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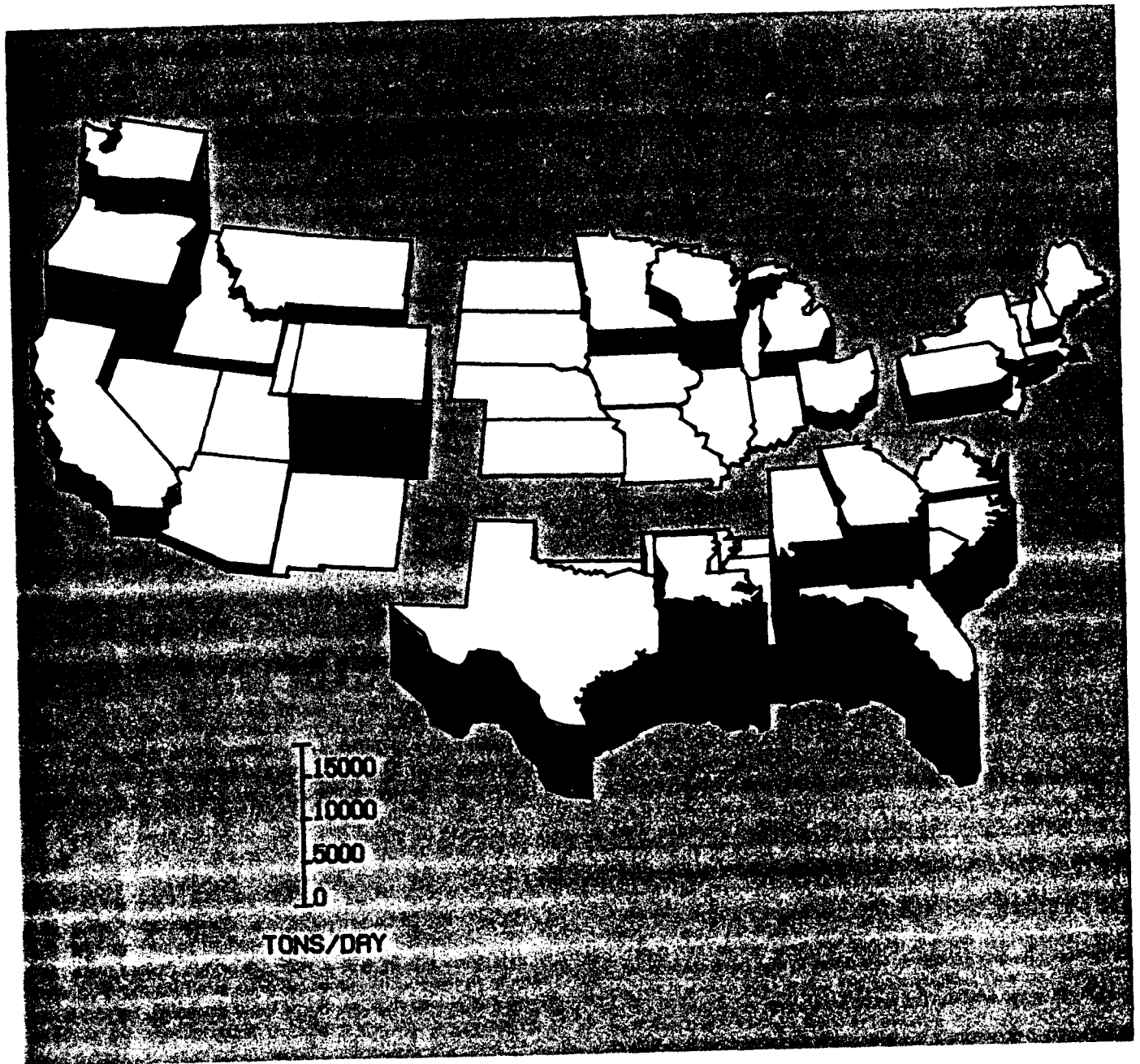
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The United States Woodpulp Industry



Abstract

In 1983, 315 woodpulp mills were operating at 254 locations throughout the United States. Mill capacity, at nearly 174,000 tons per day (nearly 60 million tons per year), had almost doubled since 1961. Of this capacity, 66 percent was in the South, 17 percent in the West, and smaller amounts in the Northeast and North Central regions. Sulfate pulping had risen to 71 percent of U.S. capacity, with 76 percent of the sulfate capacity in the South. Pulpwood requirements had remained constant at about 1.5 cords of pulpwood per ton of pulp, but the pulpwood used had changed since 1961 and in 1983 was 38 percent softwood roundwood, 22 percent hardwood roundwood, and 40 percent plant by-products.

Keywords: Woodpulp capacity, woodpulp production, pulpwood production, pulpwood consumption, pulp mills, industrial roundwood consumption.

Highlights

- In 1983, the 315 woodpulp mills operating in the United States had a combined capacity of 174,000 tons per day, nearly twice the 1961 capacity.
- In 1983, the largest mill could produce 3,000 tons of woodpulp per day; as against 2,175 tons in 1961. The average mill could produce 552 tons in 1983 as against 256 tons in 1961.
- One and a half cords of pulpwood were required, on the average, to produce a ton of woodpulp. The pulpwood used was 38 percent softwood roundwood, 22 percent hardwood roundwood, and 40 percent plant by-products. These percentages had changed little since the mid-1970's.
- The South was the region with largest capacity in 1983 (66 percent of U.S. capacity), while sulfate pulp was the type of mill with largest capacity (70 percent of U.S. capacity).
- In 1983, 34 percent of all industrial roundwood produced in the United States (excluding fuelwood) was used for pulpwood.
- Foreign trade in woodpulp has never exceeded 10 percent of domestic production.
- The woodpulp industry operated at 91 percent of annual capacity in 1983, between the record high (96 percent) in 1972 and the record low (82 percent) in 1982.

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The United States Woodpulp Industry

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Introduction

This report provides government and industry researchers and market analysts a comprehensive review of the woodpulp industry and brings together in a single source information not available elsewhere. The capacity and production of the U.S. woodpulp industry in 1983 are reported by region and woodpulp grade, and trends in capacity and production are analyzed. The estimates of individual mill capacities for 1961, 1965, 1970, and 1974 (listed in Appendix table A-2) are derived from published reports (USDA Forest Service 1961, 1965; McKeever 1977). Capacity estimates for 1983 are based on information from a variety of published sources including industry directories, corporate annual reports, trade journals, and association reports. No attempt has been made to identify mills that were idle for less than a year. Annual woodpulp capacity and production, foreign trade, apparent domestic woodpulp consumption, and pulpwood requirements are also examined.

Over the past six decades, U.S. woodpulp capacity and production have expanded rapidly. In 1920, 323 mills produced about 4 million tons of woodpulp; whereas in 1983, 315 mills produced nearly 55 million tons. Average mill capacity has increased from just under 50 tons per day to over 550 tons per day.

Changes have affected the relative pulping capacity for different regions and for different grades of pulp. In 1920, the Northeast held about 60 percent of all mills and 65 percent of industry capacity. In 1983, the South produced over 65 percent of the nation's woodpulp. Much of this regional redistribution has resulted from the rapid growth in sulfate pulping capacity, which is ideally suited to timber resources in the South. Sulfate pulp production was just 5 percent of total production in 1920, nearly 75 percent in 1983.

In 1920, plant by-products made up less than 5 percent of pulpwood. However, the use for pulpwood of slabs, edgings, sawdust, and other timber-processing plant residues increased rapidly during the 1960's and 1970's; recently, plant by-products have supplied about 40 percent of all the wood pulped. Because most wood residues are now being used, little further increase is expected in the proportion of total pulpwood supplied by wood residue.

Pulpmill Capacity

The U.S. woodpulp industry remains a major processor of primary timber with a larger daily capacity¹ than at any time in its history.

Total U.S. woodpulp capacity increased from 15,000 tons per day in 1920 to nearly 174,000 tons in 1983 (table 1). Net additions to capacity have averaged nearly 4 percent per year. A woodpulp mill is defined as a manufacturing facility that produces woodpulp at a single location, while a woodpulp plant has one or more mills operating as a unit at a single location. The number of U.S. mills has fluctuated since 1920 from a low of 258 mills active, idle, or under construction in 1950 to a high of 350 active mills in 1961. Since 1965, the number of active mills has declined from 335 to 315, and the number of plants has declined from 277 in 1961 to 271 in 1974 to 254 in 1983.

Average woodpulp mill capacity has increased steadily from just under 50 tons in 1920 to over 550 tons per day in 1983 (table 1). Increases have been achieved by additions to capacity of existing mills, larger average size of new mills, closing of smaller mills, and changes in the type of woodpulp produced and in the regional distribution of pulping capacity. The average mill built between 1974 and 1983 had over twice the capacity of the average mill closed during this period. The size of the largest woodpulp mill also increased. The largest mill could produce 2,175 tons of woodpulp per day in 1961, 3,000 tons per day in 1983. Economies of scale associated with new pulping technologies were the chief cause of the steady increase in mill size.

Today, more pulping capacity exists for sulfate (including soda) pulp than for any other pulp grade (70 percent of total daily capacity in 1983) (fig. 1). The 122 active sulfate mills, capable of producing 121,000 tons per day, were larger on the average than other mill types (table A-1), with an average capacity of nearly 1,000 tons per day. A sulfate mill was the largest U.S. woodpulp mill in 1983. Mills of the total groundwood (including refiner and thermomechanical) type

¹Daily capacity is the amount of woodpulp that can be produced under normal conditions during a 24-hour period with full use of equipment and an adequate supply of pulpwood and labor.

Table 1—Active U.S. woodpulp mills, selected years 1920-83

Year	Plants No.	Mills No.	Capacity	
			Total ----- Tons/day -----	Average per mill
1920 ¹	—	323	15,340	47
1930 ¹	—	308	21,185	69
1940 ¹	—	259	29,840	115
1950 ¹	—	258	43,660	169
1955 ¹	—	323	61,800	191
1961	277	350	89,560	256
1965	272	335	103,405	309
1970	278	336	132,735	395
1974	271	324	145,555	449
1983	254	315	173,855	552

¹Includes idle mills and mills under construction.

Sources: Lockwood Publishing Co., Inc. (1966, 1968, 1971, 1973)
 McKeever, David B. (1977)
 Miller Freeman Publications, Inc. (1983)
 U.S. Department of Agriculture, Forest Service (1961, 1965)
 Vance Publishing Corp. (1984)

had the second largest combined capacity, at 22,000 tons per day or 13 percent of total U.S. capacity. No other mill type accounted for more than 10 percent of total capacity. All types have experienced steadily increasing average mill size.

The U.S. woodpulp industry has responded rapidly to changing pulping technologies. This is evidenced by the trends in mill capacities and numbers of mills diverging for different grades of pulp (fig. 1, table A-1). Since 1920, some woodpulp grades have steadily declined in importance (soda); others have steadily increased in importance (sulfate), and new grades have been developed (thermomechanical). Soda mills, once larger and more numerous than sulfate, have declined in importance to the extent that soda mill data are now included with sulfate. Sulfite mills steadily declined in numbers while increasing total capacity through 1965. Since then, both numbers and capacity have declined. Much of this decline has resulted from direct competition from sulfate pulp, which can be produced more efficiently, and from the high costs of pollution control associated with the sulfite pulping process (American Paper Institute 1975, 1979; Guthrie 1972). Average sulfite mill size, however, is still increasing.

Capacity and numbers of sulfate mills increased rapidly through 1970. Since then, numbers of mills have stabilized at approximately 120, while capacity continues to increase. Many factors contributed to the rapid increase in sulfate pulping capacity: the ability to use very resinous woods and many different tree species; higher yields than other chemical pulping processes; economically retrievable pulping by-products such as tall oil and turpentine; greater strength properties than other chemical pulps; and substitutability for sulfite pulp (Guthrie 1972).

The capacity of groundwood mills steadily increased. Although numbers declined through 1974, a large increase occurred between 1974 and 1983 with the adoption of the thermomechanical pulping process. Thermomechanical pulp, despite relatively high energy consumption for its production, is very attractive because of its high yield and substitutability for more costly chemical pulps (American Paper Institute 1981).

Semichemical (including chemiground and chemimechanical) mills steadily decreased in numbers, but increased in capacity from 1961 through 1983 because of the increased use of hardwood pulpwood for which semichemical pulping is well suited (Guthrie 1972). Defibrated/exploded pulp mills, while maintaining fairly constant numbers, nearly doubled their capacity since 1961.

Individual plant locations and capacities are listed in the appendix (table A-2). A map (fig. A-1) shows plant locations.

