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Survey of Primary Processors in New York, 1999

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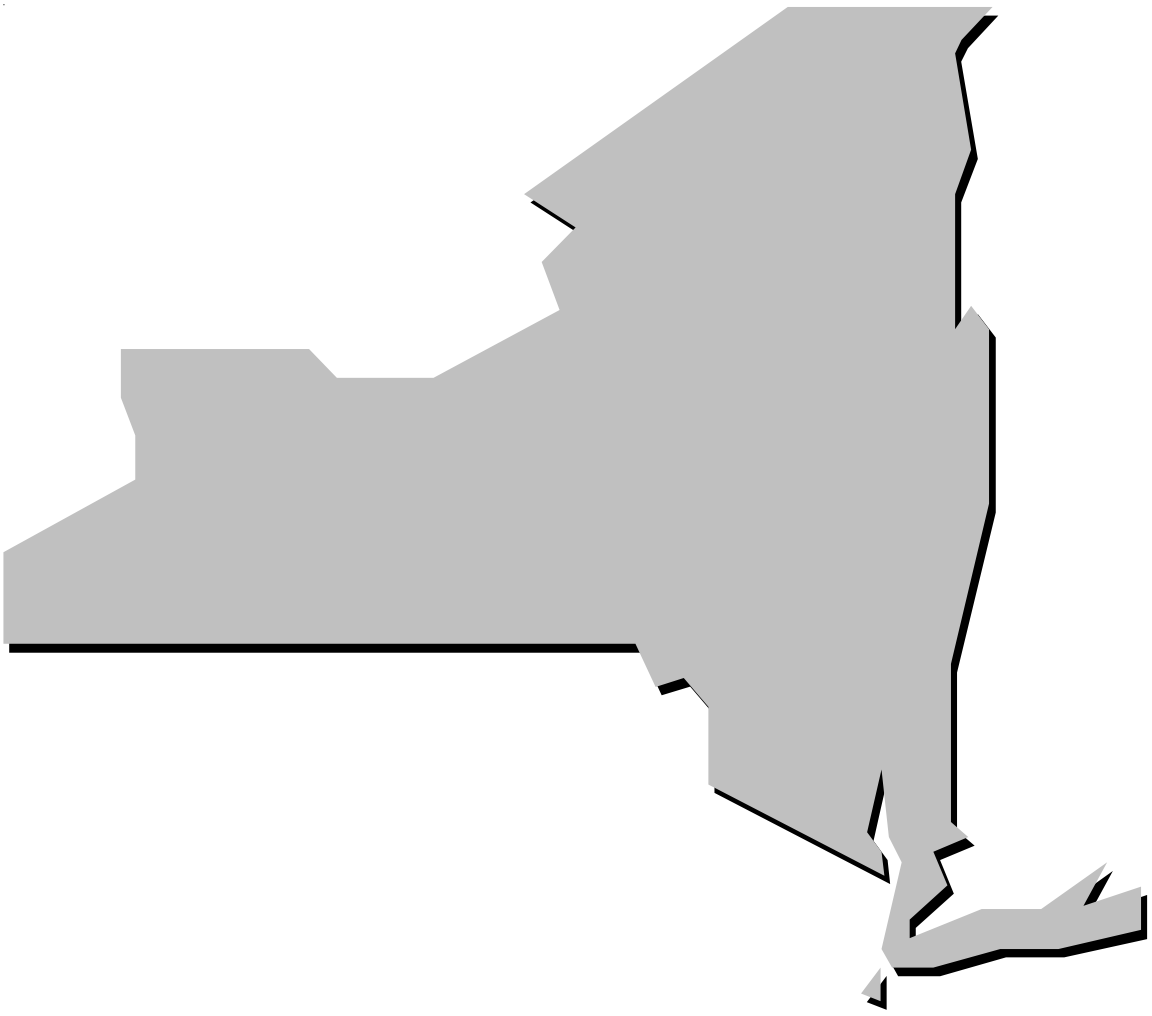

Abstract

This report presents the results of a survey of primary wood processors in New York and surrounding states and Canada that relied on New York's forests for at least a portion or their roundwood receipts in 1999. The previous survey of wood use and production in New York was conducted in 1993. At that time, New York was a net importer of roundwood. The latest study found that New York is now a net exporter of roundwood with Canada receiving about two-thirds of all exports. Both sawlog and total roundwood production in New York were at levels not seen since the early 1900s. Hardwoods account for just under two-thirds of the total roundwood production.

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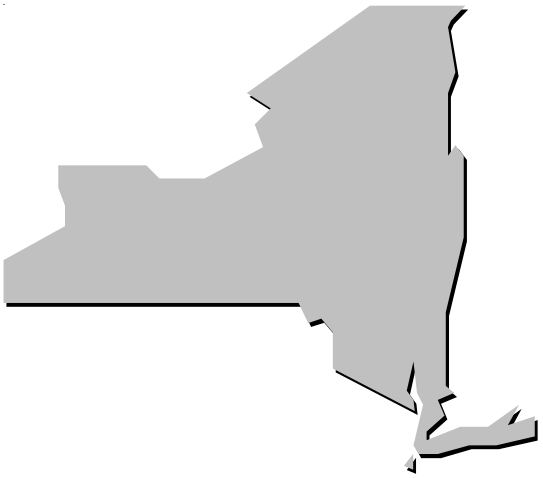


Acknowledgment

The authors would very much like to thank all those who responded to our questionnaire or otherwise participated in this effort.

