

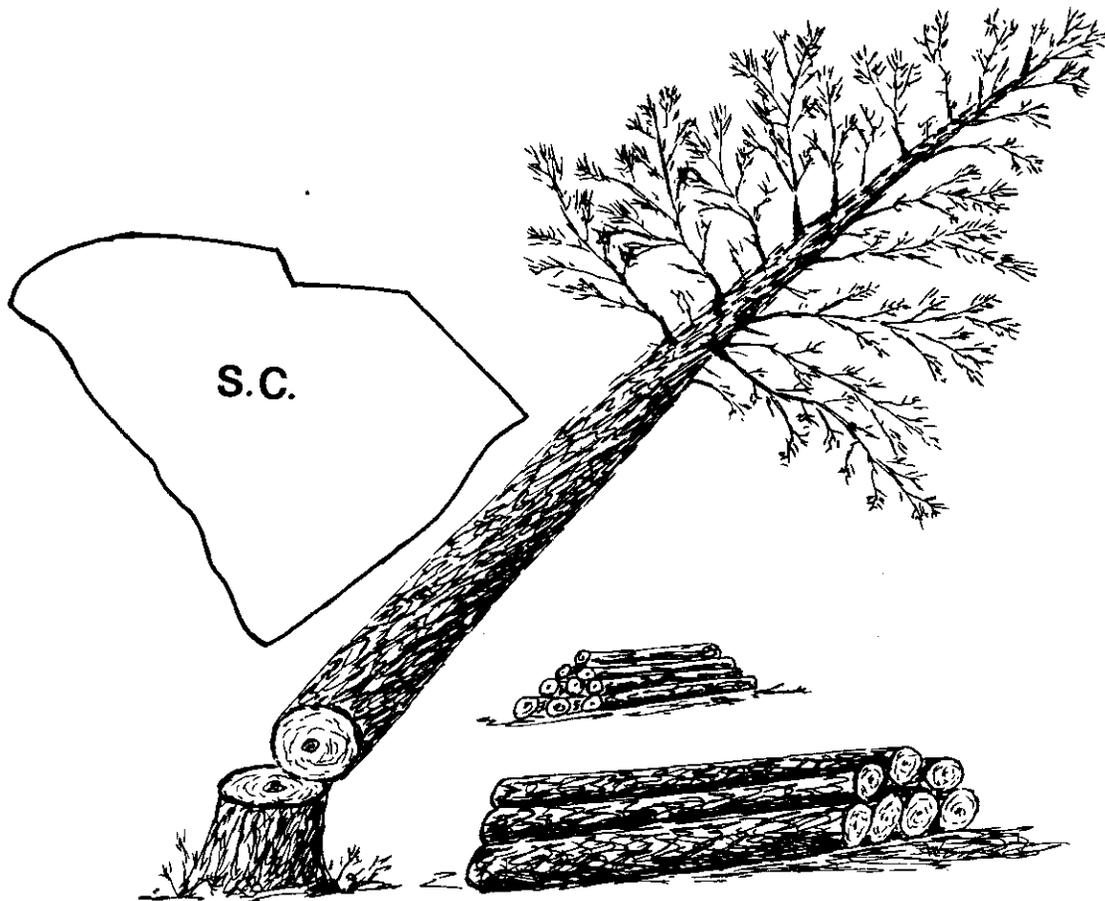


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A 10-Year Analysis of South Carolina's Industrial Timber Products Output

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A 10-YEAR ANALYSIS OF SOUTH CAROLINA'S INDUSTRIAL TIMBER PRODUCTS OUTPUT

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HIGHLIGHTS

The output of industrial timber products in South Carolina increased at an average annual rate of 2 percent between 1967 and 1976. Output from roundwood increased by 36 million cubic feet, while the output from plant byproducts increased 47 million cubic feet. Pulpwood was the leading roundwood product in the State throughout the period, followed by saw logs, and then veneer logs. At the end of the period, round pulpwood production was up by almost 10 percent, saw log production was down by almost 5 percent, and veneer log production had more than tripled. All of the gains in product output came from the softwood species group. Products from the hardwood species group declined sharply. There was a clear and constant shift in production from the Coastal forests to those along the Savannah River. The volume of unused plant residues dropped from over 22 million cubic feet to less than 6 million cubic feet.

BACKGROUND

A study of South Carolina's primary wood-using industries was made to determine the volume and source of all industrial timber products produced in 1967, by region and county (fig. 1). A similar study was to be made every 3 years thereafter to monitor changes in both the timber products output and the industries themselves. When the first followup study was made, some outstanding changes were detected and there were indications that even greater changes would

occur in the near future. To keep track of these anticipated changes, annual studies were made for the years 1972-76.

The 1967 study was made as part of the fourth renewable resources evaluation of South Carolina. In addition to timber products output, total timber removals and net annual growth for 1967 and the 1968 inventory were estimated (table 1). The results of the resource evaluation showed a very good timber situation. The inventory was increasing, and net growth exceeded total removals by about 48 percent. There were, however, some problems involving individual species and certain areas within the State. Some soft-textured hardwoods such as water tupelo, blackgum, and sweetgum, which are important in the production of veneer logs, showed little gains over the previous evaluation of 1958. Several areas in the State showed relatively small increases in softwood inventories when compared with the rest of the State (fig. 2).

The South Carolina State Commission of Forestry and the Cooperative Extension Service, Clemson University, cooperated with the Southeastern Forest Experiment Station in making these industry studies. Without their cooperation, and the excellent cooperation of the primary wood-using industries in the State, the studies would have been impossible.

The general objectives of each study remained the same as those of the 1967 study. Due to changes in conditions and changes in information needs, certain specific objectives were revised. Where changes were made to accommodate new needs, comparisons cannot be made for the full 10-year period.