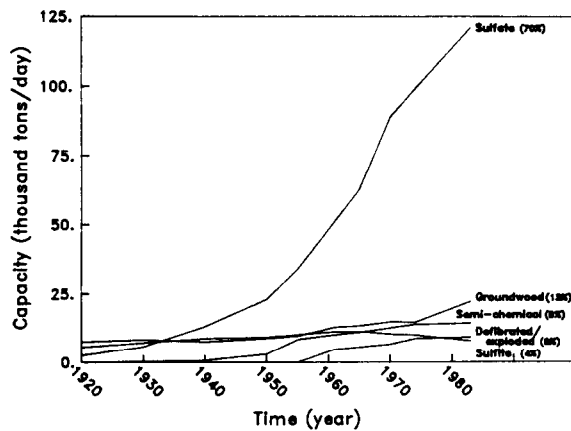


Figure 1—Capacity of different types of woodpulp mills, 1920-83.

Regional Pulpmill Capacity

Of the four regions (Northeast, North Central, South, and West, shown in fig. A-1), the South has the largest pulping capacity, with 147 active mills in 1983. These mills are capable of producing 114,000 tons per day, nearly two-thirds of U.S. capacity (fig. 2, table A-3). The West is the second largest regional capacity at 30,000 tons per day, 17 percent of U.S. capacity. Capacity in the Northeast is 16,000 tons (9 pct) and in the North Central region is 13,000 tons per day (8 pct). Southern mills are larger than those in other regions.

Since 1920, mill capacity has increased in all regions. Trends in the number of mills, however, vary in different regions. In the South, the number of mills has increased from 24 to 147 between 1920 and 1983 (table A-3). In the West the number of mills increased from 1920 through 1970, peaking at 75 then dropping to 62 by 1983. The Northeast steadily lost mills, dropping from a high of 197 in 1920 to 48 in 1983. Numbers of North Central mills fluctuated widely, standing at 58 in 1983.

The South is dominant in the woodpulp industry because its timber resources can support large sulfate pulping mills. The southern pines are highly resinous and thus ideally suited to the sulfate pulping process. Large volumes of both roundwood pulpwood and sawmill and plywood plant residues provide the large quantities of relatively inexpensive pulpwood needed by southern sulfate mills (Guthrie 1972). In 1983, 76 percent of all sulfate pulp capacity was in the South, accounting for 80 percent of the South's total capacity. Much of the remaining sulfate capacity and over half the sulfite capacity is located in the West. Western softwoods such as fir, spruce, and hemlock are well suited to sulfite pulping because of their low resin content. The Northeast and North Central regions tend to produce pulp grades, such as semichemical, capable of using the abundant hardwood resource efficiently. Regional differences also reflect the installation dates and differing economies of scale between major pulping processes.

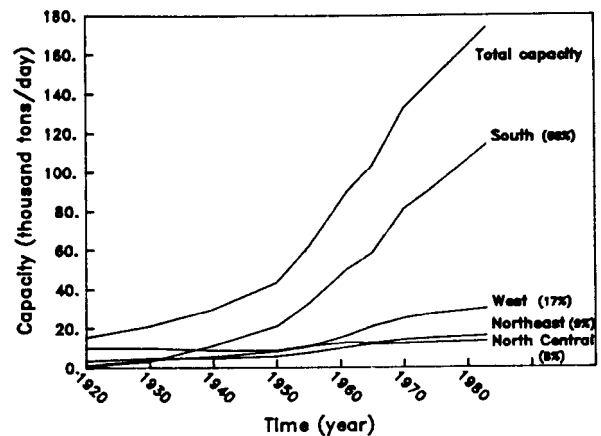


Figure 2—Capacity of woodpulp mills in different regions, and total capacity 1920-83.

Annual U.S. Pulpmill Capacity and Production

Annual U.S. woodpulp mill capacity, that is, capacity per day multiplied by scheduled numbers of operating days for each mill, is larger now than ever, and is estimated to have been 60 million tons in 1983 (table 2). Trends in capacity measured per year and per day are closely parallel. Overall, growth averaged over 4 percent per year since 1940, slightly higher than growth in daily capacity. Between 1940 and 1970, capacity increased more than 5 percent per year; since 1970 on the average, it has increased just 2 percent per year.

Annual woodpulp production is consistently below annual capacity. Since 1940, woodpulp production averaged nearly 91 percent of annual capacity, ranging from a high of 96 percent in 1972 to a low of 83 percent in 1975 (table 2).

The distribution of annual capacity of each woodpulp grade is very similar to the distribution of daily capacity. The 42 million tons of sulfate capacity in 1983 were greater than

for any other pulp grade, accounting for 70 percent of total annual capacity (table A-4). Groundwood capacity was second largest at over 6 million tons per year, 11 percent of total annual capacity. No other pulp grade accounted for more than 10 percent of total annual capacity.

Different woodpulp grades show differing annual capacity trends since 1940. Sulfate capacity increased steadily from just under 5 million tons to over 42 million tons in 1983, an average increase of nearly 5.3 percent per year (table A-4). Growth in sulfate capacity is responsible for much of the growth in total U.S. annual woodpulp capacity. Groundwood and semichemical pulp capacity also increased on the average during this 43-year period. Sulfite capacity has steadily decreased, while dissolving/special alpha and defibrated/exploded pulp capacity increased through the 1970's and then decreased.

Table 2—Annual U.S. industrial roundwood and pulpwood consumption and woodpulp capacity and production, selected years 1920-83

Year	Industrial roundwood use		Pulpwood use		Woodpulp		
	All products ¹	Pulpwood volume (pct)	Total	Per ton of pulp produced	Capacity (C)	Production ² (P)	Ratio (P/C)
	<i>Million ft³, roundwood equivalent</i>		<i>1,000 cords</i>	<i>Cords</i>	<i>-----1,000 tons-----</i>		<i>Pct</i>
1920	7,770	360 (5)	6,114	1.60	—	3,822	—
1930	6,305	395 (6)	7,196	1.55	—	4,630	—
1940	6,975	930 (13)	13,743	1.53	10,421	8,961	86
1950	8,530	1,500 (18)	23,627	1.59	16,167	14,849	92
1955	9,225	2,200 (24)	33,356	1.61	22,407	20,740	93
1960	8,920	2,575 (29)	40,485	1.60	29,536	25,316	86
1965	10,555	3,095 (29)	52,236	1.57	35,758	33,296	93
1970	11,105	3,835 (35)	67,562	1.55	45,863	43,546	95
1971	11,035	3,560 (32)	67,157	1.53	47,516	43,903	92
1972	11,440	3,520 (31)	71,538	1.53	48,732	46,767	96
1973	11,925	3,755 (31)	73,596	1.52	50,673	48,327	95
1974	11,540	4,220 (37)	74,327	1.54	51,296	48,349	94
1975	10,570	3,485 (33)	65,373	1.52	51,927	43,084	83
1976	11,925	3,805 (32)	72,011	1.51	53,047	47,721	90
1977	12,185	3,645 (30)	73,936	1.50	54,348	49,132	90
1978	12,575	3,745 (30)	74,170	1.48	55,214	50,020	91
1979	12,955	4,110 (32)	77,594	1.52	56,136	51,177	91
1980	12,090	4,390 (36)	79,703	1.50	57,714	52,959	92
1981	10,915	4,125 (38)	79,350	1.50	59,331	52,790	89
1982	10,825	3,980 (37)	77,574	1.52	60,133	50,986	85
³ 1983	12,395	4,180 (34)	82,386	1.50	60,190	54,808	91

¹Excludes fuelwood production.

²Includes woodpulp for hard-pressed board

³Preliminary

Sources: Hair, Dwight, and Alice H. Ulrich (1964)

Ulrich, Alice H. (1985)

American Paper Institute (1983b, 1984)

McKeever, David B. (1977)

U.S. Department of Agriculture, Forest Service (1961, 1965)

U.S. Department of Commerce, Bureau of the Census (1983)

United States Pulp Producers Assoc., Inc. (1956, 1961)

Pulpwood Consumption and Production

In 1983, more than 82 million cords of pulpwood (roundwood plus plant by-products) were consumed to produce nearly 55 million tons of woodpulp (table 2). Pulpwood consumption by the woodpulp industry has increased steadily since 1920 (with the exception of brief recession periods) at about 4 percent per year. The quantity of pulpwood required to produce a ton of woodpulp has remained surprisingly constant over the past 62 years. On the average, 1.5 cords of pulpwood are consumed per ton of woodpulp produced. The apparent stability over time in the quantity of pulpwood required to produce a ton of pulp is partially attributable to offsetting gains and losses in yields of different grades of woodpulp produced. Prior to 1970, pulpwood requirements were slightly higher (1.55-1.60 cords per ton). The year-to-year variation in pulpwood consumption per ton of pulp produced is a result of several factors, including the amounts of the various pulp grades produced, the mix of roundwood and residues used, and individual mill production levels.

Pulpwood requirements vary with the grade of pulp produced. The mechanical pulping processes, such as groundwood and defibrated/exploded, require on the average less pulpwood per ton of woodpulp than the chemical pulping processes such as sulfite. This is because chemical pulps contain less lignin and hemicellulose fibers; mechanical pulps contain not only the wood cellulose fibers but some of the lignin and other noncellulosic constituents (Kline 1976). Dissolving/special alpha pulps required 2.22 cords of pulpwood to produce a ton of woodpulp in 1983 (table A-5), more than any other grade. Defibrated/exploded pulp, the most efficient pulping process, required only 0.84 cords of pulpwood but had lower fiber quality than other pulp grades. Sulfate pulpwood usage was intermediate at 1.63 cords per ton. Although pulpwood requirements vary from year to year, they have remained fairly constant for each woodpulp grade. In general, production has grown more for pulp grades with lower cellulose fiber content (e.g. sulfate, groundwood, and semichemical) than for those with higher cellulose fiber content.

Total U.S. pulpwood production in 1983 was nearly 88 million cords (table A-6), of which 82 million cords were consumed for woodpulp. Of this, 60 percent was roundwood and 40 percent plant by-products, such as slabs, edgings, and sawdust. The use of plant by-products as a pulpwood source increased rapidly between 1920 and 1970, from a negligible 3 percent in 1920 to nearly 30 percent in 1970. During the 1970's use increased to a high of 43 percent in 1977 before falling to 40 percent in 1983. Future increases in the use of plant by-products for woodpulp production are unlikely without new sources of usable plant by-products.

Whole-tree chips, chips produced in the forest from entire trees, including bark, branches, limbs and foliage, were first introduced in the early 1970's (McGovern 1985). These chips provide a low-cost fiber source, but do reduce yields and contain increased levels of contaminants. Whole-tree chip production currently accounts for about 9 to 10 percent of total pulpwood production in the Northeast and North Central regions and about 4 percent in the South.

The species mix of pulpwood consumed has changed little in recent years. The mix is about 20 percent hardwood roundwood, 40 percent softwood roundwood, and 40 percent plant by-products (fig. 3). Plant by-products are about 15 percent hardwood and 85 percent softwood fibers. Changes in the species mix are likely as new technologies are developed and adopted. For example, press drying is a process currently being developed to produce high-strength kraft linerboard from hardwood pulpwood (Ince 1981). Its adoption would permit the use of hardwood pulpwood in the sulfate process.

Domestic pulpwood production as a percentage of total industrial roundwood production (excluding fuelwood) has been increasing on the average over the past 63 years. During the 1960's and 1970's, pulpwood accounted for 32 percent of total roundwood production. In 1983, over 4 billion cubic feet (roundwood equivalent) of pulpwood were produced—34 percent of total roundwood production (table 2).

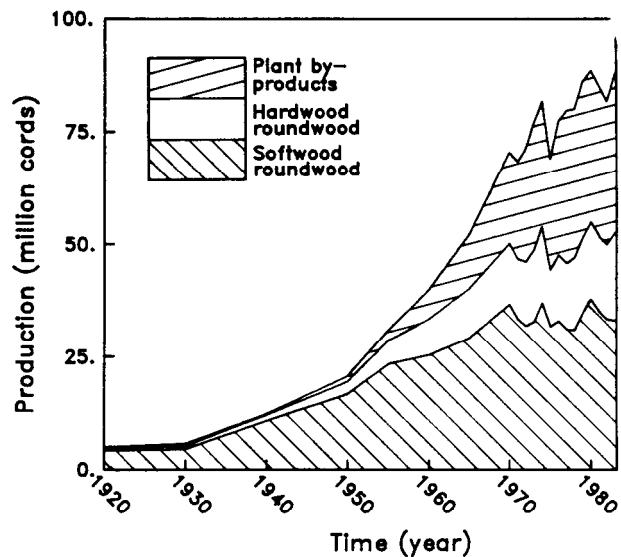


Figure 3—Annual U.S. pulpwood production, by type, 1920-83.