Highlights

- About 189 million cubic feet (MMft^3) of industrial roundwood was produced from New York's forests in 1999. About 893 million board feet (MMbf) of sawlogs and veneer logs are included in this total. These figures reflect what is likely the largest reported harvest since the early 1900s.

- 1999 Pulpwood production was 851,000 cords of roundwood, some of which was converted to pulpwood chips.

- New York produced more, but consumed less roundwood in 1999 than in 1993, thus shifting from a net importer to a net exporter. Increased exports to Canada, were likely the primary cause of this change.

- Hard maple was the No. 1 sawlog/veneer log species harvested followed by red maple and black cherry.

- 250 fixed-location sawmills were estimated to be operating in 1999; however one-half of these mills processed more than 90 percent of the total sawlog receipts.

- About 29 percent of all industrial roundwood production was exported from the state — with more than three-quarters of sawlog/veneer log exports sent to Canada. More than 55 percent of nonsawlog/veneer logs exports went to other states.

- Respondent New York sawmills resold more than 12 MMbf of veneer-quality logs without further processing. These logs consisted mostly of sugar maple, northern red oak, black cherry, white ash, and birch, and were exported to other states, Canada, and overseas.

- Nearly two-thirds (64 percent) of the known New York roundwood and roundwood chip exports were hardwood.

- Sawlog/veneer log exports were about evenly divided between hardwoods (52.2 percent) and softwoods (47.8 percent).

- Non-sawlog/veneer log exports were predominately hardwoods (88.9 percent).

- At least 1300 portable mills were believed to be operating in New York in 1999, however most operated on a very limited or seasonal basis.

- An average of 12.3 ft^3 of wood per acre of timberland was harvested in 1999 in New York.

Introduction and Background

This report presents results of a survey of primary wood processors in New York and surrounding states and Canada that relied on New York's forests for at least a portion of their roundwood receipts in 1999. The primary goal of the survey was to determine the level of industrial roundwood production from New York's forests and to determine both the level of roundwood consumption by New York mills and New York's position as either a net wood importer or exporter. This study, a cooperative effort between the U.S. Forest Service's Northeastern Research Station and the New York State Department of Environmental Conservation, was initially planned as an interim investigation of wood use. It was intended to supplement a larger effort by the Northeastern Research Station's Forest Inventory and Analysis (FIA) staff that included both forest inventory and timber product output activities. In the past, these larger investigations were conducted about every 10 to 12 years. However, between surveys little was known about wood production and consumption or about the changes taking place within the forest and industry. These knowledge gaps due to the time between surveys have now been addressed in response to Congressional edict. Beginning in 2002, 14 to 20 percent of FIA survey plots are sampled each year in all 13 northeastern states. Survey crews measure growth, removals, composition, structure, and other attributes of the forest, repeating the cycle every 5 to 7 years. Timber product output (TPO) surveys are scheduled to be conducted every 3 years beginning in 2003, with four states being surveyed in most years. The next TPO survey for New York is scheduled for 2003 and will assess mill receipts for 2002.

Because this survey was intended as a partial investigation focusing on industrial roundwood and roundwood chip receipts only, other components of wood removals contained in previous publications (e.g. — residential fuelwood, wood removals due to cultural operations, and land clearing) relating to New York's forest resource (Nevel et al. 1982; Wharton et al. 1998) are not included in this report.

Methods

The Directory of Primary Wood-Using Industries in New York State (New York State Department of Environmental Conservation 2001) was used to develop a list of primary processors thought to exist in New York during 1999. A list of 384 sawmills and other processors was identified and each was sent a four-page questionnaire asking for roundwood receipts by type (sawlog, veneer, other) and species, and whether the wood came from New York or from surrounding states or provinces. After several mailings, follow-up phone calls, and mill visits, 182 useable responses were received from sawmills. In addition, 111 sawmill responses were returned indicating one of three things: (1) the mill did not operate in 1999, (2) the mill was permanently closed, or (3) the mill was not a primary processor. Questionnaires for 14 small mills were undeliverable; these mills were assumed closed. Receipts from 71 nonrespondent sawmills were estimated from directory information and other sources. Receipts of pulpwood or roundwood chips had to be estimated for one facility in New York. Table 1 lists the estimated number of active sawmills by predominate species group and size. We estimate there were 253 fixed sawmills operating in New York in 1999. In addition, the table lists four pulpmills, one plywood mill, and a veneer mill, all of which buy roundwood.

Table 2 shows the size or capacity differences between respondents and nonrespondents. While more than 58 percent of the respondents reported receipts of 1 MMbf or more, less than 24 percent of the nonrespondents were estimated to have receipts that large.

To obtain a full accounting of industrial roundwood production in New York, several means were used to estimate receipts of New York wood by processing facilities located outside the state. First, states and/or provinces that, through experience, were known to receive New York wood in significant volumes were identified. These included: Pennsylvania, Vermont, Maryland, and Quebec and Ontario, Canada. Then, available receipt data from secondary sources were obtained and investigated. The Vermont Forest Resource Harvest Report (Vermont Agency of Natural Resources 2000) was used. For Canada, a combination of border-crossing data and data collected by the Ministry of Natural Resources was used. Mill reporting data for Quebec was used in conjunction with border-crossing data, while border-crossing data was the only available source for Ontario. In Pennsylvania, where published data were unavailable, a survey similar to the one used for New York mills was conducted. To determine receipts for pulpmills and energy plants outside New York, personal phone calls were used. These yielded a 100 percent response.