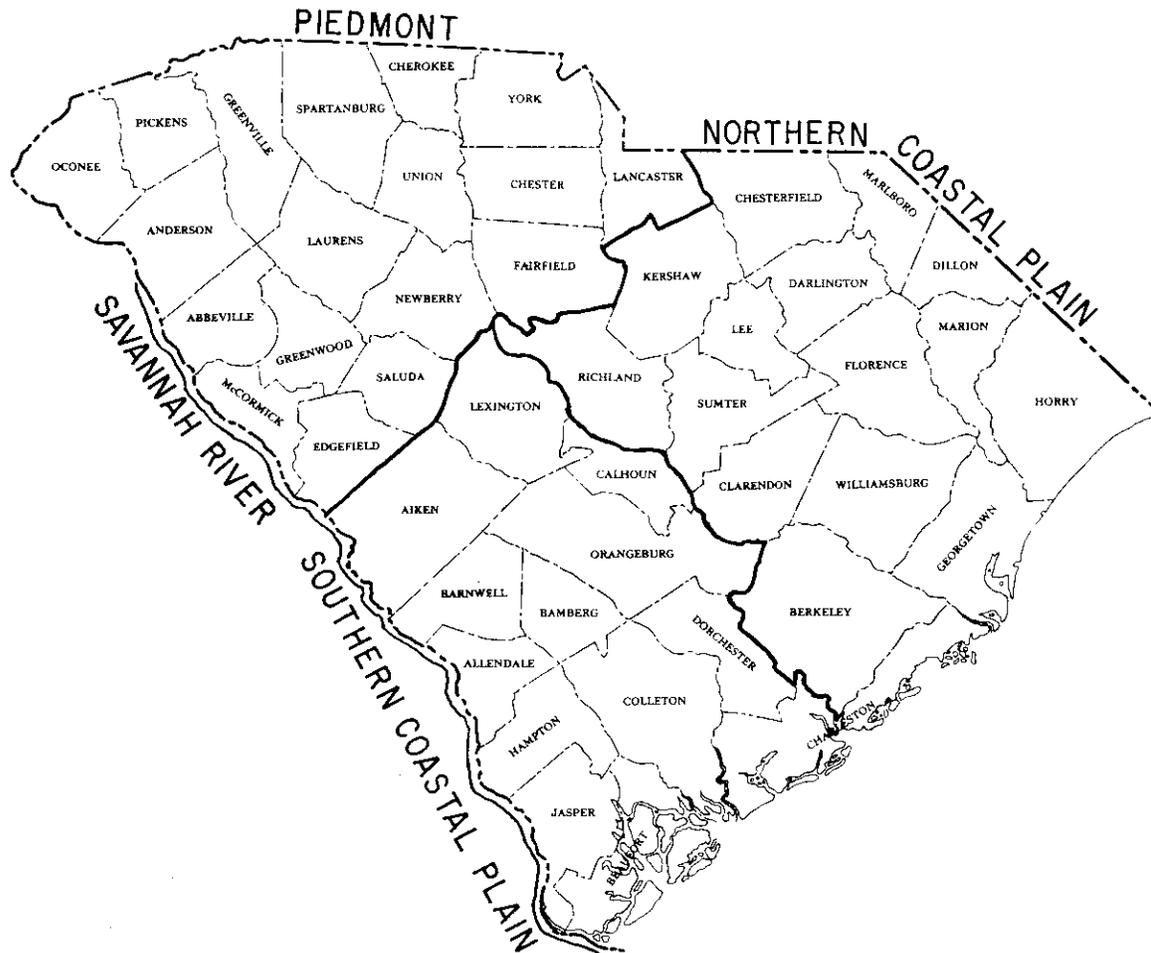


Figure 1.—Forest Survey Regions in South Carolina.

Table 1.—Results of the 1968 Renewable Resources Evaluation of South Carolina

Item	Softwood	Hardwood
- Million cubic feet -		
1968 Growing-stock inventory	6,105.8	6,145.1
1967 Growing-stock net growth	412.4	242.1
1967 Growing-stock removals:		
Industrial products output	241.1	88.8
Other removals ^{1/}	46.6	65.2
Total removals	287.7	154.0

^{1/} Includes logging residues, land clearing, timber stand improvement, and fuelwood.

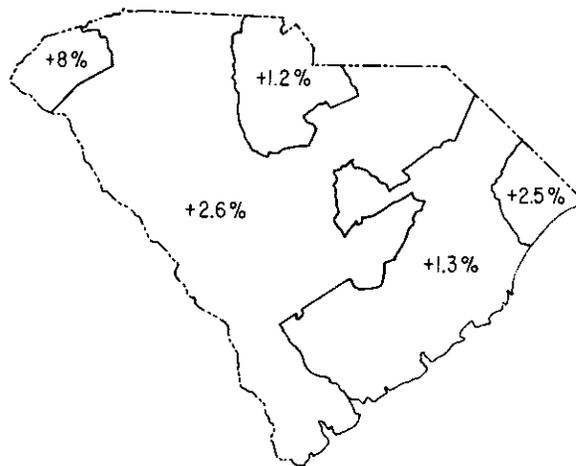


Figure 2.—Percentage of change in softwood growing stock, 1958-68, in key areas of South Carolina.

INDUSTRY TRENDS

During the 10 years 1967 through 1976, changes in the primary wood-using industries of South Carolina greatly altered the State's industrial timber products output. Output of roundwood and plant byproducts from both softwood and hardwood species groups were affected.

Two new pulpmills were constructed in the State, bringing the total to seven (table 2). In addition, three of the original five increased their pulping capacity. In total, the daily pulping capacity increased by 1,957 tons, and the corresponding increase in demand for pulpwood was 979,000 cords per year.

Table 2. --Number of primary wood-using plants, by year and industry

Industry	1967	1970	1972	1973	1974	1975	1976
	----- Number of plants -----						
Sawmills	239	206	150	152	152	133	132
Veneer mills	26	27	24	24	22	26	26
Pulpmills	5	6	6	6	6	7	7
Other misc.	13	9	7	7	8	8	8
All plants	283	248	187	189	188	174	173

Between World War II and 1962, the number, capacity, and saw log receipts of sawmills declined sharply. The decline in the number of sawmills continued between 1967 and 1976, but at a much slower rate. The expanded capacity of some surviving mills, plus the added capacity of new mills, has reversed the decline of capacity and saw log receipts experienced prior to 1962. In 1976, 14 of the 132 sawmills had chipper headrigs with large capacities to produce lumber and sizable volumes of raw material for the expanding pulp industry.

Veneer log receipts were stimulated by introduction of the pine plywood industry into the State. They rose from 13 million cubic feet in 1967 to over 42 million cubic feet in 1976. Pine log receipts of the four new plywood mills approached 35 million cubic feet in 1976. The change in the veneer industry not only created a new demand for logs in the State, but residues from the mills created a new source of raw material for both pulpmills and sawmills.

Tree-length logging developed during the study period, and, as a result, sawmills and veneer mills received large volumes of raw material unsuited for their primary product. The material which could not be used for a primary

product because of defect or size limitations was converted directly into a byproduct—mainly pulpwood. No attempt was made to measure the magnitude of this volume in 1967. In 1970, however, 9 million cubic feet were produced, and by 1976 almost 24 million cubic feet were produced.

MAJOR CHANGES IN INDUSTRIAL TIMBER PRODUCTS OUTPUT

The highest output of industrial timber products occurred in 1976—just over 477 million cubic feet. The average annual rate of increase over the 10-year period was 2 percent. If this rate is maintained, the 1967 output will double by the year 2002. Output from roundwood peaked in 1974 at almost 390 million cubic feet; it then dropped sharply in 1975, and recovered to 387 million cubic feet in 1976. Output from plant byproducts of primary wood-using industries was greatest in 1976, and more than doubled during the period.

Pulpwood was the leading product in the State throughout the period. The production of pulpwood peaked in 1974 at more than 268 million cubic feet. In 1975, pulpwood production dropped below the 1972 level, and in 1976 it only rose to the 1973 level. The increase in 1976 was solely due to increased use of plant byproducts; output of round pulpwood declined between 1973 and 1976. Pulpwood from plant byproducts made up over 25 percent of the total output in 1976. Softwood pulpwood accounted for 76 percent of the 1967 production and for almost 80 percent in 1976. The output of hardwood pulpwood remained fairly constant throughout the period.