Woodpulp Imports, Exports, and Apparent Domestic Consumption

Summary

Foreign trade in woodpulp is small compared to domestic production. During the past 20 years, neither imports nor exports of woodpulp exceeded 10 percent of production. In 1983, woodpulp imports were estimated at 4.1 billion tons, exports at 3.6 billion tons (table A-7). Since 1960, imports have averaged 8 percent of total U.S. production, exports nearly 6 percent. Canada is the major source of woodpulp imported to the United States and supplied 95 percent of all woodpulp imported in 1980 (U.S. Department of Commerce, Bureau of the Census, 1981):

	<u>Country of origin</u>	<u>Imports</u>
	(1,000 tons)	(pct)
Canada	3,853	95
Republic of South Africa	84	2
Brazil	78	2
Finland. Sweden	30	1
Other	6	<u><0.5</u>
Total	<u>4,051</u>	100

U.S. woodpulp exports in 1980 were widely distributed among most major industrialized nations.

Because of the low levels of net foreign trade, apparent domestic woodpulp consumption² closely follows domestic production. Consumption during the 1970's and 1980's has risen from 43 to 53 billion tons, averaging just over 49 billion tons per year, and in 1983 reached a record 55 billion tons (table A-7).

while the number of mills has varied relatively little since 1920, total capacity and average mill size have increased tenfold.

The South has increased capacity from 50,430 to 114,315 tons per day since 1961, while increasing its share to nearly two-thirds of the total U.S. daily capacity. It is significant that the South has timber resources to support large sulfate mills. In 1983, 76 percent of sulfate capacity was in the South, accounting for 80 percent of the South's total capacity.

Since 1940, sulfate mills have increasingly dominated the woodpulp industry. In 1983, 70 percent of U.S. woodpulp capacity was sulfate. Sulfate mills tend to be the newer and larger installations and benefit most from economies of scale.

The use of plant by-products for pulping increased rapidly in the 1960's and has now stabilized at about 40 percent. Roundwood supplies 60 percent of pulpwood, of which two-thirds is softwood and one-third hardwood. More hardwoods are likely to be used as new pulping technologies are developed and adopted. The new press-drying technology, for example, will allow the manufacture of high-strength kraft linerboard from hardwood sulfate pulp. Sulfate pulp is currently being produced primarily from softwood pulpwood.

²Apparent domestic consumption = domestic production + imports - exports.

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Appendix

The following statistical data for selected years, have been brought together to exhibit details of the growth and change taking place in the woodpulp industry in the United States between 1920 and 1993:

Table A-1—Number and capacity of active U.S. woodpulp mills of each type in selected years.

Table A-2—Capacity of individual active U.S. woodpulp plants in selected years, in 1983 listed by mill type.

Table A-3—Number and capacity of active U.S. woodpulp mills in each region in selected years.

Table A-4—Annual U.S. woodpulp mill capacity, woodpulp production and production as a percentage of capacity for different grades of pulp in selected years.

Table A-b—Annual U.S. woodpulp production, pulpwood consumption and consumption per unit of production, for different grades of pulp in selected years.

Table A-6—Annual U.S. production of pulpwood of different types in selected years.

Table A-7—Annual U.S. woodpulp production, imports, exports, and apparent domestic consumption in selected years.

Figure A-1—Shows the location, daily capacity and type of woodpulp plants in different regions of the United States in 1983.

Table A-1—Number and capacity of active U.S. woodpulp mills of each type in selected years

Year	Sulfite			Sulfate ¹			Groundwood ²			Semichemical ³			Defibrated/Exploded		
	Number	Capacity		Number	Capacity		Number	Capacity		Number	Capacity		Number	Capacity	
		Total	Average		Total	Average		Total	Average		Total	Average		Total	Average
		----- Tons/day -----		----- Tons/day -----		----- Tons/day -----		----- Tons/day -----		----- Tons/day -----		----- Tons/day -----		----- Tons/day -----	
1920	96	5,490	57	52	2,420	47	175	7,430	42	---	---	---	---	---	---
1930	89	7,115	80	70	5,585	80	136	8,190	60	513	23	---	---	---	---
1940	80	8,675	108	69	13,055	189	100	7,425	74	510	69	---	---	---	---
1950	67	9,115	136	78	22,970	294	91	8,640	95	522	133	---	---	---	---
1955	67	10,020	150	83	33,910	409	93	9,560	103	580	104	---	---	---	---
1961	62	11,130	180	95	51,050	537	87	12,805	147	58	172	---	---	---	---
1965	54	11,260	209	101	62,530	619	77	13,270	172	57	191	---	---	---	---
1970	41	10,205	249	121	88,850	734	71	14,670	207	54	232	---	---	---	---
1974	33	9,801	297	120	99,060	826	64	14,494	226	50	275	---	---	---	---
1983	21	7,650	364	122	120,905	991	79	22,080	279	44	322	---	---	---	---

¹Includes soda pulp mills.

²Includes chemiground mills, 1920-55, and stone ground, refiner, and thermomechanical mills, 1961-83.

³Includes chemiground and chemimechanical pulp mills, 1961-83.

⁴Includes idle mills and mills under construction.

⁵Includes defibrated/exploded and chemimechanical pulp mills.

⁶Included in semichemical.

Sources: Lockwood Publishing Co., Inc. (1966, 1971, 1968, 1973)
 McKeever, David B. (1977)
 Miller Freeman Publications, Inc. (1983)
 U.S. Department of Agriculture, Forest Service (1961, 1966)
 Vance Publishing Corp. (1984)

Table A-2—Capacity of individual active U.S. woodpulp plants in 1961, 1965, 1970, and 1974, and, by type, in 1983

Plant number	Plant name	Plant location	1983					Total Sulfite Sulfate ¹	Groundwood ² Stone Refiner	Semi-chemical ³	Defi- brated/ exploded
			1961	1965	1970	1974	Tons/24 hr				
Northeast											
Connecticut											
1	Tilo Co., inc.	Stratford	30	30	35	35	0				
	Total capacity		30	30	35	35	0				
	Total mills		1	1	1	1	0				
	Total plants		1	1	1	1	0				
Maine											
2	Boise Cascade Corp.	Rumford	590	600	670	670	935	140	165	0	0
3	James River Corp.	Old Town	280	350	550	550	600	0	0	0	0
4	Eastern Fine Paper, Inc.	Brewer	170	170	(4)	(4)					
5	Georgia-Pacific Corp.	Woodland	510	510	950	1,040	1,040	240	0	0	0
6	Great Northern Paper Co.	East Millinocket	880	970	4920	920	725	0	0	0	0
7	Great Northern Paper Co.	Millinocket	1,135	1,225	1,200	1,350	650	735	100	0	0
8	Hearst Corp.	Brunswick	115	115	115	200	170	0	170	0	0
9	International Paper Co.	Chisholm	320	320							
10	International Paper Co.	Jay	120	95	675	775	1,390	190	0	0	0
11	International Paper Co.	Livermore Falls	80	60	100	(4)					
12	International Paper Co.	Riley	90	100	100	100	100	100	0	0	0
13	Keyes Fibre Co.	Shawmut	175	195	210	340	340	0	0	0	0
14	Lily-Tulip Inc.	Old Town	70	170	170	170	300	300	0	0	0
15	Lincoln Pulp & Paper Co., Inc.	Lincoln	100	400	430	480	40	0	0	0	0
16	Madison Paper Industries Inc.	Madison	350	270	270	420	40	0	0	0	0
17	Scott Paper Co.	Madison	235	320	4275	330	450	0	150	0	0
18	Scott Paper Co.	Hinckley	235	250	270	270	300	0	0	0	0
19	Scott Paper Co.	Madison	100	100	100	100	100	0	0	0	0
20	Stattler Tissue Corp.	Winslow	5,875	6,225	7,020	7,365	8,835	2,830	585	0	0
21	St. Regis Paper Co.	Augusta	27	26	23	21	21	7	4	0	0
22	S.D. Warren Co.	Bucksport	19	18	16	16	14	9			
23	United States Gypsum Co.	Westbrook									
	Total capacity	Lisbon Falls	5,875	6,225	7,020	7,365	8,835	2,830	585	0	0
	Total mills		27	26	23	21	21	7	4	0	0
	Total plants		19	18	16	16	14	9			
Maryland											
24	Barrett Paper Corp., Ltd.	Childs	30	100	(4)	100	50	0	50	0	0
25	Congoleum Corp.	Finksburg	600	680	745	720	795	0	0	0	0
26	Westvaco Corp.	Luke	630	780	845	820	845	0	50	0	0
	Total capacity		2	2	2	2	2	0	0	0	0
	Total mills		2	2	2	2	2	1	1	0	0
	Total plants		2	2	2	2	2	0	1	0	0
Massachusetts											
27	Oxford Paper Co., Inc.	Lawrence	50	50	50	50	0	0	0	0	0
	Total capacity		50	50	50	50	0	0	0	0	0
	Total mills		1	1	1	1	0	0	0	0	0
	Total plants		1	1	1	1	0	0	0	0	0

Table A-2—Capacity of individual active U.S. woodpulp plants in 1961, 1965, 1970, and 1974, and, by type, in 1983—Continued

Plant number	Plant name	Plant location	1961	1965	1970	1974	1983			Defi- brated/ exploded
							Total Sulfite Sulfate ¹	Groundwood ² Stone Refiner	Semi- chemical ³	
Northeast-Continued										
..... Tons/24 hr										
New Hampshire										
28	Franconia Paper Corp.	Lincoln	90	90	100	(4)	0	0	0	0
29	Franconia Paper Corp.	Plymouth	(4)	(4)			0	0	0	0
30	Groveton Papers Co.	Groveton	300	330	430	4300	300	0	0	300
31	James River Corp.	Berlin	875	450	850	950	1,050	0	0	250
	Total capacity		1,265	870	1,380	1,250	1,350	0	0	550
	Total mills		6	4	5	3	3	0	0	2
	Total plants		3	3	3	2	2	1	0	0
New Jersey										
32	Celotex Corp.	Perth Amboy	35	35	50	50	50	0	0	0
33	Flintkote Co.	Little Ferry	35	35				0	0	0
34	GAF Corp.	Gloucester City	145	170	190	190	190	0	0	0
35	Johns-Manville Corp.	Manville	120	50	75	75	75	0	0	0
36	Western Electric Co.	Kearny	15	15				0	0	0
	Total capacity		335	305	315	315	315	0	0	0
	Total mills		4	5	3	3	3	0	0	0
	Total plants		4	5	3	3	3	0	0	0
New York										
37	Adirondack Fibre Corp.	Glens Falls	100							
38	American Wood Board Co.	Schuylerville	30							
39	Armstrong Cork Co.	Fulton	60							
40	Boise Cascade Corp.	Beaver Falls	40	30	60	60	60	0	0	0
41	Celotex Corp.	Deposit	150	150	100	100	100	0	0	0
42	Certain Teed Corp.	Niagara Falls	45							
43	Cogar Inc.	Lyons Falls	20	15						
44	Crown Zeilerbach Corp.	Carthage	20							
45	Finch, Pruyun & Co., Inc.	Glens Falls	200	120	250	250	350	350	0	0
46	Flintkote Co.	Lockport	10	10	10					
47	Georgia-Pacific Corp.	Lyons Falls	135	180	120	120	120	0	0	0
48	Georgia-Pacific Corp.	Plattsburgh	70	70						
49	Georgia-Pacific Corp.	Willsboro	55	60						
50	Harrisville Paper Corp.	Harrisville	50							
51	Imperial Wallpaper Mill, Inc.	Plattsburgh	35	35	(4)	(4)				
52	International Paper Co.	Corinth	4230	4255	255	255	160	0	0	0
53	International Paper Co.	North Tonawanda	115	115	140	135				
54	International Paper Co.	Palmer	315							
55	International Paper Co.	Ticonderoga	125	155	190	590	530	0	0	0
56	Island Paper Co.	Carthage	540	(4)						
57	Nekoosa Edwards Paper Co., Inc.	Potsdam	35	(4)						
58	Nitec Paper Corp.	Niagara Falls	100	100	100	100	40	0	0	0
59	Packaging Corp. of America	Plattsburgh	50	50	50	50	50	0	0	0
60	Rushmore Paper Mills Inc.	Natural Dam	15							
61	Sagamore Pulp Corp.	Fort Edward		50						