It is evident that wood harvested from New York also is received in other states and also is exported overseas.[1] However, analysis of data taken from ship manifests in the above report suggests that overseas exports from New York are a very small part of the state production.

[1]Irland, Lloyd C.; Rice, Robert, 2001. Hardwood log exports from selected northeastern states to Canada. Concord, N.H.: Irland Group. 108 p. Report on file with: USDA Forest Service, Northeastern Research Station, Princeton, WV 24740.

Table 1.—Number of active primary mills receiving roundwood, 1999.[1]

Type of mill	Species group[2]	Production[3]	Number
Sawmill	Hardwood	≥ 1 MMbf	102
		< 1 MMbf	15
		Total	117
	Softwood	≥ 1 MMbf	17
		< 1 MMbf	29
		Total	46
	Hardwood/Softwood	≥ 1 MMbf	5
		< 1 MMbf	85
		Total	90
	Total	≥ 1 MMbf	124
		< 1 MMbf	129
		Total	253
Pulpmill			4
Plywood mill			1
Veneer mill			1
All mills			259

[1]Excludes portable sawmills.
[2]A mill was considered to be a hardwood mill if it sawed more than 1 MMbf of hardwood but less than 1 MMbf of softwood. Likewise, a mill was considered to be a softwood mill if it produced more than 1 MMbf of softwood but less than 1 MMbf of hardwood. If a mill received more than 1 MMbf of both hardwood and softwood it was considered to a mixed hardwood/softwood mill.
[3]Thirty-six mills had log receipts greater than of 5 MMbf.

Table 2.—Number of active sawmills by response and size, 1999.

	Production capacity[1]	Number of mills
Respondents	≥ 1 MMbf	107
	< 1 MMbf	75
Total		182
Non-respondents	≥ 1 MMbf	17
	< 1 MMbf	54
Total		71
Overall	≥ 1 MMbf	124
	< 1 MMbf	129
Total		253

[1]Thirty-six sawmills had receipts in excess of 5MMbf.

In addition to the number of fixed-site mills in New York, we estimate there were more than 1,300 portable sawmills in the state in 1999. While some might argue that portable mills do not qualify as "industrial", these mills virtually have taken the place of the small circle sawmill that historically would come into operation during periods of high demand and quickly cease operation in times of economic slow down. As with the small circle mill, today's portable mill has a major role in filling custom orders locally for barn construction, fence material, and other products. Estimates of the number of portable sawmills and their combined log receipts in 1999 were developed from information provided by the sales representatives of a number of manufacturers of portable sawmills.

Production

The combined reported and estimated New York harvest of roundwood for industrial uses, including sawlogs, veneer logs, pulpwood and other products, was 189.3 MMft^3 in 1999 (Fig. 1, Table 3). This is likely the largest reported harvest since the early 1900s. The harvest averaged 12.3 ft^3 of wood per acre of timberland. Most of the wood was delivered to sawmills and veneer mills. Figure 2 indicates that 62 percent of the harvest volume was in sawlogs and veneer logs and 38 percent was in pulpwood or roundwood used for pulp and whole tree chip production. We were unable to successfully separate the volumes of sawlogs and veneer logs since reporting by certain out-of-state sources did not provide a breakout of these products.

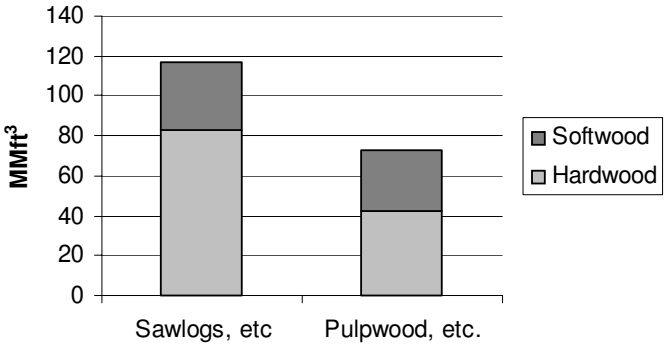


Figure 1.—Industrial roundwood production all uses, 1999.

Sawlog/Veneer log Production

Total New York sawlog production was about 893.2 MMbf based on the International ¼ inch rule (Table 3). This also may be the largest harvest for sawlogs and

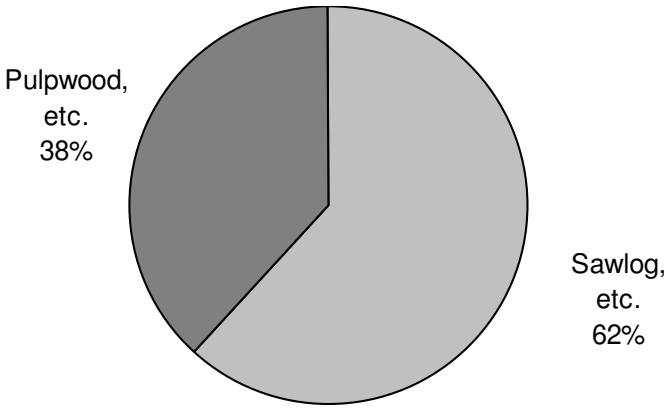


Figure 2.—Sawlog/veneer log and pulpwood/roundwood chip components of the New York roundwood production, 1999.

veneer logs since the early 1900s (Bones and Mayer 1969, Nevel et al. 1982). Several factors, including relatively high lumber prices, demand for logs from out-of-state mills, and an increase in capacity by a number of hardwood sawmills in New York, accounted for most, if not all, of the increased harvest.

