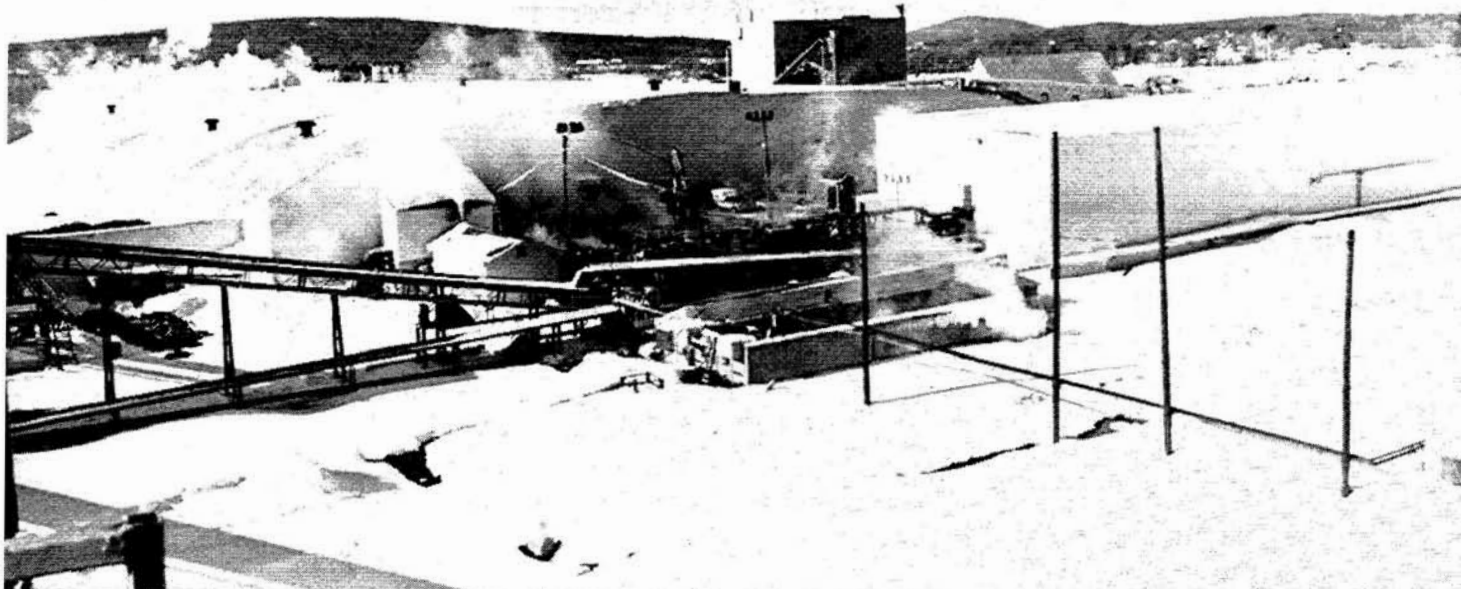


veneer, 1976—A Periodic Assessment of Regional Timber Output

by James T. Bones and David R. Dickson



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COVER PHOTO. The successful startup in 1976 of this structural plywood plant, built by Georgia Pacific in McAdam, New Brunswick, Canada, signaled the beginning of what may be a major boost for veneer log production in the Northeast. The plant will use softwood veneer logs harvested in New Brunswick and Maine. The cores that remain after veneer is peeled from the logs will be processed into 2 x 4 studs at the company's Chip-N-Saw mill in Woodland, Maine, and chips from both plants will provide raw material for Georgia Pacific's pulp mill at Woodland, Maine. Bark, sawdust, and other waste will be burned to heat process water, dry plywood and studs, and heat buildings. (Cover photo courtesy Georgia Pacific Corp., Portland, Oreg.)

Highlights

THE 1976 veneer industry survey in the Northeast showed that since the 1972 survey:

- ★ Veneer log production rose 5 percent to 132 million board feet
- ★ Veneer log receipts at northeastern veneer plants dropped less than 1 percent
- ★ There were seven fewer veneer plants operating in the Northeast; new softwood plywood plant will be consuming northeastern timber.
- ★ Exports of veneer logs from the Northeast exceeded log imports by nearly 9 million board feet.

Background

Periodically in the Northeast, production of a single product is surveyed so that the importance of that product can be determined in relation to the timber-products industries as a whole. Veneer manufacturing ranks third in importance in the Northeast, as measured by annual receipts of industrial timber products, behind sawlogs and pulpwood. The most recent assessment of the ve-

neer industry was conducted in 1972. Since then statewide industry evaluations conducted in conjunction with the reappraisals of the entire timber resource indicate that the veneer industry in the Northeast has been undergoing constant change.

