
		(2)	(5)	(2)	(1)	
Swedish Gang				5500	4091	
				(1)	(1)	

* Figures in parenthesis indicate the number of mills in each production category.

As the conventional and combination mill's size increased there was generally a higher output per man-day until the six mills cutting 100 thousand or more board feet per day were reached. These mills had a lower output per man-day than the mills sawing 60-99 thousand board feet per day. This is possibly due to age of the mills. Most of the larger mills were at least 35 years old while most of the mills in the next smaller class had been built since World War II.

There was a total of 1,363 men, or an average of 9.5 men employed in the sawmills included in the study. Mills cutting 20 thousand or more board feet per day employed 82 percent or 1,120 of these men.

Sawmill Associations

A high degree of independence was demonstrated by the mills in the study area. Seventy-six of the 143 mills had no ties with any milling group or association. The largest mills, as might be expected, had more ties with other mills and groups. Most frequently mentioned was the Western Pine Association, followed by the Timber Products Manufacturers Association, and the North Idaho Forestry Association.

Log Supply

Land Ownership

Most of the mills owned very small tracts if any timber land of their own. The total forest land ownership of the mills is 670,655 acres. Seventy percent (475,000 acres) of this land is in possession of the six largest mills. As Alvin K. Wilson indicates, there is only a small portion of Idaho forest land available for private ownership.

> "A high percentage of Idaho's forest land area is federally managed. Either through ownership or trusteeship (in the case of Indian lands), the Federal Government is responsible for four-fifths of Idaho's 21.8 million forested acres. Most of these acres are in 16 national forests. The National Forests contain 16.3 million acres of Idaho's forest land. Indian lands, Bureau of Land Management lands, and national park lands make up the remainder of the Federal area. Private holdings, mostly in northern Idaho, contain 15 percent of all forest land. The remaining 5 percent are State owned lands."[1]

Source of Logs

Federal land, largely that of the U.S. Forest Service, is the source of 39 percent of the logs being utilized although it contains 80 percent of the forest land. It is followed by the sawmill's own ownership, 21.2 percent; state land, 16.9 percent, and other private, which includes large and small private ownership, 23.4 percent (See Table 4). The mills cutting over 100 thousand board feet daily are the least dependent on federal timber and rely mostly on their own timber. The mills cutting 1 to 90 thousand board feet

Table 4. Average Annual Production by Size and Log Source in Thousand Board Feet.

Mill Size	No. of Mills	Total Production	Source of Logs by Land Ownership			
			Federal	State	Company	Other Private
0-9	28*	22,205	13,295	60	5,400	3,950
10-19	31	58,600	19,950	3,200	6,300	29,150
20-39	43	251,250	105,950	35,800	16,400	93,100
40-59	19	244,800	127,850	41,950	11,050	63,950
60-99	13	266,255	127,962	47,200	34,830	56,263
100-300	6	367,477	78,715	74,004	108,508	34,250
Total		1,211,087	473,722	202,214	254,488	280,663

Table 5. Average Annual Production by Size and Log Source in Percent.

Mill Size	No. of Mills	Total Production	Source of Logs by Land Ownership			
			Federal	State	Company	Other Private
0-9	28*	2	59	0	24	17
10-19	31	5	34	5	11	50
20-39	43	21	42	14	7	37
40-59	19	20	52	17	5	26
60-99	13	22	48	18	13	21
100-300	6	30	22	20	49	9

* One mill was eliminated as most of its logs were used as peeled product.

[1] Alvin K. Wilson, Timber Resources of Idaho, Forest Survey Release No. 3, 1962, Page 2.

per day rely on federal lands for nearly half their logs (See Table 5).

Seasonality

Variation in weather makes logging difficult, expensive, and sometimes impossible and leads to highly seasonal employment. Most logging occurs during the second and third quarters of the year. Table 6 shows the percent of logs coming from the various land ownerships by season. Seasonality is slightly higher in the federally owned log sources, probably because they are located in less accessible country.

Table 6. Log Volumes Received by Land Source and Season in Thousand Feet.

	March April-May	June July-Aug.	Sept. Oct.-Nov.	Dec. Jan.-Feb.	Total
State					
Vol. from State	12,300	84,215	65,432	40,267	202,214
% from State	6	42	32	20	100
Federal					
Vol. from Fed.	32,155	186,769	168,088	86,710	473,722
% from Fed.	7	39	36	18	100
Own Land					
Vol. from own land	27,325	95,627	63,248	68,288	254,488
% from own land	11	37	25	27	100
Other Private					
Vol. of other Pvt.	46,335	95,340	85,340	53,648	280,663
% from all other Pvt.	17	34	30	19	100
Total Volume	118,115	461,951	382,108	248,913	1,211,087

Log Purchasers

Figure 1 shows the number of mills buying logs in each township in the study area. (Each interviewee was asked to draw a line around the area in which his mill would purchase logs under normal conditions.) There was a wide variation in number of mills buying logs in various townships. The number of mills which will buy in the townships farther south generally runs greater than in the north except for the extreme southern section of the study area. The locale having the greatest number of mills willing to purchase logs is just south of St. Maries. This area can be reached by the mills in the Coeur d'Alene area 80 miles north, due to water transportation opportunities, as well as Latah county mills 40 miles south. This covers an area with a high mill concentration. More mills are seeking logs on the fringe area than the data indicate. This is due to outside mills buying within the study area.