Receipt data from respondent mills indicates two-thirds of the sawlog/veneer log consumption by New York mills was comprised of five tree species: sugar maple, red oak, red maple, black cherry, and white pine (Fig. 3, Tables 4 and 6). These respondent mills represent about 56 percent of the statewide receipts. Sugar maple accounted for 22 percent of respondent receipts. All other species with the exception of white ash (6 percent) and red pine (5 percent) accounted for 2 percent or less. Anecdotal and other evidence suggests species composition of

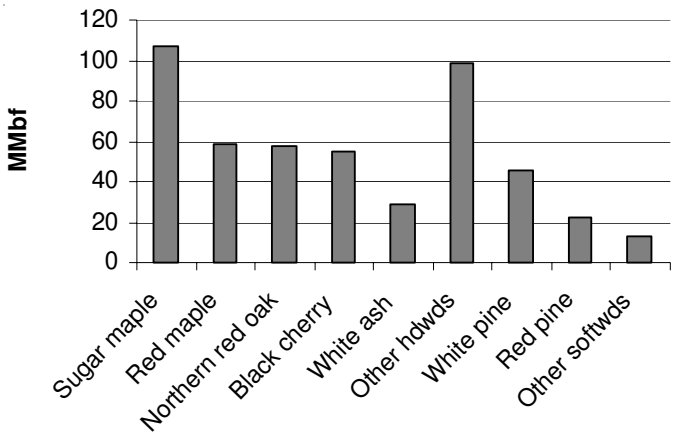


Figure 3.—Major species consumed by responding New York sawmills, 1999.

Table 3.—Estimated industrial roundwood and roundwood chip production, 1999.

Destination	Source	Species group	Sawlogs and veneer logs		Pulpwood and roundwood chips		Total
			MMbf	MMft³	M Cords	MMft³	MMft³
New York							
	Respondents						
		Hardwood	365.3	48.2	314.8	26.8	75.0
		Softwood	79.1	10.2	335.5	28.5	38.7
		Total	444.4[1]	58.4	650.4	55.3	113.7
	Nonrespondents						
		Hardwood	81.2	10.7	na[2]	na	10.7
		Softwood	22.3	2.9	na	na	2.9
		Total	103.5	13.6	na	na	13.6
	Portable						
		Hardwood	30.0	3.9	na	na	3.9
		Softwood	30.0	3.9	na	na	3.9
		Total	60.0	7.8	na	na	7.8
	New York total[3]						
		Hardwood	476.5	62.9	314.8	26.8	89.7
		Softwood	131.4	17.0	335.5	28.5	45.5
		Total	607.9	79.8	650.4	55.3	135.1
Exported							
	Canada						
		Hardwood	97.1	12.8	90.8	7.7	20.5
		Softwood	121.3	15.6	0.0	0.0	15.6
		Total	218.4	28.4	90.8	7.7	36.1
	Other states or overseas						
		Hardwood	55.9	7.4	87.6	7.4	14.8
		Softwood	11.1	1.4	22.5	1.9	3.3
		Total	67.0	8.8	110.1	9.4	18.1
	Export total						
		Hardwood	153.0	20.2	178.4	15.2	35.4
		Softwood	132.4	17.0	22.5	1.9	19.0
		Total	285.4	37.2	200.9	17.1	54.2
Grand Total		Hardwood	629.5	83.1	493.2	42.0	125.1
		Softwood	263.8	34.0	358.0	30.4	64.5
		Total	893.2	117.0	851.3	72.4	189.4

[1]Excludes 12.2 MMbf of veneer-quality logs resold without further processing.
[2]na = not applicable.

nonrespondent and Canadian mills was similar to that of the respondent mills.

In general, the extent to which individual species or species groups are harvested is related to the level in which they exist in the resource base. Notable exceptions include red oak, black cherry, and sugar maple. The percentage of the harvest these species represent exceeds their position in percentage of total resource. This difference is likely due to the relatively high price these species demand in the marketplace.

Pulpwood and Roundwood Chip Production

Pulpwood and roundwood chip production in 1999 totaled 851,300 cords (Fig. 4, Table 3). This was equivalent to 72.4 MMft³ (Table 5). This material is used in pulpmills, energy and other plants in and outside New York State that utilize pulpwood-quality roundwood, roundwood chips, or whole-tree chips. Ninety-four percent of this volume was delivered to pulpmills, mostly in roundwood form. In addition, some mills, mostly Canadian, received small volumes of roundwood chips.

Table 4—Sawlog production by species and destination, 1999.