The second leading product in the State was saw logs. Saw log output was 154 million cubic feet in 1967, and 153 million cubic feet in 1976. The only year that the output of saw logs varied more than 10 percent from the 1967 level was in 1975 when it dropped to 126 million cubic feet. The output from roundwood decreased almost 7 million cubic feet during the period, but the decrease was offset by a 6-million-cubic-foot increase from plant byproducts. All the decrease in roundwood output was in the hardwood species group.

The output of veneer logs more than tripled during the period and showed gains in each year, including 1975. Veneer log output in 1967 was 13 million cubic feet; 10 years later it had grown to over 45 million cubic feet. All of the increase came in the softwood species group. The output of

hardwood veneer logs declined from 12 million cubic feet to just over 7 million cubic feet.

The output of other miscellaneous products, which include poles, piling, fence posts, and raw material for the particleboard industry, peaked in 1975 at 32 million cubic feet. In 1967, practically all of the output in the miscellaneous product group was from roundwood. By 1976, about 78 percent was from plant byproducts.

TRENDS IN PLANT RESIDUES

In 1967, the total receipts of roundwood products in South Carolina were 347.1 million cubic feet. Of the total receipts, 271.9 million cubic feet, or 78 percent, were converted to primary products, and 42.8 million cubic feet, or 12 percent, were used as industrial plant byproducts. An additional 10.1 million cubic feet were being used for fuel, leaving 22.4 million cubic feet, or over 6 percent, as unused plant residues. Coarse material such as slabs, edgings, or veneer cores made up 3.7 million cubic feet of the unused residues. No information on bark utilization was collected in the 1967 study.

In 1976, the total receipts of roundwood products, including round pulpwood chipped at mills other than pulpmills, amounted to 390.8 million cubic feet. Of the total receipts, 281.4 million cubic feet, or 72 percent, were converted to primary products. The volume in industrial plant byproducts was 89.9 million cubic feet, or more than twice the amount produced in 1967. The volume used as fuel rose by almost 40 percent to 13.7 million cubic feet, and the volume of unused residues dropped to 5.8 million cubic feet, or 1.5 percent of the total 1976 roundwood receipts. Only 457,000 cubic feet of coarse residues were not utilized in 1976.

The earliest figures available on bark residues are for 1970. In that year, South Carolina's primary wood-using industries received approximately 39.3 million cubic feet of bark. Over 28 percent, or 11.2 million cubic feet, was not utilized. Of the bark that was utilized, 26 million cubic feet were used as fuel and the rest as charcoal, mulch, and other byproducts. In 1976, the total volume of bark received was 39.1 million cubic feet, and only 12 percent, or 4.6 million cubic feet, was not utilized. The volume used as fuel increased by 3.6 million cubic feet over the 1970 figure, and the volume used in other products increased by 2.8 million cubic feet.

ROUNDWOOD MOVEMENT IN 1976

In 1976, South Carolina's industrial timber products output from roundwood exceeded the roundwood receipts at primary wood-using plants in the State by almost 6 percent. Production of roundwood products amounted to 387 million cubic feet, while mill receipts were just under 366 million cubic feet. Over 21 percent of the State's roundwood output was shipped to other states, and almost 16 percent of the State's mill receipts came from other states. The imbalance of trade between South Carolina and its neighbors was about the same for both the hardwood and softwood species groups.

The Northern Coastal Plain was the only Region in the State where mill receipts exceeded roundwood output. In this Region, receipts exceeded output by over 54 million cubic feet in 1967 and by almost 22 million cubic feet in 1976. The change over the 10-year period was due largely to substitution of plant byproducts for roundwood as a source of raw material by the pulp industry.

Only 47 percent of the roundwood output of the Southern Coastal Plain was retained in that Region, and the roundwood output exceeded receipts by 38 percent. In 1967, roundwood output exceeded receipts by 67 percent. However, new industry has caused receipts to increase much faster than the Region's product output.

In the Piedmont, 60 percent of the roundwood output was retained in the Region, and the roundwood output exceeded receipts by 22 percent. In 1967, roundwood output exceeded receipts by 28 percent. Receipts have increased by 24 percent over the 10-year period, while roundwood output has increased by only 19 percent.

SHIFTS IN TIMBER PRODUCTS OUTPUT

Whereas State and regional figures provide a good overview of changes which have occurred in the roundwood products output, such changes are rarely uniform statewide, or completely confined to a single region. By studying the county roundwood output figures in tables 3 through 17, it is possible to determine the areas where major changes have occurred.

During the 10-year period, round softwood output generally declined on the Coastal Plain, and in two smaller areas along the State's northern border (fig. 3). A decline in output in the