Early in 1977, the Northeastern Forest Experiment Station contacted all operating veneer plants in the Station's 14-state territory (Connecticut,

Delaware, Kentucky, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, Vermont, and West Virginia) for 1976 plant receipts (see list of plants, page 9). The survey was coordinated with surveys of states in the North Central, Southern, and Southeastern regions.

Information on wood receipts was exchanged with neighboring experiment stations to assure complete coverage by the Northeastern Station. In addition, log shipments to and from Canada were determined. Veneer logs that were harvested and exported through log brokers or concentrators overseas were not included in the survey.

Profile of the industry

The veneer manufacturers of the Northeast can be separated into broad classes according to the industries they serve and the products they make. The following three classes of plants were identified in our survey: (1) commercial and face veneer manufacturers that produce veneer for the plywood and furniture industries; (2) container veneer manufacturers that fabricate veneer boxes, baskets, and similar containers, mostly for the

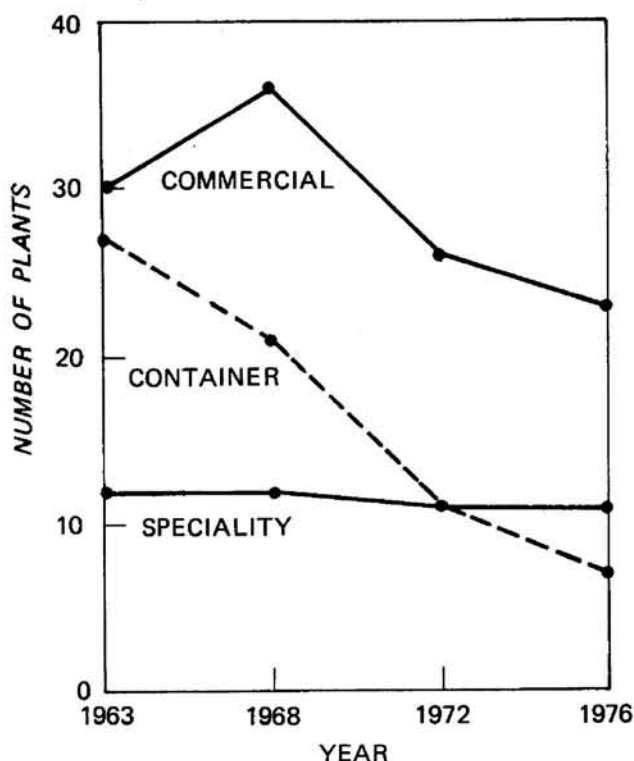
vegetable and fruit growing and packing industries; and (3) specialty veneer manufacturers that produce hundreds of items ranging from tooth picks to ice cream spoons and tongue depressors.

Forty-one veneer plants were operating in the Northeast in 1976. These plants were scattered throughout the northeastern states. Some plants were located near veneer-log sources or product markets; others were located near major transportation networks and favorable labor markets. Because log requirements are more exacting for face and commercial veneer, these plants are willing to pay higher prices for raw materials and to transport logs from greater distances than others. Most container veneer plants, however, are located in agricultural sections of the Northeast, and procure their veneer logs and sell their products locally. Eight of the 11 specialty-veneer plants in 1976 were located in Maine and used mostly white birch bolts as a raw material. These plants provide a stable base for the State's wood using industries, since their wood requirements and product outputs fluctuate very little from year to year.

Characteristics of the three classes of veneer plants in the Northeast in 1976 were:

Characteristic	Class of veneer plant		
	Commercial and face	Container	Specialty
Volume of log receipts	3.4 million board feet per plant	1.4 million board feet per plant	3.2 million board feet per plant
Major species received	Red oaks, black cherry and walnut	Yellow-poplar soft maple, and sweetgum	White birch and hard maple
Size of log procurement area	From 3- to 14-state area	From consuming or neighboring state	From within consuming state
Plant location	Evenly scattered throughout Northeast	Atlantic coastal plain or bordering Great Lakes	Mostly in Maine
Product market areas	Eastern population and Southeastern furniture industry	Local agricultural areas	Nationwide

Figure 1.—Number of veneer plants operating in the Northeast, by class of plant, for selected years.



Though the total number of active veneer plants in the Northeast was the same in 1968 as in 1963, six container veneer plants closed and six commercial veneer plants opened during that period (Fig. 1). Twenty-two plants closed between 1968 and 1972 and one was added, reducing the total number of active plants from 69 to 48. Between 1972 and 1976, 8 more plants were closed and 1 was added, bringing the total to 41 active plants.

Container veneer industry. In all, 20 container veneer plants have closed since 1963, a decline of 74 percent. Sixteen plants closed between 1963 and 1972 and four closed between 1972 and 1976. Many things were responsible for these container veneer plant closures. Of major importance was slackening in demand for wooden containers. Family farms are being replaced by large-scale

agribusinesses whose volume justifies the use of automated harvesting and transporting equipment.