Species	Retained in New York	Exported to:		Total exports[1]	Total removals
		Pennsylvania	Vermont		
	Mbf[2]				
Aspen	3,229	65	271	336	3,565
Basswood	9,004	296	127	423	6,426
Beech	8,863	329	659	988	9,851
Black cherry	50,752	3,267	4,897	8,164	58,917
Black walnut	453	13	0	13	466
Butternut	193	7	5	12	205
Chestnut oak	3,284	23	0	23	3,307
Cottonwood	63	0	0	0	63
Cucumbertree	69	65	0	65	134
Elm	175	13	2	15	190
Hickory	1,684	65	0	65	1,749
Locust	1	0	0	0	1
Red oak	49,180	5,630	7,528	13,158	62,338
Other red oak	2,830	23	0	23	2,853
Red maple	53,433	2,073	4,575	6,648	60,081
Sugar maple	97,729	2,418	4,388	6,806	104,535
Sweet birch	791	26	0	26	817
Tulip poplar	4,291	1,125	0	1,125	5,417
White ash	24,888	2,089	1,501	3,590	28,478
White birch	1,010	0	1,320	1,320	2,330
White oak	6,974	1,622	79	1,701	8,675
Willow	0	0	0	0	0
Yellow birch	6,450	112	1,979	2,091	8,541
Other hdwd	39,998	12	452	464	40,461
Total hdwd	365,345	19,272	27,783	47,055	412,400
Cedar	289	0	0	0	289
Fir	12	0	1,021	1,021	1,033
Hemlock	8,923	279	233	512	9,434
Larch	207	0	116	116	323
Red pine	22,229	70	3,539	3,609	25,838
Scotch pine	1	0	0	0	1
Spruce	955	0	1,022	1,022	1,977
White pine	44,293	0	4,780	4,780	49,073
Yellow pine	246	0	0	0	246
Other softwd	1,906	0	0	0	1,906
Total softwd	79,060	349	10,711	11,060	90,121
Total all species	444,405	19,621	38,494	58,116	502,520

[1]Excludes exports to other states or Canada for which species information was unavailable.
[2]Thousand board feet.

Table 5.—Pulpwood and chipwood production by major species group and destination, 1999.

Species group	Retained in New York	Exported to:		Total exports	Total production
		Other states[1]	Canada		
		MMft[3]			
Hardwood	26.8	7.4	7.7	15.1	41.9
Softwood	28.5	1.9	0.0	1.9	30.4
Total all species	55.3	9.3	7.7	17.0	72.3

[1]Other states include Pennsylvania, Vermont, and Maryland.

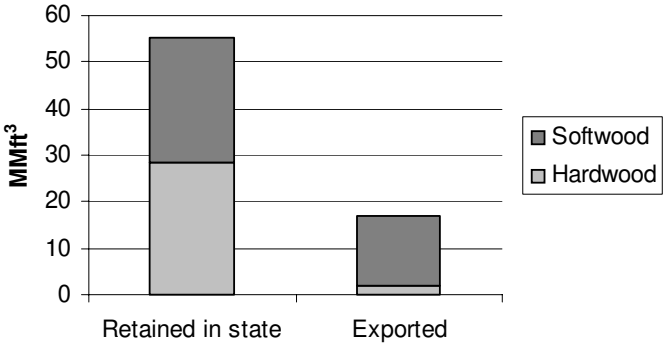


Figure 4.—Pulpwood and roundwood chip production, 1999.

Small quantities of whole-tree, roundwood chips, also were delivered to energy plants in and outside New York. When considering the production destined for pulpmills only (800,000 cords), the volume in 1999 is just slightly higher than the amount of pulpwood and roundwood chip production reported in 1997 (Widmann and Griffith 1999).

Sawmill Consumption

Of the 182 sawmill respondents in New York, 75 reported a production capacity of less than 1 MMbf in 1999 (Table 2). The remaining 107 mills had a production capacity of a million or more board feet; 36 mills were capable of producing more than 5 MMbf. Because of the high rate of response by the larger mills (86 percent), the need for us to estimate consumption for the larger mills was minimized. Total log receipts from New York respondent mills was 488.3 MMbf based on the International ¼ rule (Table 6). Of this total, about 43.9 MMbf came from out of state. In addition, these mills received 12.2 MMbf of veneer and export-quality logs that were resold without further processing. While the resold logs came from both in-state and out-of-state sources, nearly all were sold either to domestic veneer manufacturers or to manufacturers overseas.

Median consumption of respondents was 1.5 MMbf. Consumption by respondent sawmills was highly concentrated, with 18 mills (10 percent) accounting for about 42 percent of total consumption, and one-half of the mills accounting for more than 90 percent of consumption (Fig. 5).

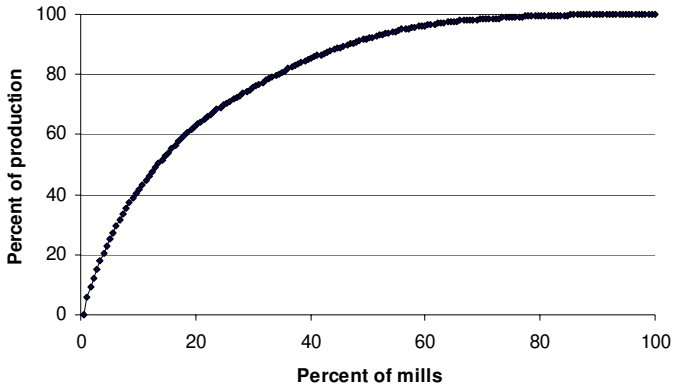


Figure 5.—Respondent sawmills production concentration curves, 1999.

Consumption by the 71 nonrespondent mills known to be in operation was estimated at 103.5 MMbf using capacity information published in the New York primary directory along with supplemental information. Fifty-four mills (76 percent) were estimated to consume considerably less than a million board feet, while 17 had receipts estimated in excess of a million board feet (Table 2). In addition to fixed sawmills, a large number of portable mills were known to have come in and out of operation during the year. Overall, we estimated their receipts at 60 MMbf. Combined consumption of all

Table 6.—Sawlog consumption by species, all sources, 1999.