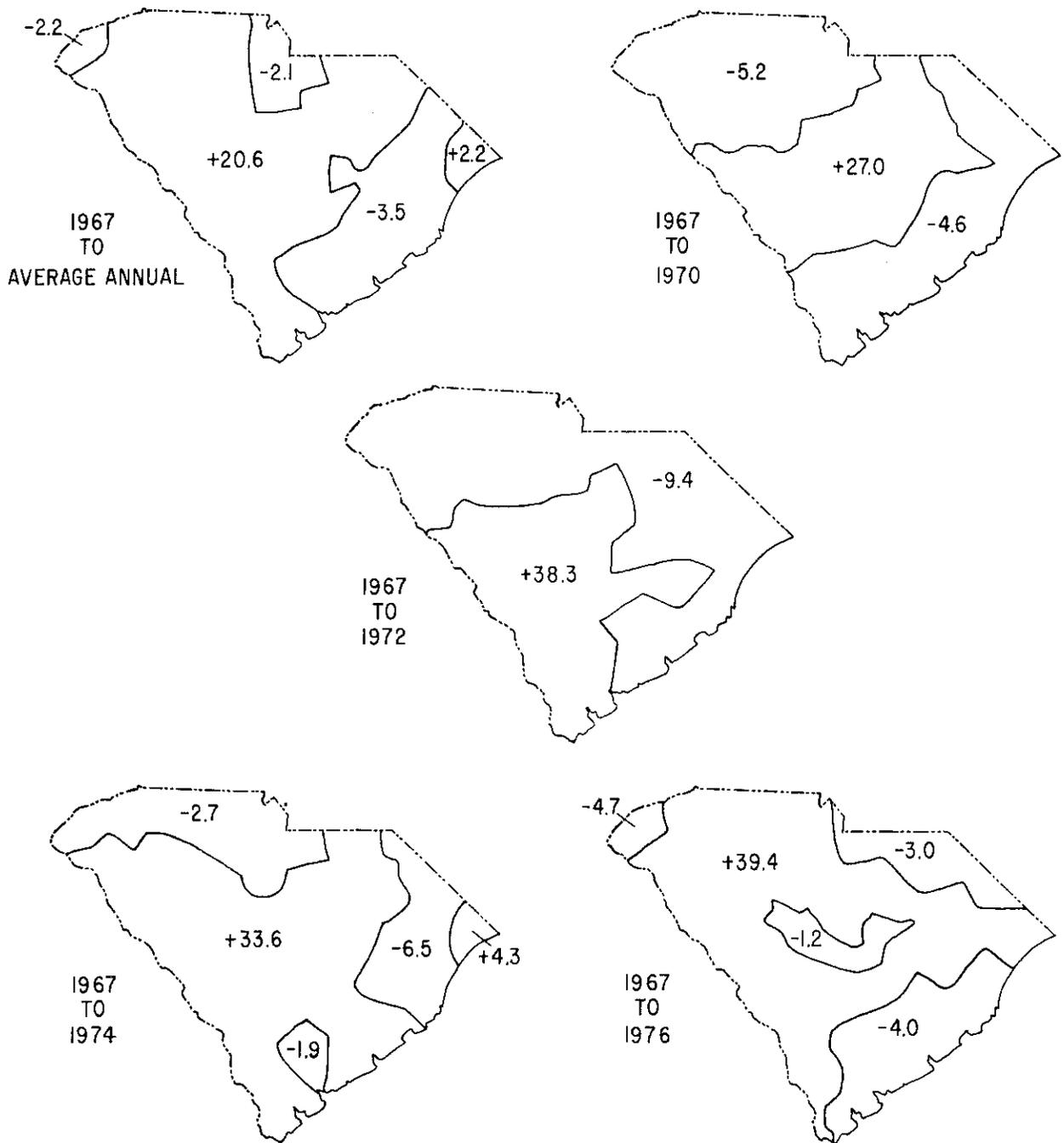


Figure 3.—Changes in softwood industrial timber products output from roundwood, in million cubic feet.

northwest corner of the State was the result of a short-term inflated harvest in 1967 when a large area was being cleared to construct a reservoir. The general decline in softwood output, which was greatest along the coast, was more than offset by increases which were greatest along the Savannah River.

In 1975, two unique conditions resulted in a major shift in softwood products output. First, a recession forced roundwood receipts down by 24 million cubic feet and roundwood output down by 13 million cubic feet in the State. Second, a southern pine beetle epidemic in the northwestern part of the State created a need for extensive salvage cutting. As a result, round softwood output increased in the northwest by 7 million cubic feet and decreased in the southeast by 20 million cubic feet (fig. 4).

The output of round hardwood products was on a downward trend throughout most of the 10-year period (fig. 5). Although the decline in hardwood output was Statewide, the greatest decline occurred in the eastern part of the State and the smallest along the Savannah River.

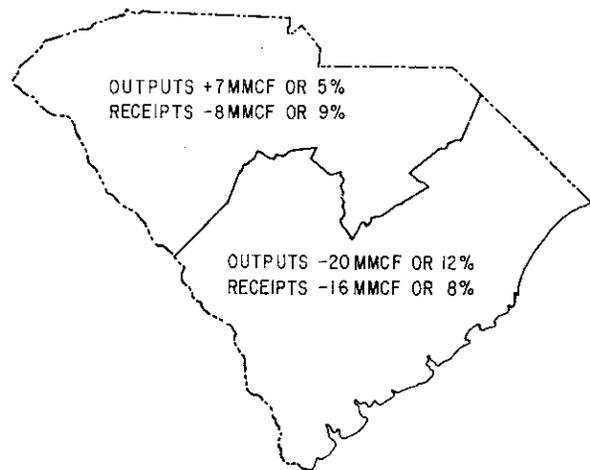


Figure 4.—Changes in round softwood timber products output and receipts, 1974 to 1975.

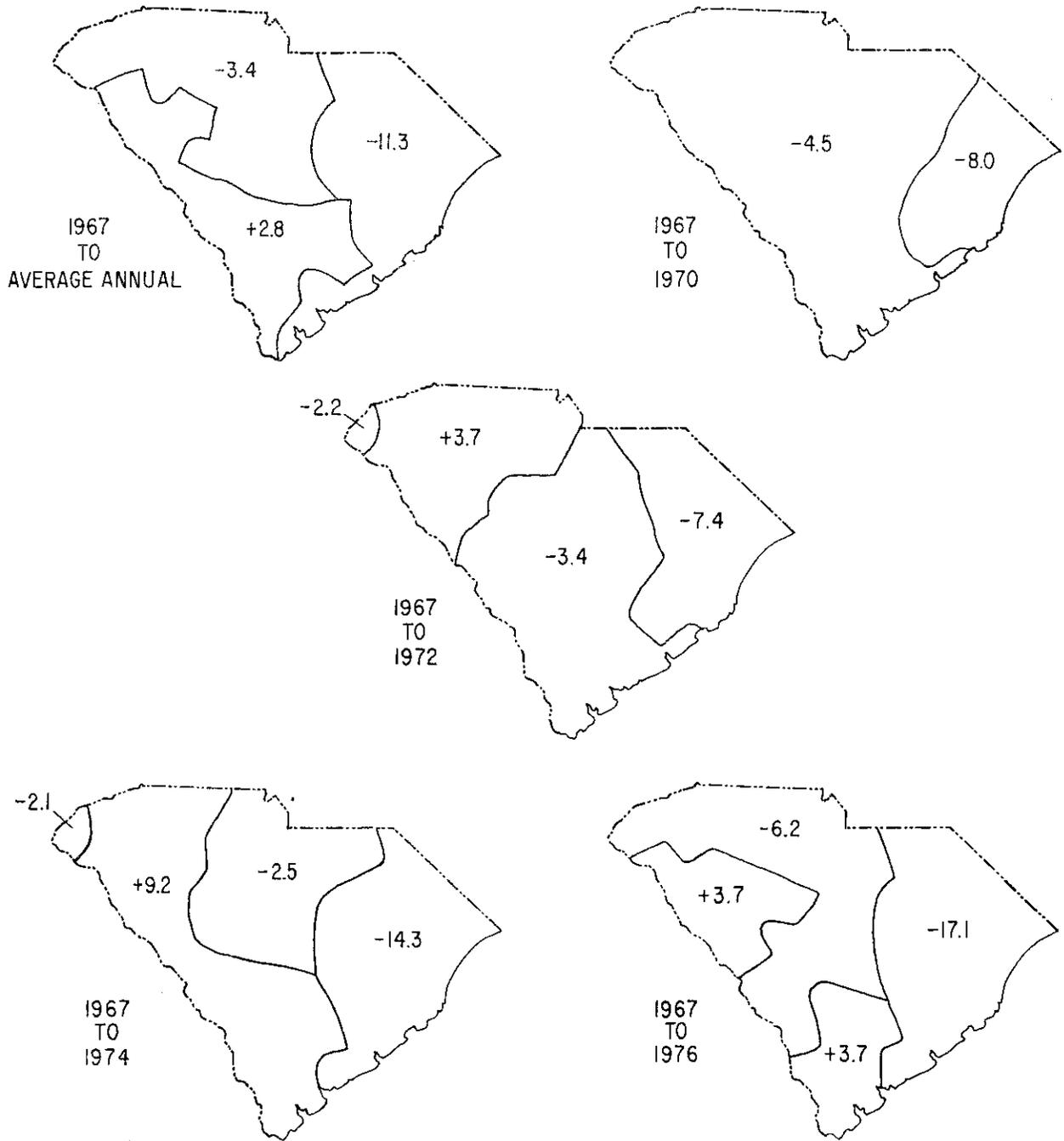


Figure 5.—Changes in hardwood industrial timber products output from roundwood, in million cubic feet.