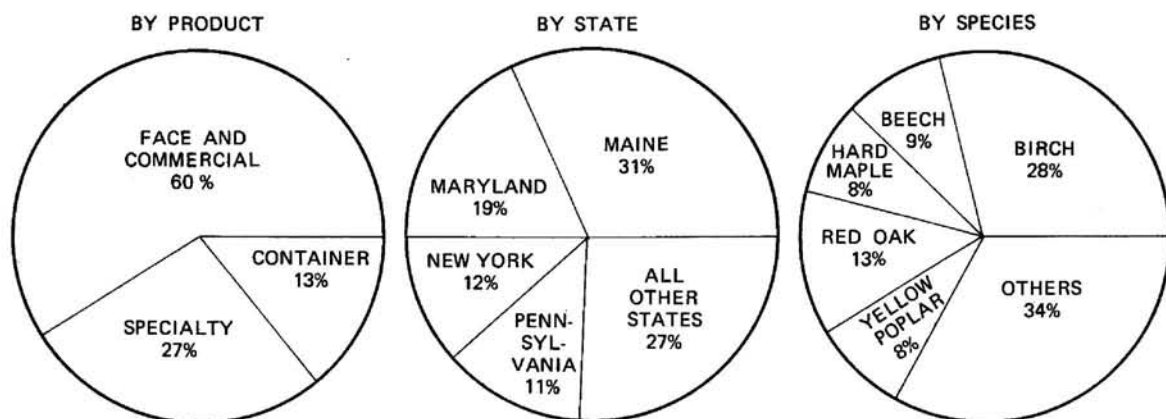
Another factor in changing demand is that increased labor and material costs have been passed along to the fruit and vegetable producers in the form of higher prices for wooden containers. Roadside produce retailers can no longer afford to absorb the cost of the basket when marketing their produce. The baskets are used for display only and the produce is transferred to a paper bag at the time of sale.

Container veneer plant closures can also be traced to a scarcity of skilled labor. The veneer production portion of a container plant can easily be automated, but the container assembly portion is quite labor intensive. Assembly workers are highly skilled and, when they retire, are difficult to replace.

Commercial veneer industry. The number of active commercial veneer plants in the Northeast rose from 30 to 36 between 1963 and 1968, and then dropped to 23 in 1976. This mixed performance can best be explained by relating plant closures to hardwood plywood consumption. Between 1963 and 1972 hardwood plywood consumption in the United States jumped from less than 2 billion square feet to over 8 billion square feet, but the increase was due entirely to an increase in imports of foreign plywood. This increased penetration of the United States hardwood plywood market by foreign producers caused many domestic veneer manufacturers who were directly competing for the same markets to close their plants. In some cases multinational corporations that closed domestic plants opened manufacturing facilities overseas. In the past 4 years, United States consumption of hardwood plywood has been dropping because of the worldwide economic slowdown. Decreased demand has adversely affected domestic production and imports equally, and contributed to the closure of four commercial veneer plants in the Northeast.

Specialty veneer industry. Specialty veneer plants made up 17 percent of all veneer plants in 1963 and 1968, but because of other veneer plant closures they made up 27 percent of the 1976 total. Eight of the 11 specialty veneer plants operating in 1976 are located in Maine; the others are in New Hampshire, Vermont, and New York. Species in demand by these plants are limited to white birch and hard maple.

Figure 2.—Veneer log production in percent, 1976.



Harvest up 5 Percent— Plant Receipts Unchanged

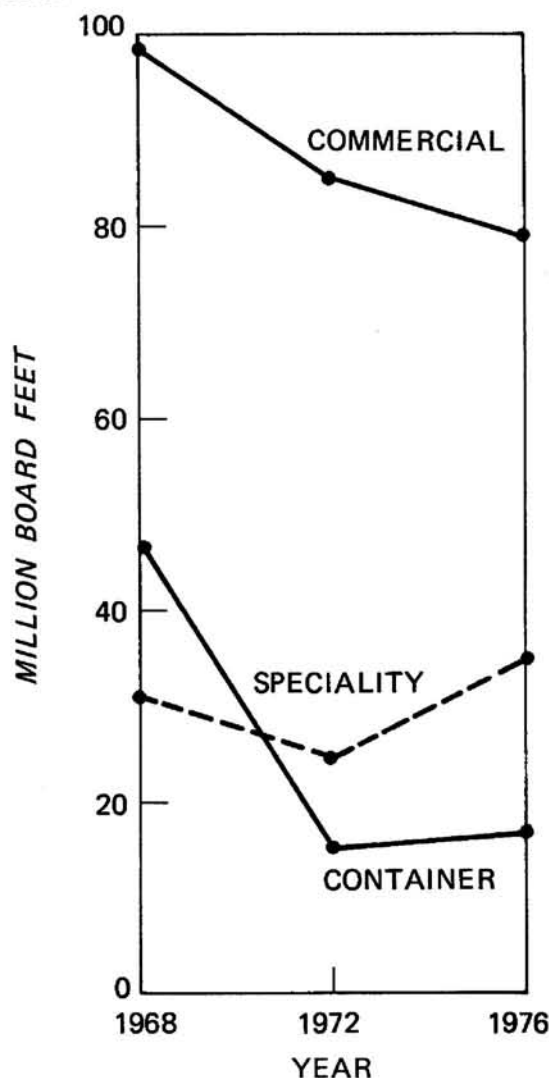
Veneer log production in the Northeast in 1976 was about 132 million board feet (International ¼-inch log rule); an increase of 5 percent from the 125 million board feet reported in 1972. Production gains from 1972 levels were reported by 7 of the 14 northeastern states. Individual gains ranged from 6 percent in Maine and Ohio to 100 percent in New Hampshire. Production losses ranged from 7 percent in Maryland to 100 percent in Connecticut.