Table A-2—Capacity of individual active U.S. woodpulp plants in 1961, 1965, 1970, and 1974, and, by type, in 1983—Continued

Plant number	Plant name	Plant location	1983					Total Sulfite Sulfate ¹	Groundwood ² Stone Refiner	Semi-chemical ³	Defibrated/ exploded
			1961	1965	1970	1974	Tons/24 hr				
Northeast-Continued											
New York—Continued											
62	Sealright-Oswego Falls Corp.	Fulton	75								
63	Stevens & Thompson Paper Co.	Greenwich	25	25	(4)						
64	St. Lawrence Pulp & Paper Corp.	Norfolk	120	(4)							
65	St. Lawrence Pulp & Paper Corp.	Ogdensburg	85	50	100	100	0	310	0	0	0
66	St. Regis Paper Co.	Deferiet	320	320	375	4240	0				
67	Tagons Papers Inc.	Mechanicville	240	135	160						
68	Thomas Galante and Sons Inc.	Warrensburg	50								
	Total capacity		2,510	1,830	1,980	2,120	1,800	350	530	60	240
	Total mills		37	19	15	12	9	1	1	3	2
	Total plants		28	18	14	12	9				1
Pennsylvania											
69	Appleton Papers Inc.	Roaring Spring	110	175	180	180	190	0	190	0	0
70	Celotex Corp.	Philadelphia	160	160	160	160	160	0	0	0	160
71	Celotex Corp.	Sunbury	150	150	150	150	225	0	0	0	225
72	CertainTeed Corp.	York	70	80	80	45	45	0	0	0	45
73	Hammermill Papers Group	York	250	400	375	640	640	0	0	0	640
74	International Paper Co.	York Haven	65	420							
75	Masonite Corp.	Towanda				500	600	0	0	0	600
76	Hammermill Papers Group	Lock Haven	105	75	80						
77	Penntech Papers Inc.	Johnsbourg	235	260	270	190	180	0	180	0	0
78	Proctor & Gamble Paper Products	Mehoopay Spring Grove	190	245	300	300	300	300	0	0	0
79	P.H. Glatfelter Co.	Erie	45	45	500	500	500	0	500	0	0
80	Ruberoid Co.	Tyrone	145	140	150						
81	Westvaco Corp.	Williamsburg	85	115	(4)						
82	Westvaco Corp.	Williamsburg	1,610	1,865	2,245	2,665	2,840	300	870	0	865
	Total capacity		16	14	11	9	9	1	3	0	2
	Total mills		12	12	10	9	9				3
	Total plants										
Rhode Island											
83	Bird & Son Inc.	Phillipsdale	250	250	250	250	40	0	0	0	0
	Total capacity		250	250	250	250	0	0	0	0	0
	Total mills		1	1	1	1	0				
	Total plants		1	1	1	1	0				
Vermont											
84	Gilman Paper Co.	Gilman	(4)								
85	Ryegate Paper Co.	East Ryegate	30	40							
86	Boise Cascade Corp.	Sheldon Spring	80	45	50	50	50	0	0	0	0
	Total capacity		110	85	50	50	50	0	0	0	0
	Total mills		2	2	1	1	1	0	0	0	0
	Total plants		2	2	1	1	1				
	Total capacity, Northeast		12,665	12,290	14,170	14,870	16,035	1,300	7,765	695	1,655
	Total mills, Northeast		97	75	63	53	48	3	13	6	6
	Total plants, Northeast		73	63	52	47	40				7

Table A-2—Capacity of individual active U.S. woodpulp plants in 1961, 1965, 1970, and 1974, and, by type, in 1983—Continued

Plant number	Plant name	Plant location	1961	1965	1970	1974	1983			Defi- brated/ exploded	
							Total Sulfite Sulfate ¹	Groundwood ² Stone Refiner	Semi- chemical ³		
----- Tons/24 hr -----											
North Central											
Illinois											
87	Allied Chemical Corp.	Peoria	140	190			40	0	0	0	640
88	Alton Box Board Co.	Alton	250	300			90	0	0	0	90
89	Bird & Son Inc.	Chicago		40	40	40	90	0	0	0	0
90	Celotex Corp.	Peoria		25	30	30	30	0	0	30	0
91	Celotex Corp.	Wilmington	25	100	85	85	40	0	0	0	685
92	CertainTeed Corp.	East St. Louis	85	95	100	100	40	0	0	650	6100
93	GAF Corp.	Joliet	95	30	40	40	40	0	0	0	640
94	Genstar Building Material Co.	Mount Carmel	25	30							
95	Globe Roofing Products Co.	Chicago	35	65							
96	Johns-Manville Products Corp.	Waukegan	65	65							
	Total capacity		720	945	450	385	120	0	0	30	90
	Total mills		8	8	7	6	2	0	0	1	1
	Total plants		8	8	7	6	2				
Indiana											
97	Container Corp. of America	Carthage	100	120	120	(4)	270	0	0	0	0
98	Weston Paper & Mfg. Co.	Terre Haute	150	150	250		270	0	0	0	270
	Total capacity		250	270	370	270	270	0	0	0	270
	Total mills		2	2	2	1	1	0	0	0	0
	Total plants		2	2	2	1	1				
Iowa											
99	Celotex Corp.	Dubuque	60	60	90	90	90	0	0	0	90
100	Consolidated Packaging Corp.	Fort Madison	100	125	135	140	140	0	0	0	0
101	United States Gypsum Co.	Fort Dodge	50	50							
	Total capacity		210	235	225	230	230	0	0	0	90
	Total mills		3	3	2	2	2	0	0	0	1
	Total plants		3	3	2	2	2				
Michigan											
102	Abitibi-Price Corp.	Alpena	250	300	400	430	430	0	0	0	430
103	American Fibrit Inc.	Battle Creek					30	0	0	30	0
104	Celotex Corp.	L'Anse	175	175	175	175					
105	Champion Packaging	Ontonagon	200	400	250	220	440	0	0	0	0
106	Charmin Paper Products Co.	Cheboygan	30	(4)							
107	Kimberly-Clark Corp.	Munising	90	60	90	90	90	0	0	0	0
108	Manistiquie Papers Inc.	Manistiquie	80	60	100	800	800	0	600	200	0
109	Mead Corp.	Escanaba									
110	Mead Corp.	Groes	100	100	225	225	225	0	0	0	0
111	Menasha Corp.	Otsego	110	130	600	400	600	0	0	0	0
112	Packaging Corp. of America	Filer City	565	565	600	400	600	0	0	0	0
113	Scott Paper Co.	Detroit	160	170	(4)						
114	Scott Paper Co.	Menominee	20	20	20	(4)					
115	S.D. Warren Co.	Muskegon	135	125	225	240	250	0	250	0	0
116	Watervliet Paper Co.	Watervliet	50								
	Total capacity		1,965	2,045	2,085	2,580	2,865	0	850	90	430
	Total mills		14	12	10	9	9	0	2	1	3
	Total plants		13	10	9	8	8			2	3

Table A-2—Capacity of individual active U.S. woodpulp plants in 1961, 1965, 1970, and 1974, and, by type, in 1983—Continued

Plant number	Plant name	Plant location	1983					Total Sulfite Sulfate ¹	Groundwood ² Stone Refiner	Semi-chemical ³	Defibrated/ exploded
			1961	1965	1970	1974	1983				
North Central—Continued											
..... Tons/24 hr											
Minnesota											
117	Blandin Paper Co.	Grand Rapids	130	200	205	205	300	0	0	0	0
118	Boise Cascade Corp.	Int'l Falls			750	770	920	0	380	0	0
119	CertainTeed Corp.	Shakopee					80	0	0	0	80
120	Champion Packaging	St. Paul	275	275	300	300					
121	Conwed Corp.	Cloquet	250	350	200	200					
122	Hennepin Paper Co.	Little Falls	55	65	75	75	75	0	0	0	0
123	Minnesota & Ontario Paper Co.	Int'l Falls	740	755							
124	Potlatch Corp.	Cloquet	320	400	425	520	475	0	475	0	0
125	St. Regis Paper Co.	Sartell	125	125	125	125	385	0	0	250	0
126	Superwood Corp.	Bemidji	40	75	90	90	100	0	0	0	100
127	Superwood Corp.	Duluth	140	140	240	240	350	0	0	0	350
	Total capacity		2,075	2,385	2,400	2,525	2,685	0	855	945	530
	Total mills		13	13	12	12	11	0	2	3	3
	Total plants		9	9	9	9	8				
Missouri											
128	GAF Corp.	Kansas City	50	50	90	90	40	0	0	0	0
129	Huebert Fiberboard Inc.	Boonville		60	60	60	60	0	0	0	0
	Total capacity		50	110	150	150	60	0	0	0	0
	Total mills		1	2	2	2	1	0	0	0	0
	Total plants		1	2	2	2	1				1
Ohio											
130	Bird & Son, Inc.	Franklin	60	60	60	60	40	0	0	0	0
131	Celotex Corp.	Cincinnati	95	100	100	100	100	0	0	0	0
132	CertainTeed Corp.	Avery	55	55	70	110	110	0	0	0	0
133	Container Corp. of America	Circleville	100	160	240	300	300	0	0	0	0
134	Georgia-Pacific Corp.	Franklin					50	0	0	0	50
135	Mead Corp.	Chillicothe	300	450	600	600	600	0	600	0	0
136	Stone Container Corp.	Coshocton	120	300	400	450	575	0	0	0	0
	Total capacity		730	1,125	1,470	1,620	1,735	0	600	0	260
	Total mills		6	6	6	6	6	0	1	0	3
	Total plants		6	6	6	6	6				
Wisconsin											
137	Appleton Papers Inc.	Combined Locks	50	50	175	200	200	0	0	0	0
138	Badger Paper Mills Inc.	Peshigo	90	90	90	110	100	100	0	0	0
139	Charmin Paper Products Co.	Little Rapids	35	35	(4)						
140	Consolidated Papers Inc.	Appleton	155	155	155	175	40	6125	0	0	0
141	Consolidated Papers Inc.	Biron	200								
142	Consolidated Papers Inc.	Stevens Point	45	90	100	100	230	0	0	115	0
143	Consolidated Papers Inc.	Wisconsin Rapids	310	545	655	625	750	0	450	130	0
144	Flambeau Paper Corp.	Park Falls	100	115	115	115	110	110	0	0	0
145	Fort Howard Paper Co.	Green Bay	40	40	40						

Table A-2—Capacity of individual active U.S. woodpulp plants in 1961, 1965, 1970, and 1974, and, by type, in 1983—Continued