Species	New York	Imported	Total
		Mbf	
Aspen	3,229	193	3,422
Basswood	9,004	845	9,849
Beech	8,863	879	9,742
Black cherry	50,752	4,396	55,148
Black walnut	453	50	503
Butternut	193	21	214
Chestnut	3,284	2,139	5,423
Cottonwood	63	0	63
Cucumber	69	54	123
Elm	175	5	180
Hickory	1,684	204	1,888
Locust	1	0	1
Northern red oak	49,180	8,757	57,937
Other red oak	2,830	222	3,052
Red maple	53,433	5,248	58,681
Sugar maple	97,729	9,694	107,423
Sweet birch	791	187	978
Tulip poplar	4,291	760	5,051
White ash	24,888	3,926	28,814
White birch	1,010	1,085	2,095
White oak	6,974	1,473	8,447
Yellow birch	6,450	526	6,976
Other hardwoods	39,998	734	40,732
Total hardwood	365,344	41,398	406,742
Cedar	289	0	289
Fir	12	0	12
Hemlock	8,923	706	9,629
Larch	207	0	207
Red pine	22,229	369	22,598
Scotch pine	1	0	1
Spruce	955	46	1,001
White pine	44,293	1,304	45,597
Yellow pine	246	11	257
Other softwoods	1,906	25	1,931
Total softwood	79,061	2,461	81,522
Total all species	444,405	43,859	488,264

sawmills — respondents, nonrespondents, and portable — was 651.8 MMbf in 1999 (Table 7).

The species distribution of sawmill log receipts reflects only the sawlog portion of receipts reported by New York respondent sawmills (Table 6). These receipts include both sawlogs harvested within the state as well as those obtained from out-of-state sources.

Out-of-state purchases made up about 10 percent of the roundwood receipts reported by respondents. However their species distribution varied little from those purchased in New York. The only notable differences were that imports contained a larger portion of northern red oak and white ash and less pine than did receipts from in-state sources.

About 10 percent of total log receipts reported by respondent mills were identified as “other hardwoods”. After looking more closely at individual responses and considering that the questionnaire listed all likely commercial species existing in New York and surrounding states, we concluded that some respondents would list just the top six or so valuable or common species by name while lumping all remaining species into an “other hardwoods” category. In fact, it is likely that their own records list all the lesser species in that manner. Because of this, it was not possible to precisely identify all species. Consequently, it would seem reasonable to ask “What affect might this have on the true species distribution?” We believe that the percentages derived for the more common species are reasonably accurate and that any distortion likely will occur among the less valuable and/or less utilized species.

Other Primary Processors’ Consumption

In addition to the active sawmills, there were four pulp mills in operation, one plywood mill whose receipts were included in sawlog and veneer log volumes, and a small veneer mill, all of which used roundwood in one form or another. There also was a second small veneer operation that existed in conjunction with a sawmill. All receipts for this operation were included as sawmill receipts. Finally, there was one panel plant using only residues and two wood energy plants. The pulpmill operations and, to a minor extent, the wood energy plants, received a total of 65.2 MMft^3 of roundwood and/or roundwood chips (Table 8). This was equal to about 43 percent of the industrial roundwood receipts attributed to all primary processors. A small percentage of receipts by the pulpmills and energy plants (15 percent) were procured from out-of-state sources. While nearly 80 percent of the

Table 7.—Sawlog and pulpwood consumption by New York operations, 1999.

Source			Sawlogs and Veneer logs		Pulpwood and roundwood chips		Total
			MMbf	MMft³	M Cords	MMft³	MMft³
Respondents							
	New York						
		Hardwood	365.3	48.2	314.8	26.8	75.0
		Softwood	79.1	10.2	335.5	28.5	38.7
		Total	444.4[1]	58.4	650.4	55.3	113.7
	Imports						
		Hardwood	41.4	5.5	26.1	2.2	7.7
		Softwood	2.5	0.3	90.3	7.7	8.0
		Total	43.9	5.8	116.4	9.9	15.7
Nonrespondents							
		Hardwood	81.2	10.7	na[2]	na	10.7
		Softwood	22.3	2.9	na	na	2.9
		Total	103.5	13.6	na	na	13.6
Portable							
		Hardwood	30.0	3.9	na	na	3.9
		Softwood	30.0	3.9	na	na	3.9
		Total	60.0	7.8	na	na	7.8
Total receipts			651.8	85.6	766.8	65.2	150.8

[1]Excludes 12.2 MMbf resold without further processing.
[2]na = not applicable.

sawmill log receipts were hardwood, pulp operations used more softwood than hardwood (55.5 percent softwood vs. 44.5 percent hardwood). Pulpmills, energy plants, and other facilities also use sawmill manufacturing residues, however, we did not compile data to facilitate quantification.