Sixty percent—almost 80 million board feet—of the Northeast's veneer log production in 1976 went to plants producing commercial and face veneer (Fig. 2). This represented a 6 percent decrease from 1972 when 68 percent of the production went to commercial plants. Specialty veneer plants processed 27 percent of the northeastern production (35 million board feet) and container veneer plants processed 13 percent (17 million board feet).

During the last 8 years, veneer log production for commercial veneer and container plants has dropped, while production for specialty plants has risen (Fig. 3). The volume of logs going to container veneer plants has dropped 30 million board feet, while commercial veneer log production is down 19 million board feet. Since the average commercial veneer plant requires 10 times as much volume of veneer logs as the average container plant, the decrease represents a significant drop in container veneer demand.

The 40 million board feet of veneer logs that were harvested in Maine in 1976 represented 31

Figure 3.—Production of veneer logs in the Northeast, by class of plant, for selected years.



percent of the Northeast's production total and the 28 million board feet of the total that went to specialty veneer plants represented 81 percent of the specialty veneer log harvest. Maryland was the second largest producer of veneer logs in 1976, accounting for 19 percent of the Northeast total. Most of the Maryland production was from southern pines.

Birch continued to be the most important species used for veneer in the Northeast in 1976, but its once-dominant position is being challenged. Based on volume harvested, the following ranking of hardwood species shows the changes that have occurred during the last thirteen years:

	<i>Percent of Production</i>
1963	
Birch	35
Yellow-poplar	18
Hard maple	12
Red oak	7
Total	72
	<i>Percent of Production</i>
1968	
Birch	33
Yellow-poplar	18
Red oak	9
Hard maple	7
Total	67
	<i>Percent of Production</i>
1976	
Birch	28
Red oak	13
Beech	9
Hard maple	8
Total	58

The proportion of veneer made from red oak has increased during the period; the proportion made from yellow-poplar has decreased. Current heavy demand for high-quality hard maple for solid wood products has caused many commercial veneer plants to use more beech. Demand for yellow-poplar, the major species used for container veneer, has waned with the numerous container plant closures.

Use has spread over a larger range of species since 1963. In that year the four most preferred species accounted for 72 percent of the 153 million board feet that were produced, while in 1976 the four species accounted for only 58 percent of the production total.

Ash, soft maple, and white oak registered production gains of over 100 percent between 1972 and 1976. Southern pine veneer log production dropped 19 percent during the period to 21 million board feet.

Log receipts at veneer plants in the Northeast were 123 million board feet (International 1/4-inch log rule) in 1976, unchanged from 1972. Only three states—New York, Pennsylvania, and Vermont—reported gains in log receipts between 1972 and 1976. Four of the 14 northeastern states have no operating veneer plants.

Interregional and Interstate Shipments

In both 1963 and 1968, the volume of veneer logs shipped out of the Northeast exceeded that of logs shipped into the region. This surplus of exports dropped from 26 million board feet (a 17 percent surplus) in 1963 to 21 million board feet (a 12 percent surplus) in 1968. In 1972, when demand was high for veneer logs, equilibrium was nearly reached; outshipments exceeded inshipments by only 1.7 million board feet (a 1 percent surplus). In 1976, exports exceeded imports by 9 million board feet (a 7 percent surplus) during a weak market for hardwood veneer logs.

Though commercial and face veneer producers are willing to transport logs great distances, specialty and container veneer producers purchase most of their veneer logs close to their plants. In states like Maine, where most of the Northeast's specialty veneer plants are located, a larger percentage of the industry's log requirement comes from within the State. In other states where commercial or face veneer is manufactured, veneer log imports and exports are both quite high, with only token quantities of the veneer log harvest going to local veneer plants for manufacture. This situation exists because the veneer log resources of a given state—species and supply—are not always compatible with the needs of local industry. For example, West Virginia veneer plants purchase hard maple and yellow birch from Vermont, white ash and black cherry from Pennsylvania, and yellow-poplar and gum from Maryland.