Table 3.--Volume of roundwood output of industrial timber products in thousand cubic feet, by year, product, and species group, South Carolina

Product and species group	1967	1970	1972	1973	1974	1975	1976
----- Thousand cubic feet -----							
Saw logs:							
Softwood	111,572	104,222	114,245	115,634	105,770	93,750	115,089
Hardwood	42,605	36,884	39,662	34,489	35,389	29,232	32,138
Total	154,177	141,106	153,907	150,123	141,159	122,982	147,227
Veneer logs:							
Softwood	851	9,954	14,007	17,450	31,938	34,049	37,687
Hardwood	12,135	9,132	8,644	9,181	7,232	6,452	7,397
Total	12,986	19,086	22,651	26,631	39,170	40,501	45,084
Pulpwood: ^{1/}							
Softwood	131,784	149,074	147,710	158,007	159,825	158,327	149,109
Hardwood	42,325	38,998	39,555	43,222	44,572	37,178	42,048
Total	174,109	188,072	187,265	201,229	204,397	195,505	191,157
Miscellaneous:							
Softwood	9,144	5,284	6,241	5,677	4,772	3,428	3,808
Hardwood	432	--	--	8	8	8	24
Total	9,576	5,284	6,241	5,685	4,780	3,436	3,832
All industrial:							
Softwood	253,351	268,534	282,203	296,768	302,305	289,554	305,693
Hardwood	97,497	85,014	87,861	86,900	87,201	72,870	81,607
Total	350,848	353,548	370,064	383,668	389,506	362,424	387,300

^{1/} Excludes round pulpwood chipped at other primary wood-using industries.

Table 4.--Volume of roundwood output of industrial timber products in thousand cubic feet, by year, product, and species group, Southern Coastal Plain Region

Product and species group	1967	1970	1972	1973	1974	1975	1976
- - - - - <u>Thousand cubic feet</u> - - - - -							
Saw logs:							
Softwood	26,279	28,952	36,571	42,678	34,449	31,297	35,571
Hardwood	7,201	9,759	9,081	8,873	9,707	8,347	9,028
Total	33,480	38,711	45,652	51,551	44,156	39,644	44,599
Veneer logs:							
Softwood	--	981	5,815	5,544	9,167	6,220	3,798
Hardwood	4,822	3,154	3,026	3,687	2,659	2,504	1,975
Total	4,822	4,135	8,841	9,231	11,826	8,724	5,773
Pulpwood: ^{1/}							
Softwood	26,558	25,390	32,978	37,620	37,810	30,839	28,895
Hardwood	8,051	5,295	5,923	7,476	10,035	7,496	10,738
Total	34,609	30,685	38,901	45,096	47,845	38,335	39,633
Miscellaneous:							
Softwood	2,562	1,337	1,058	1,693	2,196	1,671	1,754
Hardwood	20	--	--	2	2	2	6
Total	2,582	1,337	1,058	1,695	2,198	1,673	1,760
All industrial:							
Softwood	55,399	56,660	76,422	87,535	83,622	70,027	70,018
Hardwood	20,094	18,208	18,030	20,038	22,403	18,349	21,747
Total	75,493	74,868	94,452	107,573	106,025	88,376	91,765

^{1/} Excludes roundwood chipped at other primary wood-using industries.

Table 5.--Volume of roundwood output of industrial timber products in thousand cubic feet, by year, product, and species group, Northern Coastal Plain Region

Product and species group	1967	1970	1972	1973	1974	1975	1976
----- Thousand cubic feet -----							
Saw logs:							
Softwood	48,995	43,924	44,868	37,532	37,410	34,163	44,660
Hardwood	22,500	17,383	17,996	13,736	14,734	12,448	13,594
Total	71,495	61,307	62,864	51,268	52,144	46,611	58,254
Veneer logs:							
Softwood	851	8,973	8,192	11,906	17,312	20,783	21,463
Hardwood	7,313	5,409	5,125	5,054	3,998	3,453	4,794
Total	8,164	14,382	13,317	16,960	21,310	24,236	26,257
Pulpwood: ^{1/}							
Softwood	46,180	54,172	51,424	51,881	52,141	48,006	44,120
Hardwood	19,334	18,565	19,087	20,255	17,007	14,214	15,963
Total	65,514	72,737	70,511	72,136	69,148	62,220	60,083
Miscellaneous:							
Softwood	4,384	3,581	5,133	3,934	2,569	1,757	2,051
Hardwood	205	--	--	2	2	2	6
Total	4,589	3,581	5,133	3,936	2,571	1,759	2,057
All industrial:							
Softwood	100,410	110,650	109,617	105,253	109,432	104,709	112,294
Hardwood	49,352	41,357	42,208	39,047	35,741	30,117	34,357
Total	149,762	152,007	151,825	144,300	145,173	134,826	146,651

^{1/} Excludes roundwood chipped at other primary wood-using industries.

Table 6.--Volume of roundwood output of industrial timber products in thousand cubic feet, by year, product, and species group, Piedmont Region

Product and species group	1967	1970	1972	1973	1974	1975	1976
- - - - - Thousand cubic feet - - - - -							
Saw logs:							
Softwood	36,298	31,346	32,806	35,424	33,911	28,290	34,858
Hardwood	12,904	9,742	12,585	11,880	10,948	8,437	9,516
Total	49,202	41,088	45,391	47,304	44,859	36,727	44,374
Veneer logs:							
Softwood	--	--	--	--	5,459	7,046	12,426
Hardwood	--	569	493	440	575	495	628
Total	--	569	493	440	6,034	7,541	13,054
Pulpwood: ^{1/}							
Softwood	59,046	69,512	63,308	68,506	69,874	79,482	76,094
Hardwood	14,940	15,138	14,545	15,491	17,530	15,468	15,347
Total	73,986	84,650	77,853	83,997	87,404	94,950	91,441
Miscellaneous:							
Softwood	2,198	366	50	50	7	--	3
Hardwood	207	--	--	4	4	4	12
Total	2,405	366	50	54	11	4	15
All industrial:							
Softwood	97,542	101,224	96,164	103,980	109,251	114,818	123,381
Hardwood	28,051	25,449	27,623	27,815	29,057	24,404	25,503
Total	125,593	126,673	123,787	131,795	138,308	139,222	148,884

^{1/} Excludes roundwood chipped at other primary wood-using industries.