Plant number	Plant name	Plant location	1961	1965	1970	1974	1983			Defibrated/ exploded		
							Total Sulfite	Sulfate ¹	Groundwood ² Stone Refiner		Semi-chemical ³	
----- Tons/24 hr -----												
North Central-Continued												
Wisconsin-Continued												
146	Genstar Building Material Co.	Cornell	50	50	50	50	100	0	0	0	0	100
147	Green Bay Packaging Inc.	Green Bay	200	220	200	200	200	0	0	0	200	0
148	James River-Dixie/Northern	Green Bay	240	270	210	210	150	0	0	0	0	0
149	Midtec Paper Corp.	Kimberly	280	280	150	115	180	0	180	0	0	0
150	Mosinee Paper Corp.	Mosinee	165	200	200	175	210	0	0	0	0	0
151	Nekoosa Papers Inc.	Nekoosa	250	290	310	310	335	0	335	0	0	0
152	Nekoosa Papers Inc.	Port Edwards	120	160	215	215	235	0	0	0	0	0
153	Niagara of Wisconsin Paper Corp.	Niagara	245	275	150	150	210	0	210	0	0	0
154	Owens-Illinois Inc.	Tomahawk	360	475	615	620	1,000	0	0	0	1,000	0
155	Pope & Talbot Inc.	Eau Claire	175	175	460	40						
156	Pope & Talbot Inc.	Eau Claire	30	30								
157	Proctor & Gamble Paper Co.	Green Bay	180	265	265	265	265	180	0	85	0	0
158	Rhineland Paper Co.	Rhineland	140	140	120	120	75	75	0	0	0	0
159	Scott Paper Co.	Marinette	45	50	50	(4)						
160	Scott Paper Co.	Oconto Falls	80	105	110	110	40	6115	0	0	0	0
161	Superior Fibre Products Inc.	Superior			180	180	180	0	0	0	0	180
162	Superwood Corp.	Phillips	40	40	40	40	40	0	0	0	0	40
163	Thilmany Pulp & Paper Co.	Kaukauna	250	300	375	400	400	0	400	0	0	0
164	Tomahawk Power & Pulp Co., Inc.	Tomahawk	50	50	50	50	50	0	0	50	0	0
165	Wausau Paper Mills Co.	Brokaw	100	145	145	140	185	185	0	0	0	0
166	Weyerhaeuser Co.	Rothschild	155	170	190	200	200	200	0	0	0	0
Total capacity			4,180	4,810	5,015	4,875	5,405	1,235	1,395	770	285	1,400
Total mills			36	35	30	27	26	8	4	6	2	3
Total plants			29	28	27	24	22					
Total capacity, North Central			10,180	11,825	12,165	12,635	13,370	1,235	3,700	1,215	1,490	3,950
Total mills, North Central			83	81	71	65	58	8	9	10	8	10
Total plants, North Central			71	68	64	58	50					
South												
Alabama												
167	Alabama Kraft Co.	Mahrt		800	800	1,000	1,000	0	1,000	0	0	0
168	Alabama River Pulp Co.	Claiborne					1,000	0	1,000	0	0	0
169	Allied Paper Inc.	Jackson		300	470	500	600	0	600	0	0	0
170	Champion Papers	Courtland			500	550	1,300	0	1,300	0	0	0
171	Container Corp. of America	Brewton	300	700	800	900	1,100	0	1,100	0	0	0
172	GAF Corp.	Mobile	50	50	50	50	50	0	0	0	0	50
173	Gulf States Paper Corp.	Demopolis	400	400	360	360	500	0	500	0	0	0
174	Gulf States Paper Corp.	Tuscaloosa	400	450	500	500	500	0		0	0	0
175	Hammermill Papers Group	Selma		(6)	400	500	1,100	0	1,100	0	0	0
176	International Paper Co.	Mobile	1,315	1,315	1,500	1,600	1,260	0	1,035	175	50	0
177	James River-Dixie/Northern	Pennington	420	490	930	930	1,000	0	1,000	0	0	0

Table A-2—Capacity of individual active U.S. woodpulp plants in 1961, 1965, 1970, and 1974, and by type, in 1983—Continued

Plant number	Plant name	Plant location	1983					Total Sulfite Sulfate ¹	Groundwood ² Stone Refiner	Semi-chemical ³	Defi- brated/ exploded		
			1961	1965	1970	1974	1983						
South—Continued													
Alabama—Continued													
178	Kimberly-Clark Corp.	Coosa Pines	960	1,005	1,525	1,525	1,730	0	855	765	110	0	0
179	MacMillan Bloedel Inc.	Pine Hill		900	1,000	1,505	1,505	0	1,075	0	0	430	0
180	Mead Corp.	Stevens			(5)	575	575	0	0	0	0	575	0
181	National Gypsum Co.	Mobile	300	300	375	350	300	0	0	0	300	0	0
182	Scott Paper Co.	Mobile	550	900	1,400	1,400	1,400	0	1,400	0	0	0	0
183	Union Camp Corp.	Montgomery		860	870	2,220	2,220	0	2,220	0	0	0	0
	Total capacity		4,695	5,910	11,370	12,035	16,640	0	14,185	940	460	1,005	50
	Total mills		12	13	18	18	21	0	13	2	3	2	1
	Total plants		9	10	15	15	16						
Arkansas													
184	Arkansas Kraft Corp.	Morrilton		300	360	800	800	0	800	0	0	0	0
185	Georgia-Pacific Corp.	Crossett	655	815	1,050	1,400	1,400	0	1,400	0	0	0	0
186	International Paper Co.	Camden	615	625	750	725	725	0	725	0	0	0	0
187	International Paper Co.	Pine Bluff	1,105	1,300	1,550	1,620	1,455	0	1,110	345	0	0	0
188	Nekoosa Papers Inc.	Ashdown		400	400	1,285	1,285	0	1,285	0	0	0	0
189	Pollack Corp.	McGehee				450	450	0	450	0	0	0	0
190	Superwood Corp.	North Little Rock	150	150	150	170	170	0	0	0	0	0	170
191	Weyerhaeuser Co.	Pine Bluff		200	200	280	280	0	280	0	0	0	0
	Total capacity		2,525	2,890	4,165	4,530	6,565	0	6,050	345	0	0	170
	Total mills		6	5	8	8	9	0	7	1	0	0	1
	Total plants		4	4	7	7	8						
Florida													
192	Alton Packaging Corp.	Jacksonville	500	500	675	675	725	0	725	0	0	0	0
193	Armstrong Cork Co.	Pensacola	130										
194	Buckeye Cellulose Corp.	Foley	880	910	900	900	1,100	0	1,100	0	0	0	0
195	Container Corp. of America	Fernandina Beach	650	700	850	1,700	1,700	0	1,500	0	0	200	0
196	Georgia-Pacific Corp.	Palatka	850	850	950	1,200	1,200	0	1,200	0	0	0	0
197	Goodson's Mfg Corp.	Blountstown		(5)	100	200	200	0	0	0	0	0	200
198	ITT Rayonier Inc.	Fernandina Beach	350	375	400	420	450	450	0	0	0	0	0
199	Southwest Forest Industries Inc.	Panama City	1,620	1,730	1,400	1,400	1,400	0	1,400	0	0	0	0
200	St. Joe Paper Co.	Port St. Joe	1,200	1,200	1,300	1,700	1,700	0	1,700	0	0	0	0
201	St. Regis Paper Co.	Cantonment		900	900	1,730	1,730	0	1,730	0	0	0	0
202	Jacksonville Kraft Paper Co.	Jacksonville	1,500	1,370	1,370	1,350	1,470	0	1,470	0	0	0	0
203	St. Regis Paper Co.	Pensacola	750	800	900								
	Total capacity		8,430	8,435	8,645	9,695	11,675	450	10,825	0	0	200	200
	Total mills		10	9	9	11	11	1	8	0	0	1	1
	Total plants		10	9	9	10	10						
Georgia													
204	Armstrong World Industries Inc.	Macon	200	400	250	900	900	0	0	0	0	900	0
205	Augusta Newsprint Co.	Augusta		(5)	300	1,200	1,200	0	0	450	750	0	0
206	Brunswick Pulp & Paper co.	Brunswick	550	1,120	1,190	1,550	1,700	0	1,700	0	0	0	0

Table A-2—Capacity of individual active U.S. woodpulp plants in 1961, 1965, 1970, and 1974, and, by type, in 1983—Continued

Plant number	Plant name	Plant location	1983					Total Sulfite Sulfate ¹	Groundwood ²		Semi-chemical ³	Defibrated/ exploded
			1961	1965	1970	1974	Stone Refiner		Stone Refiner			
----- Tons/24 hr -----												
South-Continued												
Georgia-Continued												
207	Buckeye Cellulose Corp.	Oglethorpe	65	65	35	40	750	0	750	0	0	0
208	CertainTeed Corp.	Savannah	475	350	700	800	40	0	0	0	0	40
209	Continental Forest Industries	Augusta	100	50	60	60	1,200	0	800	400	0	0
210	GAF Corp.	Savannah					60	0	0	0	0	60
211	Georgia Kraft Co.	Krannett	675	700	825	900	1,550	0	1,700	0	0	0
212	Georgia Kraft Co.	Macon	760	1,375	1,500	900	900	0	900	0	0	0
213	Georgia Kraft Co.	Rome	800	950	1,000	1,110	1,225	0	1,225	0	0	0
214	Gilman Paper Co.	St. Marys	50	750	2,000	2,120	2,270	0	1,870	400	0	0
215	Great Southern Paper Co.	Cedar Springs					525	0	525	0	0	0
218	Interstate Paper Corp.	Riceboro	675	675	750	1,200	1,400	0	1,400	0	0	0
217	ITT Rayonier Inc.	Jesup	630	760	870	950	900	0	900	0	0	0
218	Owens-Illinois Inc.	Valdosta					45	0	0	45	0	0
219	Southeast Paper Mfg. Co.	Dublin	600	600	625	800	800	0	800	0	0	0
220	Stone Container Corp.	Port Wentworth	2,575	2,680	2,900	2,900	3,000	0	3,000	0	0	0
221	Union Camp Corp.	Savannah	8,105	10,475	13,455	14,870	18,615	0	15,570	450	1,595	100
	Total capacity		14	15	17	17	20	0	12	1	4	2
	Total mills		12	13	15	15	17					
	Total plants											
Kentucky												
222	Westvacc Corp.	Wickliffe	600	600	600	600	650	0	650	0	0	0
223	Willamette Industries Inc.	Hawesville					1,275	0	1,000	0	0	0
	Total capacity		1,100	1,200	1,200	1,200	1,925	0	1,650	0	0	0
	Total mills		3	3	3	3	3	0	2	0	0	0
	Total plants		2	2	2	2	2					1
Louisiana												
224	Bird & Son Inc.	Shreveport	60	60	60	60	60	0	0	0	0	60
225	Boise Southern Co.	Derdder			(5)	1,380	1,885	0	1,210	285	390	0
226	Boise Southern Co.	Elizabeth	240	240	240	300	40	0	600	0	0	0
227	Crown Zellerbach Corp.	Bogalusa	1,175	1,485	1,500	1,490	1,560	0	1,260	0	0	0
228	Crown Zellerbach Corp.	St. Francisville		(5)	500	500	805	0	550	255	0	0
229	Georgia-Pacific Corp.	Port Hudson	1,205	1,335	1,700	1,660	1,250	0	1,250	0	0	0
230	International Paper Co.	Bastrop					4,200	0	1,200	0	0	0
231	International Paper Co.	Mansfield					1,970	0	1,430	0	0	0
232	International Paper Co.	Pineville	1,500	1,625	850	800	975	0	975	0	0	0
233	International Paper Co.	Springhill	60	60	60	60	40	0	61,150	0	0	0
234	Masonite Corp.	New Orleans	650	650	1,165	1,325	1,980	0	1,730	0	0	0
235	Manville Forest Products Corp.	West Monroe	235	235	220	220	220	0	1,400	0	0	0
236	St. Francisville Paper Co.	St. Francisville	640	650	820	1,650	1,650	0	1,400	0	250	0
237	Stone Container Corp.	Hodge				(5)	750	0	750	0	0	0
238	Willamette Industries Inc.	Campiti	5,765	6,340	9,370	10,975	14,085	0	11,755	540	390	60
	Total capacity		13	12	16	18	18	0	10	2	1	1
	Total mills		9	9	12	13	13					
	Total plants											4

Table A-2—Capacity of individual active U.S. woodpulp plants in 1961, 1965, 1970, and 1974, and, by type, in 1983—Continued

Plant number	Plant name	Plant location	1983					Total Sulfite Sulfate ¹	Groundwood ² Stone Refiner	Semi-chemical ³	Defibrated/ exploded
			1961	1965	1970	1974	1983				
South-Continued											
Mississippi											
239	Atlas Roofing Mfg. Co., Inc.	Meridian		60	70						
240	Owens Corning Fiberglass Corp.	Meridian	130	135	225	225	0	0	250	0	0
241	International Paper Co.	Moss Point	650	660	700	715	0	660	0	0	0
242	International Paper Co.	Natchez	900	950	950	1,000	0	1,110	0	0	0
243	International Paper Co.	Vicksburg		1,200	1,200	1,200	0	1,200	0	0	0
244	Johns-Manville Products Corp.	Natchez	350	350	(4)						
245	Kroehler Mfg. Co. of Miss. Inc.	Meridian	80	80			71,000	0	0	0	0
246	Leaf River Forest Products Inc.	New Augusta	(5)								
247	Lumberton Pulp Co.	Lumberton									
248	Masonite Corp.	Laurel	800	1,200	1,000	1,000	0	0	0	0	1,100
249	St. Regis Corp.	Monticello		1,620	1,620	1,700	0	1,700	0	0	0
250	United States Gypsum Co.	Greenville	180	200	240	240	0	0	0	0	240
251	Weyerhaeuser Co.	Columbus				220	0	0	220	0	0
	Total capacity		3,090	3,635	6,005	6,000	0	4,670	0	470	1,340
	Total mills		9	10	9	8	0	4	0	2	2
	Total plants		7	8	8	7					
North Carolina											
252	Abitibi-Price Corp.	Roaring River			(6)	100	0	0	0	0	330
253	Celotex Corp.	Goldsboro				100	0	0	0	0	100
254	Champion Papers	Canton	980	980	1,290	1,400	0	1,390	0	0	0
255	Champion Packaging	Roanoke Rapids	750	850	900	830	0	600	0	0	0
256	Federal Paper Board Co.	Riegelwood	725	960	1,050	1,100	0	1,875	0	0	0
257	Georgia-Pacific Corp.	Conway			120	200	0	0	0	0	200
258	Mead Corp.	Sylva	225	275	270	270	0	0	0	0	110
259	Weyerhaeuser Co.	Moncure			100	100	0	0	0	0	0
260	Weyerhaeuser Co.	New Bern	1,450	1,500	600	640	0	725	0	0	0
261	Weyerhaeuser Co.	Plymouth	4,130	4,565	5,660	6,160	0	1,405	0	250	0
	Total capacity		8	7	7	10	0	5,995	0	0	740
	Total mills		5	5	6	9	0	5	0	0	4
	Total plants										
Oklahoma											
262	Georgia-Pacific Corp.	Pryor	90	45	50	50	0	0	0	0	50
263	Weyerhaeuser Co.	Broken Bow	50	50	450	450	0	1,650	0	0	0
264	Weyerhaeuser Co.	Valliant				1,800	0	1,650	0	0	500
	Total capacity		140	95	500	2,300	0	1,650	0	0	500
	Total mills		2	2	2	4	0	1	0	0	1
	Total plants		2	2	2	3					
South Carolina											
265	Bowaters Carolina Corp.	Catawba	400	700	750	1,090	0	1,150	110	0	0
266	Catawba Newsprint Co.	Catawba	200	200	500	500	0	0	500	0	0
267	Celotex Corp.	Sellers				(5)	0	0	0	0	360