New York, Ohio, and Pennsylvania exported greater volumes of veneer logs than they imported from neighboring states for manufacture during 1976. More than 28 million board feet of veneer logs—representing 21 percent of the 1976 produc-

tion—were shipped outside the Northeast for manufacture. This represents an increase of 6 percentage points over 1972, when 19 million board feet were shipped outside the region. With the recent establishment of a softwood plywood plant in Canada that will utilize Maine timber as a portion of its log requirement, this uptrend will probably continue.

High Recovery of Plant Residues

Northeastern veneer plants generated over 12 million cubic feet of manufacturing residues in 1976. This total was made up of 6 million cubic feet of coarse woody material that was large enough to convert into wood chips, 4 million cubic feet of fine woody material that was too small to be chipped, and 2 million cubic feet of bark.

Most of the residue was used for boiler fuel at the veneer plants (Fig. 4). Thirty-seven percent of the coarse wood residues and 19 percent of the fine wood residues were converted to pulp and other fiber products. Twelve percent of the coarse wood residues, 26 percent of the fine wood residues, and 19 percent of the bark were not used. Most of this material was dumped, buried, or burned.

Industry Outlook

During the next 5 years certain segments of the veneer industry in the Northeast should do well, while other will continue to experience difficulties.

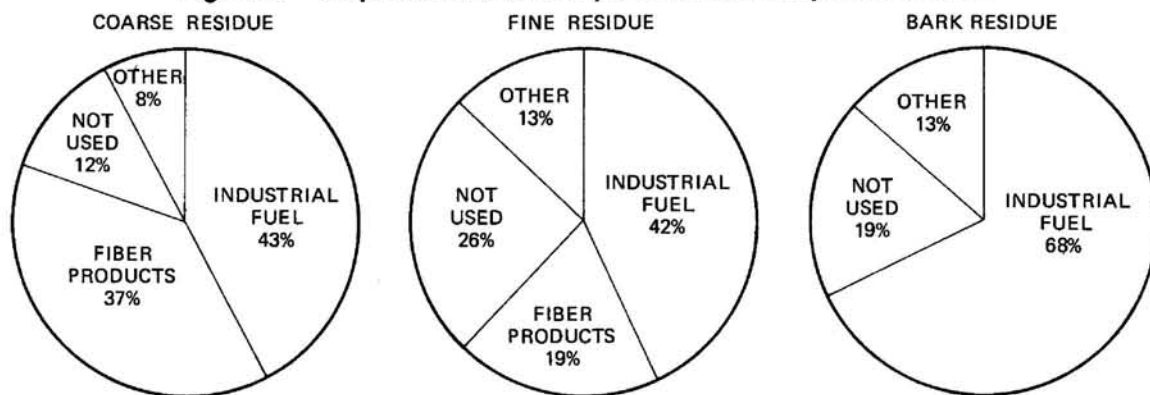
No improvement is expected for the container-veneer producers because long-term demand for

wood containers is expected to diminish. Some container-veneer plants are expected to continue to operate because good substitutes for such items as mushroom baskets have not been forthcoming. Also, there will always be a demand for wooden novelty baskets along with other craftwork. Rising labor and material costs, however, along with the loss of major markets, have dampened the prospects for the future of this segment of the industry.

The specialty veneer segment of the industry depends on the superiority of its products over substitute items. Most of the specialty veneer manufacturers have been successful in holding their markets when challenged by competing products and materials. Because their markets are steady rather than growing, potential competitors are reluctant to expand into these nongrowth areas. Specialty veneer plants are located close to an adequate wood supply and have a wide range of marketing alternatives since they distribute their products nationwide. We believe that these manufacturers will be able to maintain or increase current production levels in the next half decade.

The face and commercial veneer segment of the industry is the most important segment since it uses twice as much volume of veneer logs as the specialty manufacturers and eight times as much as the container manufacturers. Future expansion of commercial veneer manufacturing in the Northeast will depend upon the industry's ability to compete for hardwood plywood markets with foreign imports and upon the general health of the domestic housing market. After dropping for two

Figure 4.—Disposition of veneer plant residues in percent, 1976.



years (1972 to 1974) U. S. imports of hardwood plywood began to increase and have climbed from about 3.5 billion square feet in 1974 to 4.7 billion square feet in 1976. U. S. shipments of domestically produced hardwood plywood trended upward in 1976 for the first time since 1972. Since most hardwood plywood is used in single-family homes and mobile homes, a good housing market is required for increased hardwood plywood and veneer demand. Housing starts have been climbing steadily since January 1, 1975, when a bottom of 900,000 starts was reached. In July 1977, housing starts rose to a seasonally adjusted annual rate of 2 million starts, which assures that hardwood plywood is in good demand. If annual housing starts stay above 1.8 million and foreign hardwood plywood imports stay below 5 billion square feet, market conditions should be favorable for domestically produced commercial and face veneer.