Table 7.--Volume of roundwood output of industrial timber products in standard units, by year, product, and species group, South Carolina

Product and species group	Standard units	1967	1970	1972	1973	1974	1975	1976
----- Number of units -----								
Saw logs:								
Softwood	M fbm ^{1/}	687,111	663,857	727,792	736,679	673,836	597,247	733,187
Hardwood	M fbm ^{1/}	271,144	237,979	256,004	222,623	228,470	188,718	207,460
Total	M fbm ^{1/}	958,255	901,836	983,796	959,302	902,306	785,965	940,647
Veneer logs:								
Softwood	M fbm ^{1/}	5,599	65,508	92,215	114,865	210,199	224,098	248,057
Hardwood	M fbm ^{1/}	73,006	61,217	58,127	61,737	48,663	43,423	49,751
Total	M fbm ^{1/}	78,605	126,725	150,342	176,602	258,862	267,521	297,808
Pulpwood: ^{2/}								
Softwood	Cords	1,776,068	2,009,093	1,990,989	2,129,722	2,154,268	2,134,090	2,009,860
Hardwood	Cords	595,284	548,496	556,601	608,270	627,197	523,208	591,675
Total	Cords	2,371,352	2,557,589	2,547,590	2,737,992	2,781,465	2,657,298	2,601,535
Miscellaneous:								
Softwood	M ft ³	3,556	768	3,609	3,209	2,786	1,986	2,184
Hardwood	M ft ³	2,066	--	--	72	72	72	164
Total	M ft ³	5,622	768	3,609	3,281	2,858	2,058	2,348

^{1/} International 4-Inch Rule.

^{2/} Excludes roundwood chipped at other primary wood-using industries.

Table 8.--Volume of roundwood output of industrial timber products in standard units, by year, product, and species group, Southern Coastal Plain Region

Product and species group	Standard units	1967	1970	1972	1973	1974	1975	1976
----- Number of units -----								
Saw logs:								
Softwood	M fbm ^{1/}	167,387	184,407	232,973	271,874	219,458	199,372	226,600
Hardwood	M fbm ^{1/}	46,438	63,007	58,612	57,269	62,662	53,883	58,266
Total	M fbm ^{1/}	213,825	247,414	291,585	329,143	282,120	253,255	284,866
Veneer logs:								
Softwood	M fbm ^{1/}	--	6,458	38,290	36,496	60,325	40,933	25,021
Hardwood	M fbm ^{1/}	32,344	21,135	20,344	24,778	17,878	16,837	13,284
Total	M fbm ^{1/}	32,344	27,593	58,634	61,274	78,203	57,770	38,305
Pulpwood: ^{2/}								
Softwood	Cords	357,931	342,187	444,516	507,065	509,627	415,695	389,487
Hardwood	Cords	113,229	74,471	83,337	105,220	141,184	105,514	151,108
Total	Cords	471,160	416,658	527,853	612,285	650,811	521,209	540,595
Miscellaneous:								
Softwood	M ft ³	701	82	588	940	1,219	929	975
Hardwood	M ft ³	34	--	--	18	18	18	41
Total	M ft ³	735	82	588	958	1,237	947	1,016

^{1/} International 1/4-Inch Rule.

^{2/} Excludes roundwood chipped at other primary wood-using industries.

Table 9.--Volume of roundwood output of industrial timber products in standard units, by year, product, and species group, Northern Coastal Plain Region

Product and species group	Standard units	1967	1970	1972	1973	1974	1975	1976
----- Number of units -----								
Saw logs:								
Softwood	M fbm ^{1/}	312,093	279,781	285,815	239,118	238,332	217,641	284,514
Hardwood	M fbm ^{1/}	145,220	112,119	116,152	88,659	95,109	80,363	87,747
Total	M fbm ^{1/}	457,313	391,900	401,967	327,777	333,441	298,004	372,261
Veneer logs:								
Softwood	M fbm ^{1/}	5,599	59,050	53,925	78,369	113,937	136,777	141,247
Hardwood	M fbm ^{1/}	49,104	36,270	34,445	33,965	26,873	23,222	32,220
Total	M fbm ^{1/}	54,703	95,320	88,370	112,334	140,810	159,999	173,467
Pulpwood: ^{2/}								
Softwood	Cords	622,375	730,086	693,125	699,297	702,833	647,092	594,718
Hardwood	Cords	271,932	261,113	268,570	285,028	239,323	200,032	224,590
Total	Cords	894,307	991,199	961,695	984,325	942,156	847,124	819,308
Miscellaneous:								
Softwood	M ft ³	632	452	2,971	2,219	1,557	1,057	1,204
Hardwood	M ft ³	329	--	--	18	18	18	41
Total	M ft ³	961	452	2,971	2,237	1,575	1,075	1,245

^{1/} International 1/2-Inch Rule.

^{2/} Excludes roundwood chipped at other primary wood-using industries.

Table 10.--Volume of roundwood output of industrial timber products in standard units, by year, product, and species group, Piedmont Region

Product and species group	Standard units	1967	1970	1972	1973	1974	1975	1976
----- Number of units -----								
Saw logs:								
Softwood	M fbm ^{1/}	231,197	199,669	209,004	225,687	216,046	180,234	222,073
Hardwood	M fbm ^{1/}	83,292	62,853	81,240	76,695	70,699	54,472	61,447
Total	M fbm ^{1/}	314,489	262,522	290,244	302,382	286,745	234,706	283,520
Veneer logs:								
Softwood	M fbm ^{1/}	--	--	--	--	35,937	46,388	81,784
Hardwood	M fbm ^{1/}	--	3,812	3,338	2,994	3,912	3,364	4,247
Total	M fbm ^{1/}	--	3,812	3,338	2,994	39,849	49,752	86,031
Pulpwood: ^{2/}								
Softwood	Cords	795,762	936,820	853,348	923,360	941,808	1,071,303	1,025,655
Hardwood	Cords	210,123	212,912	204,694	218,022	246,690	217,662	215,977
Total	Cords	1,005,885	1,149,732	1,058,042	1,141,382	1,188,498	1,288,965	1,241,632
Miscellaneous:								
Softwood	M ft ³	2,390	234	50	50	10	--	5
Hardwood	M ft ³	1,892	--	--	36	36	36	82
Total	M ft ³	4,282	234	50	86	46	36	87

^{1/} International 1/2-Inch Rule.

^{2/} Excludes roundwood chipped at other primary wood-using industries.

Table 11. --Volume of industrial timber products from plant byproducts, by year, product, and species group, South Carolina

Product and species group	1967	1970	1972	1973	1974	1975	1976
- - - - - Thousand cubic feet - - - - -							
Sawn:							
Softwood	--	50	3,349	3,311	3,693	2,789	6,261
Hardwood	233	450	44	277	280	2	2
Total	233	500	3,393	3,588	3,973	2,791	6,263
Pulpwood: ^{1/}							
Softwood	31,815	42,168	56,073	47,325	51,103	42,576	57,918
Hardwood	10,478	12,442	13,741	12,694	13,266	9,685	12,307
Total	42,293	54,610	69,814	60,019	64,369	52,261	70,225
Miscellaneous:							
Softwood	38	--	8,953	13,704	13,506	14,529	12,645
Hardwood	197	--	99	1,254	1,298	4,306	768
Total	235	--	9,052	14,958	14,804	18,835	13,413
All industrial:							
Softwood	31,853	42,218	68,375	64,340	68,302	59,894	76,824
Hardwood	10,908	12,892	13,884	14,225	14,844	13,993	13,077
Total	42,761	55,110	82,259	78,565	83,146	73,887	89,901

^{1/} Includes round pulpwood chipped at other primary wood-using industries.