Table A-2—Capacity of individual active U.S. woodpulp plants in 1961, 1965, 1970, and 1974, and, by type, in 1983—Continued

Plant number	Plant name	Plant location	1983					Total Sulfite Sulfate ¹ Tons/24 hr	Groundwood ²		Semi-chemical ³	Defi-brated/ exploded	
			1961	1965	1970	1974	Stone Refiner		Sulfate ¹				
			Tons/24 hr										
South-Continued													
South Carolina-Continued													
268	Champion Building Products	Catawba				300	225	0	0	0	225	0	0
269	International Paper Co.	Georgetown	1,990	2,130	2,230	2,310	1,500	0	1,350	0	0	150	0
270	Sonoco Products Co.	Hartsville	700	375	400	400	300	0	0	0	0	300	0
271	Stone Container Corp.	Florence	0	460	600	660	1,400	0	1,400	0	0	0	0
272	Union Camp Corp.	Eastover					(5)	0	7600	0	0	0	0
273	Westvaco Corp.	Charleston	1,550	1,600	2,000	2,000	2,050	0	2,050	0	0	0	0
	Total capacity		4,840	5,465	6,480	7,260	7,745	0	5,950	650	335	450	360
	Total mills		7	9	8	9	11	0	4	2	2	2	1
	Total plants		5	6	6	7	8						
Tennessee													
274	Bowater Southern Paper Corp.	Calhoun	1,375	1,475	1,475	1,200	2,550	0	700	1,000	650	200	0
275	Celotex Corp.	Paris				300	300	0	0	0	0	0	300
276	Harriman Paperboard Corp.	Harriman	110	170	185	195	195	0	0	0	0	195	0
277	Inland Container Corp.	New Johnsonville				395	395	0	0	0	0	395	0
278	Celotex Corp.	Memphis	25	30	45	45	250	0	250	0	0	0	0
279	Mead Corp.	Kingsport	240	225	250	250	75	0	0	0	75	0	0
280	National Fibrit	Springfield				135							
281	Tamko Asphalt Prods. of Tenn.	Knoxville	130	150	130								
282	Tamko Asphalt Prods. of Tenn.	Knoxville				700	120	0	0	0	0	0	120
283	Tenn. River Pulp & Paper Co.	Counce	500	650	700	700	1,500	0	1,500	0	0	0	0
	Total capacity		2,380	2,700	3,180	3,220	5,385	0	2,450	1,000	725	790	420
	Total mills		8	8	9	10	11	0	3	1	2	3	2
	Total plants		6	6	7	8	8						
Texas													
284	Celotex Corp.	Houston	25	25	25	25	25	0	0	0	0	0	25
285	Champion Papers	Pasadena	720	790	875	830	750	0	750	0	0	0	0
286	GAF Corp.	Dallas	40	40	40	40	40	0	0	0	0	0	40
287	International Paper Corp.	Texarkana				610	1,215	0	1,215	0	0	0	0
288	Owens-Illinois Inc.	Orange			1,000	1,000	1,150	0	1,150	0	0	0	0
289	St. Regis Paper Co.	Houston	1,250	1,250	1,200	950	1,775	0	630	745	400	0	0
290	St. Regis Paper Co.	Lufkin	130	130	180	300	500	0	400	800	0	0	0
291	Temple-Eastex Inc.	Diboll	425	770	1,200	1,250	1,520	0	1,520	0	0	0	500
292	Temple-Eastex Inc.	Silsbee											
	Total capacity		2,590	3,005	5,470	6,205	8,175	0	5,665	1,545	400	0	565
	Total mills		8	8	11	12	12	0	6	2	1	0	3
	Total plants		6	6	8	9	9						
Virginia													
293	Bear Island Paper Co.	Ashland				1,150	560	0	0	0	560	0	0
294	Chesapeake Corp. of Virginia	West Point	675	1,100	1,050	1,150	1,525	0	1,525	0	0	0	0
295	Stone Container Corp.	Hopewell	850	1,000	1,000	1,060	900	0	900	0	0	0	0
296	Georgia-Pacific Corp.	Jarratt	200	200	225	225	250	0	0	0	250	0	0
297	James River Pulp Corp.	Columbia	25	(4)									

Table A-2—Capacity of individual active U.S. woodpulp plants in 1961, 1965, 1970, and 1974, and, by type, in 1983—Continued

Plant number	Plant name	Plant location	1983					Total Sulfite Sulfate ¹	Groundwood ² Stone Refiner	Semi-chemical ³	Defibrated/ exploded
			1961	1965	1970	1974	1983				
South-Continued											
Virginia-Continued											
298	Mead Corp.	Lynchburg	175	175	190	190	0	0	0	550	0
299	Owens-Illinois Inc.	Big Island	235	300	510	550	0	0	0	0	0
300	Union Camp Corp.	Franklin	600	690	1,150	1,430	1,950	0	0	0	330
301	United States Gypsum Co.	Danville		330	330	330	0	0	0	0	0
302	Virginia Fibre Corp.	Riverville			(e)	550	0	0	0	550	0
303	Westvaco Corp.	Covington	980	1,300	1,355	1,355	1,225	0	0	175	0
	Total capacity		3,740	4,765	5,810	6,290	7,840	0	810	1,275	330
	Total mills		10	9	10	10	10	0	2	3	1
	Total plants		8	7	8	8	9	0	2	3	1
	Total capacity, South		50,430	58,280	81,210	90,740	114,315	450	5,470	6,985	4,385
	Total mills, South		107	107	127	138	147	1	11	17	20
	Total plants, South		83	85	105	113	117	1	11	19	20
West											
Alaska											
304	Alaska Lumber & Pulp Co., Inc.	Sitka	340	500	500	600	600	0	0	0	0
305	Louisiana-Pacific Corp.	Ketchikan	525	600	620	640	615	0	0	0	0
	Total capacity		865	1,100	1,120	1,240	1,215	0	0	0	0
	Total mills		2	2	2	2	2	0	0	0	0
	Total plants		2	2	2	2	2	0	0	0	0
Arizona											
306	Ponderosa Paper Products Inc.	Flagstaff	40	45	40	820	940	0	180	60	0
307	Southwest Forest Industries Inc.	Snowflake	250	450	495	820	940	0	180	60	0
	Total capacity		250	495	495	820	940	0	180	60	0
	Total mills		1	3	2	2	3	0	1	1	0
	Total plants		1	2	1	1	1	0	1	0	0
California											
308	CertainTeed Corp.	Richmond	15	25	30	30	40	0	0	0	630
309	Genstar Building Material Co.	Vernon	35	35	35	35	35	0	0	0	35
310	Johns-Manville Products Corp.	Pittsburg	30	50	50	50	800	0	0	0	0
311	Louisiana-Pacific Corp.	Antioch	625	600	800	1,340	400	0	0	200	0
312	Louisiana-Pacific Corp.	Rocklin					600	0	0	0	400
313	Louisiana-Pacific Corp.	Samoa		500	550	600	600	0	0	0	0
314	Masonite Corp.	Ukiah	300	350	350	350	390	0	0	0	390
315	Packaging Corp. of America	Red Bluff	75	75	75	75	70	0	0	70	0
316	Simpson Paper Co.	Anderson		150	225	150	225	0	0	0	0
317	United States Gypsum Co.	South Gate	15					0	0	0	0
318	Simpson Paper Co.	Fairhaven		50	500	550	640	0	0	0	0
	Total capacity		1,095	1,785	2,615	3,180	3,160	0	2,065	270	825
	Total mills		8	9	12	10	9	0	4	0	3
	Total plants		7	8	9	9	8	0	0	2	3

Table A-2—Capacity of individual active U.S. woodpulp plants in 1961, 1965, 1970, and 1974, and, by type, in 1983—Continued

Plant number	Plant name	Plant location	1983				Total Sulfite	Sulfate ¹	Groundwood ² Stone Refiner	Semi-chemical ³	Defi-brated/ exploded
			1961	1965	1970	1974					
West—Continued											
319	Packaging Corp. of America	Denver	150	150	0	0	0	0	0	0	
	Total capacity		150	150	0	0	0	0	0	0	
	Total mills		1	1	0	0	0	0	0	0	
	Total plants		1	1	0	0	0	0	0	0	
320	Pottlatch Corp.	Lewiston	650	700	800	850	1,100	0	0	0	
	Total capacity		650	700	800	850	1,100	0	0	0	
	Total mills		1	1	1	1	1	0	0	0	
	Total plants		1	1	1	1	1	0	0	0	
321	Champion Packaging	Missoula	600	700	1,150	1,150	2,035	0	0	0	
	Total capacity		600	700	1,150	1,150	2,035	0	0	0	
	Total mills		1	1	1	1	1	0	0	0	
	Total plants		1	1	1	1	1	0	0	0	
322	Dura Roofing Manufacturers	Albuquerque	0	30	(4)	0	0	0	0	0	
	Total capacity		0	30	0	0	0	0	0	0	
	Total mills		0	1	0	0	0	0	0	0	
	Total plants		0	1	0	0	0	0	0	0	
323	Boise Cascade Corp.	Salem	150	150	200	275	40	6275	0	0	
324	Boise Cascade Corp.	St. Helens	375	385	825	850	965	0	965	0	
325	Champion Building Products	Dee	70	100	100	100	190	0	0	100	
326	Champion Building Products	Lebanon	90	90	90	90	190	0	0	190	
327	Coos Head Timber Co.	Coos Bay	90	90	90	90	1,160	0	835	0	
328	Crown Zellerbach Corp.	Clatskanie	80	100	105	105	40	6105	0	0	
329	Crown Zellerbach Corp.	Lebanon	585	585	340	250	120	0	0	0	
330	Crown Zellerbach Corp.	West Linn	30	30	100	100	140	0	0	0	
331	Evans Products Co.	Corvallis	70	100	100	100	40	0	0	100	
332	Forest Fiber Products Co.	Forest Grove	600	900	1,075	1,325	1,340	0	1,090	0	
333	Georgia-Pacific Corp.	Coos Bay	430	430	545	600	600	0	600	0	
334	Georgia-Pacific Corp.	Toledo	180	180	180	180	350	0	350	0	
335	International Paper Co.	Garliner	150	150	520	900	250	0	250	0	
336	James River-Dixie/Northern	Halsey	420	420	570	650	420	6150	0	0	
337	Owens-Corning Fiberglas Corp.	St. Helens	150	150	520	900	250	0	250	0	
338	Publishers Paper Co.	Newberg	420	420	570	650	420	6150	0	0	
339	Publishers Paper Co.	Oregon City	420	420	570	650	420	6150	0	0	

Table A-2—Capacity of individual active U.S. woodpulp plants in 1961, 1965, 1970, and 1974, and, by type, in 1983—Continued