Northeastern hardwood plywood manufacturers agree that the quality of domestic logs is going down each year while log prices are rising. Hauling veneer-quality logs greater distances has also increased their cost. To meet the increased demand for high-quality veneer, many manufactur-

ers are using a paper face that can be printed or a laminated film finish that simulates clear veneer. Between 1974 and 1976 the percentage of pre-finished hardwood plywood shipments with a laminated film finish rose from 6.3 percent to 14.7 percent of total shipments.¹

One result of the recent economic slowdown was a consolidation of the hardwood plywood industry in the Northeast and other parts of the United States. Because most of the new plant owners are multiregional and multinational corporations, they should be better equipped to gauge regional market demands and get the capital to make the acquired plants more efficient.

A new softwood structural plywood plant was constructed in New Brunswick, Canada, in 1976, very close to the Maine border. A portion of the plant's log requirement will be coming from the Maine timberlands. If successful, this plant could be the first of many to utilize northern softwoods in the manufacture of plywood.

¹From data compiled by Clark E. McDonald, Managing Director, Hardwood Plywood Manufacturers Association.

ACKNOWLEDGMENT

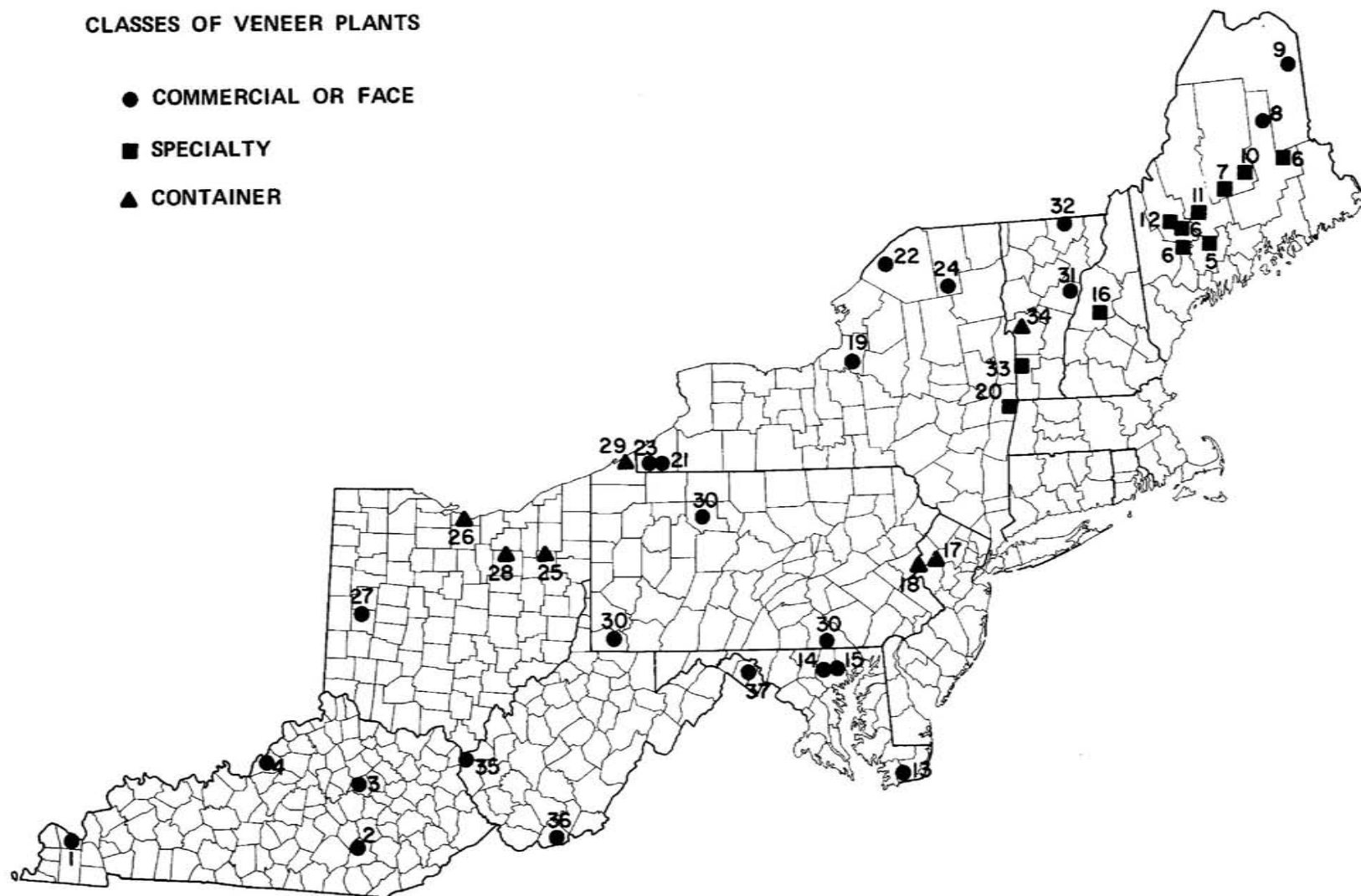
The success of a survey depends upon the percentage of responses received from the population sampled and the effort put forth by the respondents in providing information. We are grateful to the Northeast's veneer industry for its timely and accurate responses. All veneer plants known to be operating in 1976 in the Northeast provided data for this report.