Lumber Production

A shift in products produced was taking place during the study period. The trend was away from production of boards (1-inch thick material) and to dimension and stud stock. In the past, when the industry was more reliant on the pines, boards were a majority

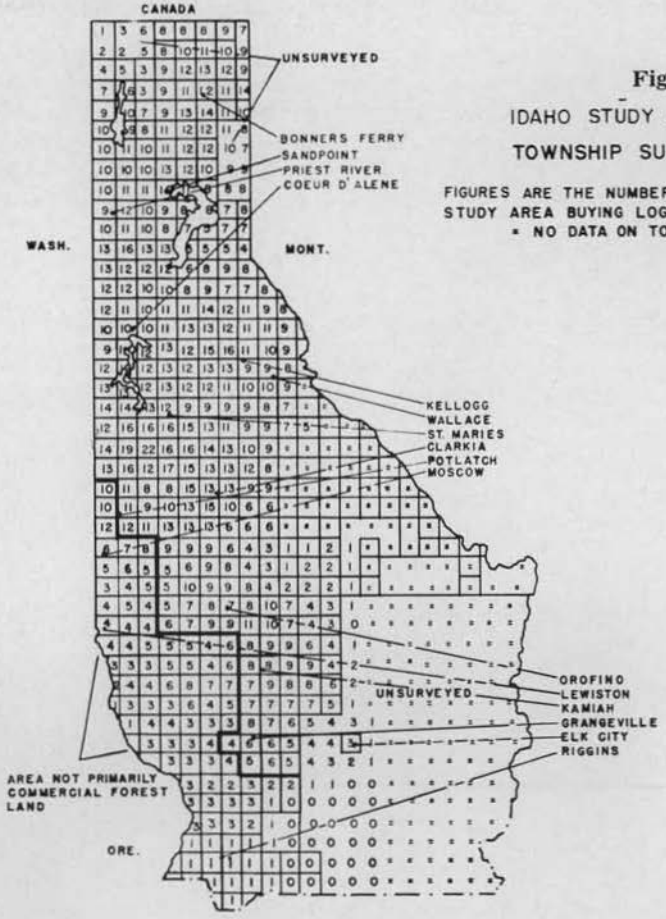

Fig. 1

IDAHO STUDY AREA----

TOWNSHIP SUBDIVISIONS

FIGURES ARE THE NUMBER OF SAWMILLS IN STUDY AREA BUYING LOGS IN THE TOWNSHIP

* NO DATA ON TOWNSHIP

of the production but in the five years covered by the study the board production was down to 46.4 percent. The dimension had climbed to 45.4 percent, studs 6.1 percent and the balance of 2.1 percent was in ties, timbers, box lumber, and other minor uses.

The larger mills cut a larger portion of the pines and therefore cut a majority of the boards. The smaller mills averaged about 75 percent dimension production.

The companies which did the initial processing, or sawing, sold 84.9 percent of their production as surfaced material. Sixty-five mills surface none of their lumber before selling, but these are the small mills. Their volume is a relatively small proportion of the total marketed.

Seasonality

Seasonality is not as significant in the milling industry as in logging. Even though a large number of mills must close during the

Table 7. Mills in Operation and Their Production by Months.

Month	Mills Operating		Production	
	Number	Percent	in M Bd. Ft.	% of Highest Month
January	57	40	68,027	57
February	60	42	72,518	61
March	84	59	87,100	73
April	117	82	102,430	86
May	135	94	109,120	91
June	141	99	114,887	96
July	141	99	117,259	98
August	141	99	119,435	100
September	139	97	114,291	96
October	135	94	105,857	89
November	127	89	97,723	82
December	91	64	88,749	74
		TOTAL	1,197,396	

winter months, the larger mills can handle and carry a large log inventory and usually have a year-around operation which makes milling less seasonal than logging. Table 7 indicates the seasonality in sawmill production. Although the number of mills operating in January, the lowest month, is only 57, or 40 percent of the total mills, the production is still 57 percent of the highest month's production. The output per man-day decreases in the winter months