Table 12.--Industrial roundwood movement, by species group, South Carolina, 1976

Movement	Softwood	Hardwood	All species
- - - <u>Thousand cubic feet</u> - - -			
Output	305,693	81,607	387,300
Retained	244,106	61,850	305,956
Shipped out	61,587	19,757	81,344
Shipped in	43,389	13,577	56,966
Receipts	287,495	75,427	362,922

Table 13.--Industrial roundwood movement by Region and species group, 1976

Species group	Southern Coastal Plain	Northern Coastal Plain	Piedmont
- - - - - <u>Thousand cubic feet</u> - - - - -			
Softwood:			
Output	70,018	112,294	123,381
Retained	34,076	75,191	77,390
Shipped out	35,942	37,103	45,991
Shipped in	21,425	49,017	29,899
Receipts	55,501	124,208	107,289
Hardwood:			
Output	21,747	34,357	25,503
Retained	8,753	27,885	11,924
Shipped out	12,994	6,472	13,579
Shipped in	2,219	16,066	2,627
Receipts	10,972	43,951	14,551
All species:			
Output	91,765	146,651	148,884
Retained	42,829	103,076	89,314
Shipped out	48,936	43,575	59,570
Shipped in	23,644	65,083	32,526
Receipts	66,473	168,159	121,840

Table 14.--Volume of unused plant residues at primary wood-using industries, by year, species group, and type of residue

Species group : and type of residue :	1967 :	1970 :	1972 :	1973 :	1974 :	1975 :	1976 :
- - - - - Thousand cubic feet - - - - -							
Softwood:							
Bark	--	6,878	6,205	5,583	5,434	2,290	2,642
Coarse	1,623	1,255	347	294	191	313	319
Shavings	(<u>1/</u>)	(<u>1/</u>)	254	336	250	85	217
Other fine	12,776	14,989	5,867	10,891	2,353	1,779	2,115
Total	<u>14,399</u>	<u>23,122</u>	<u>12,673</u>	<u>17,104</u>	<u>8,228</u>	<u>4,467</u>	<u>5,293</u>
Hardwood:							
Bark	--	4,286	2,884	3,642	2,612	1,459	1,940
Coarse	2,038	976	466	366	305	322	138
Shavings	(<u>1/</u>)	(<u>1/</u>)	--	112	90	40	77
Other fine	5,956	8,593	4,457	5,865	4,037	2,106	2,912
Total	<u>7,994</u>	<u>13,855</u>	<u>7,807</u>	<u>9,985</u>	<u>7,044</u>	<u>3,927</u>	<u>5,067</u>
All species:							
Bark	--	11,164	9,089	9,225	8,046	3,749	4,582
Coarse	3,661	2,231	813	660	496	635	457
Shavings	(<u>1/</u>)	(<u>1/</u>)	254	448	340	125	294
Other fine	18,732	23,582	10,324	16,756	6,390	3,885	5,027
Total	<u>22,393</u>	<u>36,977</u>	<u>20,480</u>	<u>27,089</u>	<u>15,272</u>	<u>8,394</u>	<u>10,360</u>

1/ Included with other fine.

Table 15.--Volume of unused plant residues at primary wood-using industries, by year, species group, and industry

Species group and industry	1967	1970	1972	1973	1974	1975	1976
- - - - - Thousand cubic feet - - - - -							
Softwood:							
Lumber	14,302	16,155	6,452	11,471	2,769	2,176	2,545
Veneer	25	84	5	50	11	--	--
Other	72	5	11	--	14	1	106
Total	14,399	16,244	6,468	11,521	2,794	2,177	2,651
Hardwood:							
Lumber	7,681	8,107	4,467	4,985	3,377	2,152	2,748
Veneer	166	760	456	1,358	1,055	315	378
Other	147	702	--	--	--	1	1
Total	7,994	9,569	4,923	6,343	4,432	2,468	3,127
All species:							
Lumber	21,983	24,262	10,919	16,456	6,146	4,328	5,293
Veneer	191	844	461	1,408	1,066	315	378
Other	219	707	11	--	14	2	107
Total	22,393	25,813	11,393	17,864	7,226	4,645	5,778

Table 16.--Softwood-roundwood output of industrial timber products,
by year, region, and county, South Carolina

Region and county	1967	1970	1972	1973	1974	1975	1976
- - - - - Thousand cubic feet - - - - -							
Southern Coastal Region:							
Aiken	5,331	5,594	10,040	12,919	11,296	7,901	8,356
Allendale	2,032	2,469	3,366	5,320	5,477	4,855	5,758
Bamberg	2,421	2,927	2,167	6,049	2,965	3,140	4,524
Barnwell	1,754	2,589	4,852	7,169	4,783	4,437	5,345
Beaufort	1,007	1,604	1,986	1,191	1,860	1,644	806
Calhoun	2,012	2,182	2,217	2,615	3,171	1,472	1,604
Colleton	12,545	9,829	12,947	10,907	10,649	10,829	12,248
Dorchester	6,841	6,873	5,651	6,288	7,395	6,711	7,331
Hampton	5,587	4,353	7,564	9,375	6,787	8,437	5,869
Jasper	5,286	4,716	8,226	6,801	9,403	7,379	7,101
Lexington	5,099	5,358	6,513	5,814	6,044	5,283	4,748
Orangeburg	5,484	8,166	10,893	13,087	13,792	7,939	6,328
Total	55,399	56,660	76,422	87,535	83,622	70,027	70,018
Northern Coastal Region:							
Berkeley	13,027	15,212	12,568	11,977	15,168	12,630	11,453
Charleston	5,908	8,327	5,496	7,002	7,438	7,026	5,894
Chesterfield	5,418	6,182	5,029	5,884	6,182	6,493	5,718
Clarendon	4,582	9,413	6,857	5,470	6,179	6,258	6,229
Darlington	3,024	4,164	3,393	2,240	3,803	3,458	3,314
Dillon	2,590	1,747	3,427	3,501	2,203	1,790	2,293
Florence	7,972	8,343	7,575	6,551	7,601	6,936	8,386
Georgetown	13,882	13,090	12,872	11,487	10,859	11,032	11,526
Horry	8,475	6,666	9,171	12,643	12,747	12,862	12,072
Kershaw	6,488	8,195	10,028	8,399	8,144	7,664	8,423
Lee	917	1,798	1,837	1,894	1,730	2,634	1,880
Marion	4,191	4,677	3,629	4,294	2,968	3,072	4,631
Marlboro	2,250	2,218	2,646	2,618	2,120	2,413	2,436
Richland	3,975	6,620	8,003	6,080	7,618	6,242	9,334
Sumter	5,380	4,408	3,827	3,409	3,726	4,108	5,011
Williamsburg	12,331	9,590	13,259	11,804	10,946	10,091	13,694
Total	100,410	110,650	109,617	105,253	109,432	104,709	112,294