Plant number	Plant name	Plant location	1983					Total Sulfite Sulfate ¹	Groundwood ²		Semi-chemical ³	Defibrated/ ³ exploded
			1961	1965	1970	1974	Total		Stone	Refiner		
----- Tons/24 hr -----												
West-Continued												
Oregon-Continued												
340	United States Gypsum Co.	Pilot Rock	130	130	130	130	0	0	0	0	0	130
341	Weyerhaeuser Co.	Klamath Falls	150	150	150	150	0	0	0	0	0	150
342	Weyerhaeuser Co.	Springfield	400	1,150	1,150	1,150	0	1,090	0	0	0	0
343	Weyerhaeuser West Coast Inc.	North Bend	100	250	225	175	0	0	0	0	210	0
344	Willamette Industries Inc.	Albany	240	400	500	700	0	600	0	0	200	0
	Total capacity		3,490	5,700	8,275	8,720	250	5,530	120	1,535	660	850
	Total mills		17	20	24	25	1	7	1	6	3	6
	Total plants		15	18	21	20	18					
Washington												
345	Boise Cascade Co.	Stellacoom				300	450	0	0	450	0	0
346	Boise Cascade Corp.	Vancouver	150	180	(4)			0	0	0	0	0
347	Boise Cascade Corp.	Wallula	375	500	630	700	910	0	0	0	220	0
348	Crown Zellerbach Corp.	Camas	1,065	1,300	1,225	1,200	440	810	0	0	0	0
349	Crown Zellerbach Corp.	Port Angeles	500	505	4195	300	710	0	0	710	0	0
350	Crown Zellerbach Corp.	Port Townsend	420	420	420	420	445	0	445	0	0	0
351	Fibreboard Corp.	Port Angeles	105	105	105	(4)						
352	Georgia-Pacific Corp.	Bellingham	470	520	550	580	620	0	0	0	120	0
353	Inland Empire Paper Co.	Millwood	140	135	125	140	170	0	0	170	0	0
354	International Paper Co.	Longview	10									
355	ITT Rayonier Inc.	Hoquiam	320	400	425	475	475	0	0	0	0	0
356	ITT Rayonier Inc.	Shelton	(4)									
357	ITT Rayonier Inc.	Port Angeles	375	375	425	475	500	0	0	0	0	0
358	Keyes Fibre Co.	Wenatchee	50	35	35	35	500	0	0	0	0	0
359	Longview Fibre Co.	Longview	1,390	1,555	1,780	2,100	2,100	0	2,000	0	100	0
360	North Pacific Paper Corp.	Longview					1,400	0	0	1,400	0	0
361	Publishers Forest Products Co.	Anacortes				60	40	0	0	0	0	6110
362	Scott Paper Co.	Anacortes	115	130	135	135	40	0	0	0	0	0
363	Scott Paper Co.	Everett	790	820	850	835	835	0	0	0	0	0
364	Simpson Lee Paper Co.	Everett	80	80	125	(4)		6140	0	0	0	0
365	Simpson Timber Co.	Shelton	120	120	120	120	120	0	0	0	0	0
366	St. Regis Paper Co.	Tacoma	800	800	900	1,090	1,090	0	1,090	0	0	0
367	Washington Pulp & Timber Co.	Longview	40	130	100							
368	West Tacoma Newsprint Co.	West Tacoma	165	165	270							
369	Weyerhaeuser Co.	Cosmopolis	400	350	400	400	450	0	0	0	0	0
370	Weyerhaeuser Co.	Everett	625	630	660	660	385	0	385	0	0	0
371	Weyerhaeuser Co.	Longview	730	1,080	1,200	1,325	950	0	750	0	200	0

Table A-2—Capacity of individual active U.S. woodpulp plants in 1961, 1965, 1970, and 1974, and, by type, in 1983—Continued

Plant number	Plant name	Plant location	1983					Total Sulfite	Sulfate ¹	Groundwood ² Stone Refiner	Semi-chemical ³	Defi-brated/ exploded	
			1961	1965	1970	1974	Tons/24 hr						
Washington-Continued													
	Total capacity		9,185	10,350	10,735	11,350	12,740	3,200	6,170	0	2,730	640	0
	Total mills		32	34	33	27	22	6	7	0	5	4	0
	Total plants		22	22	22	19	16						
	Total capacity, West		16,285	21,010	25,190	27,310	30,135	4,665	17,600	300	4,325	1,570	1,675
	Total mills, West		63	72	75	68	62	9	21	2	12	9	9
	Total plants, West		50	56	57	53	47						
	Total capacity, United States		89,560	103,405	132,735	145,555	173,855	7,650	120,905	10,385	11,695	14,160	9,060
	Total mills, United States		350	335	336	324	315	21	122	36	43	44	49
	Total plants, United States		277	272	278	271	254						

¹Sulfate includes soda pulp mills.

²Refiner groundwood includes thermomechanical pulp mills.

³Semichemical includes chemiground and chemimechanical pulp mills.

⁴Excludes capacity of idle mill(s) at this location.

⁵Excludes capacity of planned or under construction mill(s) at this location.

⁶Mill idle, excluded from totals.

⁷Mill planned or under construction, excluded from totals.

Sources: Lockwood Publishing Co., Inc. (1966, 1971, 1968, 1973)
 McKeever, David B. (1977)
 Miller Freeman Publications, Inc. (1983)
 U.S. Department of Agriculture (1961, 1966)
 Vance Publishing Corp. (1994)

Table A-3—Number and capacity of active U.S. woodpulp mills in each region in selected years

Year	Northeast			North Central			South			West		
	Number	Capacity		Number	Capacity		Number	Capacity		Number	Capacity	
		Total	Average		Total	Average		Total	Average		Total	Average
1920 ¹	197	9,890	50	86	3,425	40	24	995	41	16	1,030	64
1930 ¹	152	9,720	64	76	4,650	61	40	2,995	75	40	3,820	96
1940 ¹	110	8,585	78	61	4,655	76	49	11,115	227	39	5,485	141
1950 ¹	95	8,635	91	60	5,610	94	63	21,250	337	40	8,165	204
1955 ¹	106	10,905	103	75	7,495	100	85	32,840	386	57	10,560	185
1961	97	12,665	131	83	10,180	123	107	50,430	471	63	16,285	258
1965	75	12,290	164	81	11,825	146	107	58,280	545	72	21,010	292
1970	63	14,170	225	71	12,165	171	127	81,210	639	75	25,190	336
1974	53	14,870	281	65	12,635	194	138	90,740	658	68	27,310	402
1983	48	16,035	334	58	13,370	231	147	114,315	778	62	30,135	486
			----- Tons/day -----		----- Tons/day -----			----- Tons/day -----			----- Tons/day -----	

¹Includes idle mills, and mills under construction.

Sources: Lockwood Publishing Co., Inc. (1966, 1971, 1968, 1973)

McKeever, David B. (1977)

Miller Freeman Publications, Inc. (1983)

U.S. Department of Agriculture, Forest Service (1961, 1965)

Vance Publishing Corp. (1984)

Table A-4—Annual U.S. woodpulp mill capacity, woodpulp production, and production as a percentage of capacity for different grades of pulp in selected years

Year	Dissolving/special alpha				Sulfite				Sulfate ¹				Groundwood ²				Semichemical				Defibrated/exploded ³			
	Capacity (C)	Production (P)	Ratio (P/C)	Pct	Capacity (C)	Production (P)	Ratio (P/C)	Pct	Capacity (C)	Production (P)	Ratio (P/C)	Pct	Capacity (C)	Production (P)	Ratio (P/C)	Pct	Capacity (C)	Production (P)	Ratio (P/C)	Pct	Capacity (C)	Production (P)	Ratio (P/C)	Pct
	1,000 tons	1,000 tons	1,000 tons	1,000 tons	1,000 tons	1,000 tons	1,000 tons	1,000 tons	1,000 tons	1,000 tons	1,000 tons	1,000 tons	1,000 tons	1,000 tons	1,000 tons	1,000 tons	1,000 tons	1,000 tons	1,000 tons	1,000 tons	1,000 tons	1,000 tons	1,000 tons	1,000 tons
1920	--	(4)	--	--	51,586	--	--	652	--	61,584	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1930	--	(4)	--	--	51,567	--	--	1,424	--	61,560	--	--	--	--	--	--	--	79	--	--	--	--	(7)	--
1940	(4)	479	100	52,891	52,608	90	4,670	4,280	92	2,435	67	425	165	39	275	93	1,151	1,075	93	1,151	1,075	93	1,151	1,075
1950	1,078	984	91	2,716	2,555	94	12,149	11,729	97	3,327	82	1,623	1,408	87	1,514	88	1,514	1,307	87	1,514	1,307	88	1,514	1,307
1960	1,360	1,138	84	2,982	2,578	86	16,484	15,010	91	4,087	81	2,840	1,991	70	1,783	73	2,840	1,991	70	1,783	1,307	73	2,840	1,307
1965	1,483	1,486	100	2,907	2,789	96	21,674	20,743	96	4,301	91	3,323	2,885	87	2,060	72	4,301	2,885	87	2,060	1,474	72	4,301	1,474
1970	1,756	1,705	97	2,443	2,344	96	30,399	29,690	98	4,677	94	3,811	3,297	87	2,777	76	4,677	3,297	87	2,777	2,105	76	4,677	2,105
1971	1,772	1,674	94	2,414	2,163	90	31,736	29,759	94	4,680	95	3,814	3,473	91	3,100	77	4,680	3,473	91	3,100	2,373	77	4,680	2,373
1972	1,756	1,656	94	2,353	2,172	92	32,765	32,010	98	4,593	101	3,937	3,786	96	3,328	75	4,593	3,786	96	3,328	2,502	75	4,593	2,502
1973	1,754	1,637	93	2,378	2,184	92	34,253	33,233	97	4,532	103	4,171	3,864	93	3,585	76	4,532	3,864	93	3,585	2,740	76	4,532	2,740
1974	1,824	1,723	94	2,401	2,209	92	34,511	33,212	96	4,572	103	4,233	3,758	89	3,755	73	4,572	3,758	89	3,755	2,736	73	4,572	2,736
1975	1,671	1,583	95	2,420	1,951	81	34,991	29,361	84	4,770	91	4,246	3,201	75	3,829	69	4,770	3,201	75	3,829	2,637	69	4,770	2,637
1976	1,571	1,443	92	2,417	2,034	84	35,875	32,872	92	4,953	94	4,402	3,576	81	3,829	82	4,953	3,576	81	3,829	3,146	82	4,953	3,146
1977	1,648	1,436	87	2,252	2,012	89	36,922	34,151	92	5,027	96	4,514	3,542	78	3,985	79	5,027	3,542	78	3,985	3,140	79	5,027	3,140
1978	1,573	1,405	89	2,095	1,643	78	37,903	35,543	94	5,109	91	4,572	3,549	78	3,962	81	5,109	3,549	78	3,962	3,225	81	5,109	3,225
1979	1,551	1,447	93	2,004	1,814	91	38,893	36,339	93	5,167	89	4,553	3,889	85	3,969	77	5,167	3,889	85	3,969	3,068	77	5,167	3,068
1980	1,590	1,417	89	1,909	1,910	100	39,983	37,982	95	5,717	93	4,601	3,938	86	3,913	62	5,717	3,938	86	3,913	2,410	62	5,717	2,410
1981	1,598	1,356	85	1,855	1,797	97	41,288	38,078	92	6,145	91	4,597	3,753	82	3,847	57	6,145	3,753	82	3,847	2,211	57	6,145	2,211
1982	1,606	1,115	69	1,774	1,654	93	42,192	37,656	89	6,408	81	4,734	3,311	70	3,419	60	6,408	3,311	70	3,419	2,040	60	6,408	2,040
1983	1,604	1,244	78	1,743	1,729	99	42,338	40,351	95	6,528	85	4,587	3,516	77	3,390	72	6,528	3,516	77	3,390	2,439	72	6,528	2,439

¹Includes soda pulp.

²Includes thermomechanical pulp.

³Includes screenings and estimates of hard pressed board mill capacity.

⁴Included in sulfite.

⁵Includes dissolving/special alpha pulp.

⁶Includes defibrated/exploded pulp.

⁷Included in groundwood.