CLASSES OF VENEER PLANTS

● COMMERCIAL OR FACE

■ SPECIALTY

▲ CONTAINER



Veneer Plants in the Northeast — 1976

Kentucky

- 1 Central States Veneer Co., Paducah
- 2 Cumberland Forest Products Co., London
- 3 The Freeman Corp., Winchester
- 4 Wood Mosaic Corp., Louisville

Maine

- 5 Diamond International Corp., Oakland
- 6 Forster Manufacturing Co., Inc., Wilton
(Plants in E. Wilton, Mattawamkeag, and Strong)
- 7 Hardwood Products Co., Guilford
- 8 J. M. Huber Co., Patten
- 9 Indian Head Plywood Corp., Presque Isle
- 10 PCI Natiuna, Brownville
- 11 Solon Manufacturing Co., Solon
- 12 Strong Wood Products Inc., Strong

Maryland

- 13 Chesapeake Bay Plywood Corp., Pocomoke City
- 14 Stenerson Mahogany Corp., Cockeysville
- 15 Martin Veneer Co., Cockeysville

New Hampshire

- 16 USM Corp., Plymouth

New Jersey

- 17 Califon Basket Co., Califon
- 18 Rapp Package Co., Phillipsburg

New York

- 19 Koppers Co., Forest Products Division, Bernhard Bay
- 20 W. J. Cowee, Berlin
- 21 Knight Veneer and Panel Corp., Falconer
- 22 Riverside Veneer Corp., Heuvelton
- 23 Robbins Veneer Co., Falconer
- 24 Tupper Lake Veneer Corp., Tupper Lake

Ohio

- 25 Asplin Basket Co., Inc., Hartville
- 26 Berlin Fruit Box Co., Berlin Heights
- 27 Hartzell Industries, Inc., Piqua
- 28 McIntire Basket Co., Creston

Pennsylvania

- 29 Greenfield Basket Co., Northeast
- 30 Weyerhaeuser Co. (Plants in Jefferson, New Freedom, and Ridgway)

Vermont

- 31 Bradford Veneer and Panel Co., Bradford
- 32 Columbia Plywood Corp., Newport
- 33 Lewis Brothers Inc., West Rupert
- 34 Rutland Plywood Corp., Rutland

West Virginia

- 35 Breece Veneer Co., Kenova
 - 36 The Dean Co., Princeton
 - 37 Erath Veneer Corp., Martinsburg
-

Table 1.—Veneer log production and receipts in the Northeast, 1972 and 1976

State	Production			Receipts		
	1972	1976	Change	1972	1976	Change
	<i>Million board feet^a</i>		<i>Percent</i>	<i>Million board feet^a</i>		<i>Percent</i>
Connecticut	0.1	—	-100	—	—	—
Delaware	7.0	4.9	-30	(D)	(D)	(D)
Kentucky	5.6	5.1	-9	8.5	6.6	-22
Maine	38.0	40.3	+6	41.0	39.0	-5
Maryland	26.7	24.8	-7	30.1	25.5	-15
Massachusetts	.9	.8	-11	—	—	—
New Hampshire	2.1	4.3	+100	(D)	(D)	(D)
New Jersey	.7	1.0	+43	.9	(D)	-56
New York	13.1	16.1	+23	11.7	14.4	+23
Ohio	7.2	7.6	+6	7.0	3.7	-47
Pennsylvania	12.3	14.7	+20	7.4	10.7	+45
Rhode Island	—	—	—	—	—	—
Vermont	7.0	8.5	+21	10.4	18.2	+75
West Virginia	4.3	3.6	16	6.1	3.9	-36 ^b
All states	125.0	131.7	+5	123.3	122.9	

^a International ¼-inch rule. 1,000 board feet = 3.48 cubic meters.

^b Less than 1 percent change.

(D) Data withheld to avoid disclosure for individual plants.