Continued

Table 16.--Softwood-roundwood output of industrial timber products,
by year, region, and county, South Carolina--Continued

Region and county	1967	1970	1972	1973	1974	1975	1976
- - - - - <u>Thousand cubic feet</u> - - - - -							
Piedmont Region:							
Abbeville	2,831	2,945	2,843	3,939	5,499	4,994	6,045
Anderson	2,429	2,522	3,555	5,598	3,870	5,084	5,218
Cherokee	1,025	1,238	1,182	1,677	2,170	1,465	2,908
Chester	6,667	4,898	5,541	5,375	4,405	6,802	6,292
Edgefield	6,479	8,826	8,424	10,880	9,405	8,509	10,513
Fairfield	13,490	14,838	9,667	8,878	9,496	10,504	16,819
Greenville	2,098	1,740	1,752	2,354	1,924	3,330	4,327
Greenwood	7,347	6,769	7,809	8,937	6,493	6,312	7,444
Lancaster	3,991	3,738	3,036	3,772	4,033	4,689	3,996
Laurens	4,630	4,642	5,327	4,410	7,349	5,291	6,977
McCormick	8,086	11,327	9,002	7,166	6,655	6,918	11,739
Newberry	12,451	11,713	10,829	13,025	16,837	21,386	18,393
Oconee	6,151	4,480	4,277	4,452	4,945	4,683	2,646
Pickens	3,088	2,561	2,318	2,823	2,867	2,193	1,917
Saluda	4,971	6,756	7,758	7,743	7,394	7,931	4,960
Spartanburg	2,587	1,867	2,921	3,640	4,657	4,926	3,370
Union	5,749	6,782	6,147	5,524	6,677	5,910	5,410
York	3,472	3,582	3,776	3,787	4,575	3,891	4,407
Total	97,542	101,224	96,164	103,980	109,251	114,818	123,381
Total State	253,351	268,534	282,203	296,768	302,305	289,554	305,693

Table 17.--Hardwood-roundwood output of industrial timber products,
by year, region, and county, South Carolina

Region and county	1967	1970	1972	1973	1974	1975	1976
- - - - - Thousand cubic feet - - - - -							
Southern Coastal Region:							
Aiken	1,154	1,151	1,484	1,494	1,349	1,234	1,147
Allendale	921	1,083	929	1,062	1,382	554	738
Bamberg	1,462	1,581	2,342	1,638	1,356	1,070	1,352
Barnwell	1,066	556	623	815	605	409	530
Beaufort	356	213	234	624	239	289	407
Calhoun	1,057	625	532	591	483	942	528
Colleton	3,525	3,692	2,611	2,006	4,705	3,024	4,413
Dorchester	2,236	1,883	1,913	2,399	3,413	2,104	2,143
Hampton	1,931	1,441	1,496	2,493	1,928	1,979	2,398
Jasper	1,703	869	1,047	2,844	2,056	1,522	2,184
Lexington	1,340	1,029	842	674	789	987	688
Orangeburg	3,343	4,085	3,977	3,398	4,098	4,235	5,219
Total	20,094	18,208	18,030	20,038	22,403	18,349	21,747
Northern Coastal Region:							
Berkeley	3,080	1,856	2,240	2,878	2,174	1,275	1,312
Charleston	1,593	1,103	1,699	1,221	1,448	933	1,163
Chesterfield	2,140	1,762	1,845	1,867	2,390	2,002	1,983
Clarendon	2,592	2,815	2,445	1,465	1,803	1,607	1,485
Darlington	2,954	2,335	2,268	2,266	1,623	2,000	1,792
Dillon	1,445	1,029	1,926	1,290	1,038	672	763
Florence	4,581	2,979	3,667	3,565	2,397	2,282	3,643
Georgetown	3,371	2,870	3,158	2,166	3,210	1,714	1,625
Horry	4,452	2,474	2,922	2,663	2,802	2,587	2,538
Kershaw	3,089	3,046	3,120	2,606	2,756	2,913	4,386
Lee	1,019	877	1,287	755	593	429	669
Marion	4,416	4,239	3,169	3,289	2,779	1,377	2,479
Marlboro	2,675	4,006	1,715	2,117	2,096	2,244	2,148
Richland	2,064	1,943	2,698	3,209	2,885	3,185	2,988
Sumter	3,995	4,282	3,447	3,214	2,304	1,172	1,467
Williamsburg	5,886	3,741	4,602	4,476	3,443	3,725	3,916
Total	49,352	41,357	42,208	39,047	35,741	30,117	34,357

Continued

Table 17.--Hardwood-roundwood output of industrial timber products,
by year, region, and county, South Carolina--Continued

Region and county	1967	1970	1972	1973	1974	1975	1976
- - - - - Thousand cubic feet - - - - -							
Piedmont Region:							
Abbeville	857	656	1,138	952	1,538	756	1,515
Anderson	1,665	1,501	1,552	1,806	2,027	1,945	1,870
Cherokee	440	380	596	958	1,058	240	467
Chester	1,446	1,399	1,748	1,625	1,174	1,355	1,344
Edgefield	1,180	1,223	891	1,571	1,477	732	1,241
Fairfield	2,941	2,730	1,710	1,868	1,802	1,198	1,429
Greenville	1,401	767	1,381	1,394	900	1,196	1,181
Greenwood	1,300	1,074	1,809	1,918	1,870	1,292	1,117
Lancaster	1,517	1,683	1,551	1,792	1,428	1,473	1,014
Laurens	1,101	1,901	2,707	2,213	2,655	1,349	1,899
McCormick	651	1,012	1,089	1,798	1,175	2,244	2,304
Newberry	1,752	1,644	1,248	1,172	1,425	1,276	2,352
Oconee	4,537	2,598	2,322	1,259	2,410	1,722	1,528
Pickens	1,844	1,530	2,252	1,843	2,807	2,888	1,870
Saluda	935	943	1,130	876	844	1,256	444
Spartanburg	1,201	1,152	1,364	1,268	1,598	989	1,091
Union	1,535	1,036	1,190	1,481	1,406	1,219	1,608
York	1,748	2,220	1,945	2,021	1,463	1,274	1,229
Total	28,051	25,449	27,623	27,815	29,057	24,404	25,503
Total State	97,497	85,014	87,861	86,900	87,201	72,870	81,607

Welch, Richard L., and Thomas R. Bellamy

1979. A 10-year analysis of South Carolina's industrial timber products output. U.S. Dep. Agric. For. Serv., Resour. Bull. SE-48, 23 p. Southeast. For. Exp. Stn., Asheville, N. C.

The output of industrial timber products in South Carolina increased at an average annual rate of 2 percent between 1967 and 1976. Output from roundwood increased by 36 million cubic feet, while the output from plant byproducts increased 47 million cubic feet. Pulpwood was the leading roundwood product in the State throughout the period, followed by saw logs, and then veneer logs.

KEYWORDS: Roundwood products, plant byproducts, softwood products, hardwood products, unused plant residues, roundwood receipts.

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