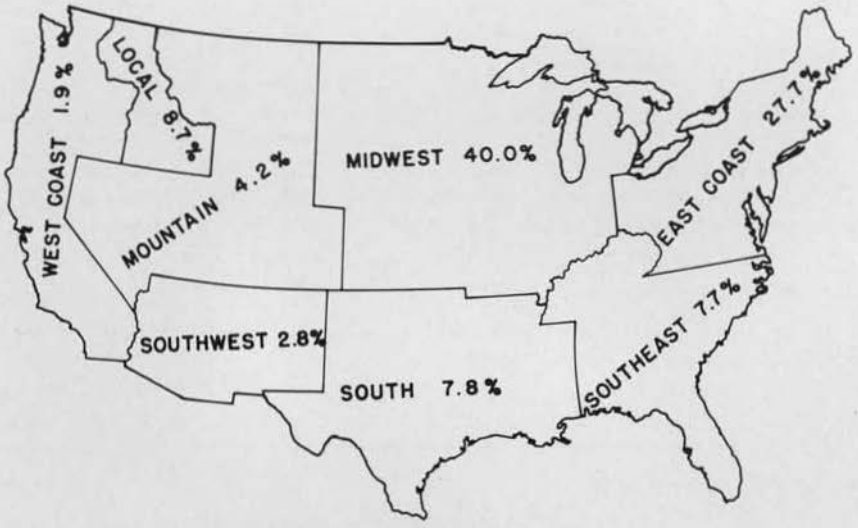

Fig. 2. Reported first destination of lumber from study mills by percent.

due to more difficult operating conditions. However, the variation in employment is greater than the output variation due to the smaller, lower productivity per man-day of mills out of production.

Marketing

Lumber

Northern Idaho is a heavy exporting area for lumber. Only 8.7 percent of the lumber sold by the mills is first sold within the study area or the adjacent Inland Empire. Figure 2 shows the lumber distribution by areas within the United States. The lumber is only reported to the first destination after leaving the mill since the mills do not know the destination when re-routing or re-sale occurs.

The majority of northern Idaho-produced lumber is shipped east of the Rocky Mountains. Occasionally a carload will go to a Canadian point but this is unusual. A small part goes to west coast states. The lumber marketed in the east coast, south and southeastern states is primarily based on white pine orders.

Several outlets and methods of sale are available to nearly every mill. Most sell to more than one type of outlet. Table 8 points out that presently brokers are the main sales outlets, handling 49.1 percent of the lumber sold. Larger operations had their own sales staff in some cases and were second in volume moved with 33.7 percent.

Table 8. Types of Sales Outlets and Percent of Volume Sold.

Outlets	Percent	Types of Sales
Brokers	49.1	Broker buys and has financial responsibility but may not take possession.
Mill Sales Staff	33.7	Sales staff employed by mill.
Larger Mills	5.1	Often have planing and drying facilities.
Concentration Yards	4.4	Usually planing mills which buy, process and ship.
Retailers	3.3	Lumber yards which retail.
Commission Men	2.3	Brings buyer and seller together. Has no financial responsibility. Often paid $1.00 per thousand for handling.
Others	2.1	Mines, contract builders, private builders, etc.
	100.0	

Secondary Products

Thirty-one percent of the non-lumber portion of the logs is now being utilized as chips. On the basis that the non-lumber portion

of one thousand board feet of logs makes one-third unit of chips, during the study period the mills which were sawing 20 thousand board feet or more of lumber per day could have been making 220,000 units more chips per year than they were.

Summary

In 1960, there were 146 commercial sawmills operating in north Idaho which had been producing during the 1955-1959 period. Included in this group were 131 mills with conventional carriages, 2 Swedish gang mills and 10 mills primarily making studs. Forty-seven of the conventional mills had band-type headsaws.

The output per man per day varied from 1,000 to 10,834 board feet. The output per man per day increased with the increase in size of the conventional mill, except for the mill class of over 100 thousand board feet per day. These sawmills had a lower output per man than did the mills producing 60 to 99 thousand board feet. It should be noted that stud mills produced about 80 percent more volume per man per day than conventional mills of the same capacity.

Although federal land made up 80 percent of the study area, it was the source of only 40 percent of the logs being converted. The state, with 5 percent of the land, was the source of 17 percent of the logs. The smaller mills, cutting less than 100 thousand board feet per shift, relied mostly on federal land for their logs. The larger mills received logs primarily from their own land.

Private land owners and public agencies possessing woodlands had up to 22 mills willing to buy their stumpage. Small private woodland owners rarely, if ever, had less than five mills seeking logs in their area.

The study revealed that 85 percent of the sawmill's production was sold by the initial processors as surfaced material.

January proved to be the lowest production month for sawmills, while August led in the number of board feet produced. The mills in the study sold 8.7 percent of their production locally and 8.9 percent in the remaining eleven western states. The other 82.4 percent was sold east of the Rocky Mountains.

Brokers proved to be the major outlet through which lumber passed. They handled 49.1 percent of the production. The larger mills with their own sales staff handled 33.7 percent of the lumber sold.