Sources: American Paper Institute (1983, 1984, 1984b)
 McKeever, David B. (1977)
 U.S. Department of Agriculture, Forest Service (1961, 1965)
 U.S. Department of Commerce, Bureau of the Census (1983, 1985)
 United States Pulp Producers Assoc., Inc. (1956, 1961)

Table A-5—Annual U.S. woodpulp production, pulpwood consumption, and consumption per unit of production for different grades of pulp in selected years

Year	Pulpwood consumption			woodpulp production	Pulpwood consumption			woodpulp production	Pulpwood consumption		
	Total	Per ton of pulp produced			Total	Per ton of pulp produced			Total	Per ton of pulp produced	
	1,000 tons	1,000 cords	Cords	1,000 tons	1,000 cords	Cords	1,000 tons	1,000 cords	Cords		
	----- Dissolving/Special Alpha -----			----- Sulfite ¹ -----			----- Sulfate ² -----				
1920	(3)	(3)	—	⁴ 2,049	⁴ 3,204	1.56	189	1,320	6.98		
1930	(3)	(3)	—	⁴ 2,041	⁴ 3,137	1.54	950	2,540	2.67		
1940	(3)	(3)	—	⁴ 3,140	⁴ 4,966	1.58	3,748	6,954	1.86		
1950	³ (479)	(3)	—	⁴ 3,371	⁴ 6,733	2.00	7,501	13,289	1.77		
1955	984	2,035	2.07	2,995	5,771	1.93	11,289	20,047	1.78		
1960	1,138	2,551	2.24	2,998	6,008	2.00	14,590	25,056	1.72		
1965	1,486	3,313	2.23	3,018	5,472	1.81	20,514	35,194	1.72		
1970	1,705	3,673	2.15	2,562	5,016	1.96	29,472	49,366	1.68		
1971	1,674	3,469	2.07	2,371	4,650	1.96	29,551	49,241	1.67		
1972	1,656	3,425	2.07	2,356	4,697	1.99	31,826	53,085	1.67		
1973	1,637	3,407	2.08	2,372	4,523	1.91	33,045	55,097	1.67		
1974	1,723	3,953	2.29	2,409	4,722	1.96	33,012	55,301	1.68		
1975	1,583	2,944	1.86	2,099	3,903	1.86	29,213	49,184	1.68		
1976	1,443	2,777	1.92	2,129	4,426	2.08	32,777	54,581	1.67		
1977	1,436	3,220	2.24	2,099	4,523	2.15	34,064	55,869	1.64		
1978	1,405	3,056	2.18	1,729	3,125	1.81	35,457	57,944	1.63		
1979	1,447	3,248	2.24	1,914	3,348	1.75	36,239	60,623	1.67		
1980	1,417	3,378	2.38	2,010	3,494	1.74	37,882	62,408	1.65		
1981	1,356	2,956	2.18	1,797	3,250	1.81	38,078	62,684	1.65		
1982	1,115	2,407	2.16	1,654	2,673	1.62	37,656	62,304	1.65		
1983	1,244	2,756	2.22	1,729	3,181	1.84	40,351	65,716	1.63		
	----- Groundwood ⁵ -----			----- Semichemical -----			----- Defibrated/Exploded ⁶ -----				
1920	⁷ 1,584	⁷ 1,590	1.00	(⁸)	(⁸)	—	(⁸)	(⁸)	—		
1930	⁷ 1,639	⁷ 1,518	.93	(⁸ (79)	(⁸)	—	(⁸)	(⁸)	—		
1940	⁷ 2,073	⁷ 1,822	.88	⁸ 165	(⁸)	—	⁸ 275	(⁸)	—		
1950	⁷ 3,977	⁷ 3,605	.91	⁸ 686	(⁸)	—	⁸ 1,075	(⁸)	—		
1955	2,729	2,735	1.00	1,408	1,568	1.11	1,334	1,200	0.90		
1960	3,292	3,453	1.05	1,991	2,190	1.10	1,307	1,227	.94		
1965	3,920	3,644	.93	2,885	3,053	1.06	1,474	1,560	1.06		
1970	4,404	4,234	.96	3,297	3,456	1.05	2,105	1,818	.86		
1971	4,462	4,259	.95	3,473	3,469	1.00	2,373	2,068	.87		
1972	4,639	4,411	.95	3,786	3,738	.99	2,502	2,182	.87		
1973	4,670	4,402	.94	3,864	3,943	1.02	2,740	2,225	.81		
1974	4,711	4,413	.94	3,758	3,776	1.00	2,736	2,163	.79		
1975	4,351	4,087	.94	3,201	3,187	1.00	2,637	2,068	.78		
1976	4,649	4,266	.92	3,576	3,609	1.01	3,146	2,352	.75		
1977	4,851	4,289	.88	3,542	3,683	1.04	3,140	2,352	.75		
1978	4,655	4,098	.88	3,549	3,491	.98	3,225	2,456	.76		
1979	4,620	4,115	.89	3,889	3,859	.99	3,068	2,401	.78		
1980	5,301	4,483	.85	3,938	3,853	.98	2,410	2,087	.87		
1981	5,594	4,547	.81	3,753	3,929	1.05	2,211	1,984	.90		
1982	5,210	4,879	.94	3,311	3,372	1.02	2,040	1,939	.95		
1983	5,529	5,095	.92	3,516	3,579	1.02	2,439	2,060	.84		

Note: Numbers in parentheses are included with other pulp types as indicated.

¹Includes soda pulp for the years 1950-80.

²Includes soda pulp for the years 1981-83.

³Included in sulfate.

⁴Includes dissolving/special alpha pulp.

⁵Includes thermomechanical pulp.

⁶Includes screenings.

⁷Includes semichemical, defibrated/exploded, and screening pulps.

⁸Included in groundwood.

Sources: American Paper Institute (1983, 1984, 1984b)

McKeever, David B. (1977)

U.S. Department of Agriculture, Forest Service (1961, 1965)

U.S. Department of Commerce, Bureau of the Census (1983,1985)

United States Pulp Producers Assoc., Inc. (1956, 1961)

Table A-6.—Annual U.S. production of pulpwood of different types in selected years

Year	Total pulpwood production	Roundwood						Plant by-products	
		Total		Softwood		Hardwood		1,000 cords	Pct
		1,000 cords	Pct	1,000 cords	Pct	1,000 cords	Pct		
1920	4,873	4,703	97	4,157	85	546	11	170	3
1930	5,744	5,148	90	4,479	78	669	12	596	10
1940	12,369	12,094	98	10,776	87	1,318	11	275	2
1950	20,715	19,465	94	16,680	81	2,785	13	1,250	6
1955	30,950	28,600	92	23,365	75	5,235	17	2,350	8
1960	40,010	33,465	84	25,450	64	8,015	20	6,545	16
1965	52,320	40,290	77	29,250	56	11,040	21	12,030	23
1970	70,460	50,220	71	36,660	52	13,560	19	20,240	29
1971	68,350	46,720	68	33,390	49	13,330	20	21,620	32
1972	71,240	46,090	65	31,830	45	14,270	20	25,150	35
1973	77,170	48,840	63	32,810	43	16,020	21	28,340	37
1974	81,860	53,950	66	37,010	45	16,930	21	27,910	34
1975	69,040	44,280	64	31,660	46	12,610	18	24,760	36
1976	77,410	47,650	62	32,970	43	14,680	19	29,760	38
1977	79,760	45,800	57	31,100	39	14,700	18	33,970	43
1978	80,080	47,130	59	30,900	39	16,230	20	32,950	41
1979	86,200	51,500	60	34,810	40	16,740	19	34,650	40
1980	88,600	54,940	62	37,810	43	17,120	19	33,660	38
1981	85,250	51,800	61	35,160	41	16,640	20	33,450	39
1982	81,730	50,010	61	33,350	41	16,660	20	31,720	39
1983 ¹	87,890	52,570	60	33,020	38	19,550	22	35,320	40

¹Preliminary.

Sources: Hair, Dwight and Ulrich, Alice H. (1964)
Ulrich, Alice H. (1985)

Table A-7.—Annual U.S. woodpulp production, imports, exports, and apparent domestic consumption, selected years 1920-83

Year	Domestic production	imports	Exports	Apparent domestic consumption ¹
-----Million tons-----				
1920	3,822	906	32	4,696
1930	4,630	1,830	48	6,412
1940	8,961	1,225	481	9,705
1950	14,849	2,385	96	17,138
1955	20,740	2,214	631	22,323
1960	25,316	2,389	1,142	26,563
1965	33,296	3,130	1,402	35,024
1970	43,546	3,518	3,095	43,969
1971	43,903	3,515	2,175	45,243
1972	46,767	3,728	2,252	48,243
1973	48,327	4,002	2,344	49,985
1974	48,349	4,123	2,802	49,670
1975	43,084	3,078	2,782	43,380
1976	47,721	3,727	2,518	48,930
1977	49,132	3,871	2,640	50,363
1978	50,020	4,023	2,599	51,444
1979	51,177	4,318	2,935	52,560
1980	52,959	4,051	3,806	53,204
1981	52,790	4,087	3,678	53,199
1982	50,986	3,656	3,395	51,247
1983 ²	54,808	4,093	3,644	55,257

¹Production + imports - exports.

²Preliminary.

Sources: Ulrich, Alice H. (1985)
United States Pulp Producers Assoc., Inc. (1961)

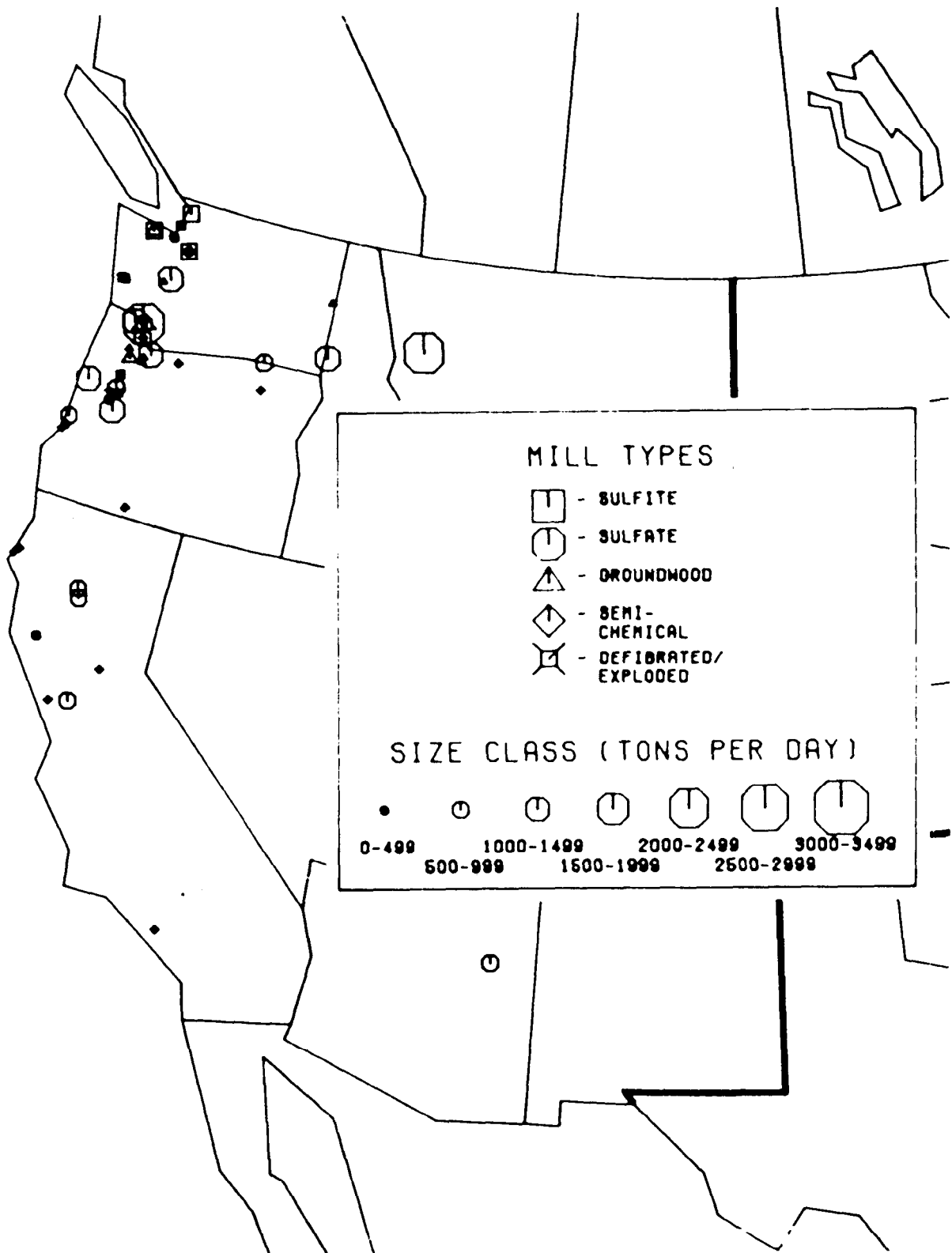


Figure A-1—Location, daily capacity and type of woodpulp plants in different regions of the United States in 1983.