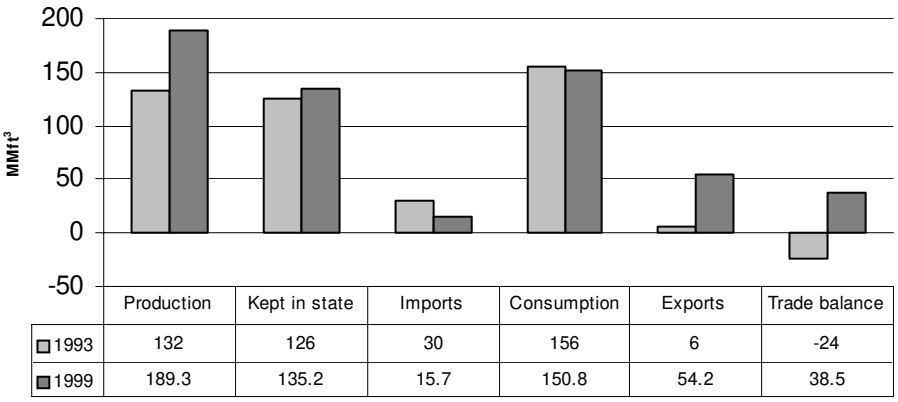
No species distribution is available for pulpwood or pulpwood chips since mills typically indicated receipts as either hardwood or softwood. However, the hardwood species distribution for these mills likely parallels the predominant sawlog harvest in eastern and central New York. White pine, hemlock, red and Norway spruce account for most of softwood delivered to the pulp mills.

Roundwood and Roundwood Chip Exports

In addition to in-state consumption, published information, available reporting from Canadian provinces, and questionnaires sent to mills in

Table 8—Pulpwood and roundwood chip consumption by major species group and source, 1999.

Species group	Harvested in New York	Imported from other states	Total consumption
		MMft³	
Hardwood	26.8	2.2	29.0
Softwood	28.5	7.7	36.2
All species	55.3	9.9	65.2



	Production	Kept in state	Imports	Consumption	Exports	Trade balance
1993	132	126	30	156	6	-24
1999	189.3	135.2	15.7	150.8	54.2	38.5

Figure 6.—Comparison of roundwood production, consumption, and trade, 1993 and 1999.

Pennsylvania indicate that New York exported the equivalent of 54.3 MMft³ of roundwood or roundwood chips, or about 29 percent of total production in 1999 (Table 3), making New York a net exporter of roundwood products (Fig. 6). Two-thirds of exports went to Canada and the remainder to other states and overseas. In terms of sawlogs and veneer logs only, New York exported more than 285 MMbf, or about 32 percent of total sawlog/veneer log production. This figure is probably on the conservative side since the response rate from the Pennsylvania survey was poor; several large sawmills in the northern part of the state known to import New York logs failed to respond. Canada was the destination for 77 percent of the sawlog exports.

Available reports also indicate that, with few exceptions, the top species of logs exported to Canada, Pennsylvania, and Vermont closely paralleled those received by responding sawmills in New York. Sugar maple, red maple, black cherry, red oak, and white pine are the most utilized in New York and in the export markets, although the individual ranking of these species did vary some between states and provinces. Pennsylvania, for example, imported no white pine. On the other hand, information published on Quebec indicated that the percentage of spruce among imports greatly exceeded (percentage-wise) spruce receipts in New York, Pennsylvania, and to a lesser extent, Vermont. As stated previously, New York sawmills reported reselling more than 12 MMbf of veneer and export-quality logs without further processing in 1999. These exports consisted mostly of sugar maple, northern red oak, cherry, white ash, and birch. Additional exports of veneer logs to distant states and overseas likely originated from concentration yards or private sales, however volumes were not reported.

About 64 percent of the roundwood and roundwood chip exports were hardwood (Table 3). While sawlog and veneer log exports were about evenly divided between hardwoods and softwoods (52.2 vs. 47.8 percent), non-sawlog/non-veneer log exports were predominately hardwood (88.8 percent). Likewise, most of the sawlog/veneer log exports were destined for Canada (76.5 percent), but more than half (55.0 percent) of the non-sawlog/non-veneer log exports went to other states in the region.

Residue Use

Respondents were asked two questions about residues:

1. How much did they generate by species group and type?
2. To what uses were they put?

Response to the first inquiry was poor. Even for those that did respond, estimates varied dramatically among firms and appeared to be uncorrelated with production.

Because of this, we elected to apply existing conversion factors used in the Southern Research Station to the New York production data. These factors have evolved over time and are provided under the section Conversion Factors. These conversion factors allowed us to estimate tonnage of residue based on receipts, measured in thousand board feet (Mbf). The resulting residue estimates are listed below:

Residue type	Sawmills	Pulpmills
	Green tons	
Hardwood bark	286,658	117,966
Coarse hardwood	903,994	na
Fine hardwood	556,587	na
Softwood bark	53,627	123,927
Coarse softwood	217,467	na
Fine softwood	141,680	na

na = not applicable.

Table 9.—Use of residues by species group and type, in number of respondents, 1999[1].

Use	Hardwood residue type			Softwood residue type		
	Bark	Coarse	Fine	Bark	Coarse	Fine
Composites	4	17	5	3	3	3
Industrial fuel	6	14	10	3	6	3
Residential fuel	10	22	4	3	10	1
Agricultural	12	8	59	5	12	39
Pulp	0	19	1	0	8	1
Burn/landfill	2	7	2	2	8	0
Other	38	6	4	17	12	3
Don't know	1	0	0	1	1	0
Total	73	93	85	34	60	50

[1]Total response = 115.

In addition to the inquiry on the amount of residue generated, respondents were asked to indicate the use to which residues were put. Again, residues were broken down into hardwood and softwood as well as by type. One hundred fifteen respondents indicated uses (Table 9) that included making composite products, wood pulp, industrial and residential fuel, agricultural products of several types, burned or land filled, other, and don't know. Ninety-three respondents reported using coarse hardwood residues. The most common use, cited by 22 respondents, was residential fuel. Pulp, composites, and industrial fuel were close behind at 19, 17, and 14 respondents, respectively.

Eighty-five respondents indicated that they used their fine hardwood residues. Fifty-nine respondents reported agricultural use and 10 respondents reported use as industrial fuel.

Hardwood bark use was third in the species/type category among respondents with 73 respondents reporting bark used for everything except pulp. "Other" was the primary use reported by 38 respondents. Most specified "other" as mulch.

Examining responses to hardwood and softwood residue use, it is important to note that most sawmills in operation produced hardwoods and that the hardwood mills generally were larger than the softwood mills (Table 1). With hardwood-only mills more than twice as prevalent as softwood-only mills, it is reasonable to expect that uses for hardwood residue would receive a higher rate of response than uses for softwood residue. Given the overall use values, it would appear that hardwood, softwood, and mixed mills responded similarly in residue use.

Comparisons With 1993

Direct comparison is not feasible due to differences in the nature of the data. For instance, in regard to species, the last report included the species breakdown for removals from New York, but not mill receipts, which are the source of the current report. While the species proportions are generally similar, the large difference in the proportion of hemlock is difficult to explain.

However, we were able to compare overall production and consumption and track imports and exports. There has been considerable change in production and consumption as determined by log receipts since 1999 (Fig. 6). In 1993, industrial roundwood production was estimated at 132 MMft^3. New York was a net importer with primary processors importing another 30 MMft^3, or five times exports (6 MMbf). Primary processors consumed 156 MMft^3, making New York a net importer of 24 MMft3 (Total imports minus exports).

The situation in 1999 was far different from that in 1993 (Fig. 3). While total production was up from 1993 (189.4 MMft^3 vs. 132 MMft^3), total consumption dropped (150.8 MMft^3 vs. 156 MMft^3) due to a dramatic increase in exports (54.2 MMft^3) and a similar but less dramatic decline in imports (15.7 MMft^3). Thus, New York was a net exporter in 1999 in contrast to the position it held in 1993. In place of a trade deficit, the state had a trade surplus of 38.5 MMft^3 in 1999.

In 1993, sawlog production accounted for about 56 percent of total production or about 500 MMbf. Pulpwood and composite product mills were responsible for another 41 percent. Other products, including veneer, accounted for the remaining 3 percent. In 1999,

combined sawlog and veneer log production accounted for 61 percent. This was 2 percent above their combined total in 1993. Pulp and composite mills accounted for what remained. The percentage of sawlogs and veneer logs consumed within New York was unchanged from 1993 at 59 percent. Not surprisingly, two-thirds of the logs exported from New York consisted of the more valuable, veneer and export-quality sawlogs.

Terminology and Abbreviations

Several terms used in this report need to be explained. Roundwood receipts and consumption as used in this report are virtually synonymous. Likewise, so are the terms production and removals. Removals, however, is a term often associated with statewide forest inventory and reflects reduction in the resource no matter what the cause (e.g.—mortality and/or land clearing or conversion). Our use of the term removals is more narrowly defined and considers only those removals destined for industrial processing. Timberland is forest land producing or capable of producing crops of industrial wood (more than 20 ft^3 per acre per year) and not withdrawn from timber utilization. For the purpose of this report, sawlogs include all types of roundwood used for sawing into lumber and other parts or products (e.g., grade sawlogs, scragg or pallet logs, boltwood, etc.).

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Conversion Factors

The following conversions were used in this report:

1 cord = 85 ft^3 = 2.41 m^3

1 Mbf (hardwood) = 132 ft^3

1 Mbf (softwood) = 129 ft^3

Residue factors:

Sawlogs and Veneer Logs

Hardwood			Softwood		
Bark	Coarse	Fine	Bark	Coarse	Fine
----------Tons per Mbf----------					
0.5535	1.7455	1.0747	0.4005	1.6241	1.0581

Pulpwood

Hardwood	Softwood
Bark	Bark
----------Tons per Mft^3----------	
4.0678	3.4234

Nearly all sawmill respondents used one of three log rules to report receipts. There were: International ¼, Doyle, and Scribner. After entering the data into the computer, Doyle and Scribner amounts were converted to International ¼ equivalents. To do this we utilized additional data provided by respondents as to the length and diameter of the "average" or "typical" hardwood and softwood log received at their operation. Where such information was provided, it was used in conjunction with scaling length and diameter tables found in Briggs (1994) to develop specific length/diameter conversion indexes. For those respondents not providing diameter and length estimates, the following defaults were used to convert to International ¼: Scribner values were multiplied by 1.15; Doyle values were multiplied by 1.3.

Hansen, Bruce; Crawford, Sloane; Baker, Iris; Akers, Melody. 2002. **Survey of primary processors in New York, 1999.** Resour. Bull. NE-155. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northeastern Research Station. 13 p.

This report presents the results of a survey of primary wood processors in New York and surrounding states and Canada that relied on New York's forests for at least a portion or their roundwood receipts in 1999. The previous survey of wood use and production in New York was conducted in 1993. At that time New York was a net importer of round wood. The latest study found that New York is now a net exporter of roundwood with Canada accounting for about two-thirds of all exports. Both sawlog and total roundwood production in New York were at levels not seen since the early 1900s. Hardwoods account for just under two-thirds of the total roundwood production.

Keywords: New York, primary manufacturers, industrial forest products, wood residues, survey, production statistics

Headquarters of the Northeastern Research Station is in Newtown Square, Pennsylvania. Field laboratories are maintained at:

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