Table 2.—Species composition of veneer log harvest in the Northeast, 1972 and 1976

Species	1972		1976		Change
	<i>Million board feet^a</i>	<i>Percent</i>	<i>Million board feet^a</i>	<i>Percent</i>	<i>Percent</i>
Ash	0.6	0.5	1.6	1.2	^b
Basswood	.7	.5	.3	.2	-57
Beech	9.0	7.2	11.7	8.9	+30
Birch	36.9	29.5	36.8	27.9	^c
Cherry	2.7	2.2	3.4	2.6	+26
Cottonwood	1.2	1.0	.2	.2	-83
Elm	.7	.6	.2	.2	-71
Hickory	2.8	2.2	2.2	1.7	-21
Maple, hard	9.1	7.3	11.0	8.3	+21
Maple, soft	1.4	1.1	3.0	2.3	^b
Oak, red	15.6	12.5	16.8	12.7	+8
Oak, white	3.4	2.7	7.1	5.4	^b
Sycamore	.5	.4	.5	.4	^c
Walnut, black	4.5	3.6	2.3	1.7	-49
Yellow-poplar	10.3	8.2	10.4	7.9	+1
Other hardwoods ^d	.2	.2	3.5	2.7	^b
Total hardwoods	99.6	79.7	111.0	84.3	+11
Total softwoods	25.4	20.3	20.7	15.7	-19
All species	125.0	100.0	131.7	100.0	+5

^a International ¼-inch log rule.

^b More than 100 percent change.

^c Less than 1 percent change.

^d Includes aspen, sweetgum and black tupelo.

Table 3.—Production of veneer logs in the Northeast, by states and receiving plant classes, 1976

(Million board feet, International 1/4-inch log rule)

State	Class of receiving veneer plant		
	Commercial and face	Container	Specialty
Connecticut	—	—	—
Delaware	4.8	0.1	—
Kentucky	4.8	.3	—
Maine	11.6	—	28.7
Maryland	17.4	6.9	.5
Massachusetts	—	—	.8
New Hampshire	2.4	—	1.9
New Jersey	.5	.5	—
New York	12.9	.1	3.1
Ohio	5.9	1.7	—
Pennsylvania	13.8	.9	—
Rhode Island	—	—	—
Vermont	2.1	6.3	.1
West Virginia	3.4	—	.2
All states	79.6	16.8	35.3

Table 4.—Receipts of veneer logs in the Northeast, by states and plant classes, 1976

(Million board feet, International 1/4-inch log rule)

State ^a	Class of veneer plant		
	Commercial and face	Container	Specialty
Kentucky	6.6	—	—
Maine	7.8	—	31.2
Maryland	25.5	—	—
New Hampshire	(D)	(D)	(D)
New Jersey	(D)	(D)	(D)
New York	10.5	—	3.9
Ohio	2.0	1.7	—
Pennsylvania	10.6	.1	—
Vermont	10.4	7.7	.1
West Virginia	3.9	—	—
All states	77.3	9.9	35.7

^a States with no operating veneer plants are omitted.

(D) Data withheld to avoid disclosure for individual plants.

Table 5.—Flow of veneer logs between states in the Northeast, 1976

(Million board feet, International ¼-inch log rule)

State	Production	Interstate shipments ^a		Apparent consumption
		Exports	Receipts	
Connecticut	—	—	—	—
Delaware	4.9	4.9	—	—
Kentucky	5.1	3.6	5.1	6.6
Maine	40.3	6.2	4.9	39.0
Maryland	24.8	9.0	9.7	25.5
Massachusetts	.8	.8	—	—
New Hampshire	4.3	(D)	(D)	(D)
New Jersey	1.0	(D)	(D)	(D)
New York	16.1	3.5	1.8	14.4
Ohio	7.6	5.3	1.4	3.7
Pennsylvania	14.7	8.1	4.1	10.7
Rhode Island	—	—	—	—
Vermont	8.5	.9	10.6	18.2
West Virginia	3.6	3.1	3.4	3.9
All states	131.7	—	—	122.9

^a Includes shipments to and from Canada.

(D) Data withheld to avoid disclosure for individual plants.

Table 6.—Extraregional recipients of veneer logs from the Northeast, 1976

(Million board feet, International ¼-inch log rule)

State or Province	Volume received
Illinois	0.1
Indiana	7.5
Missouri	.2
North Carolina	8.4
Ontario, Canada	2.6
Quebec, Canada	4.3
Tennessee	1.1
Virginia	3.8
Iowa	.1
All states and provinces	28.1

Table 7.—Disposition of veneer plant residues in the Northeast by states, classes of residues, and types of use, 1976.

(In percent)

Class of residue and type of use	Kentucky	Maine	Maryland	New Hampshire	New Jersey	New York	Ohio	Pennsylvania	Vermont	West Virginia	All states
Coarse:^a											
Fiber products	79	31	2	—	—	23	43	—	62	—	37
Industrial fuel	—	40	88	100	15	72	36	98	32	100	43
Domestic fuel	—	7	—	—	15	1	15	—	—	—	4
Other ^b	—	1	10	—	—	4	6	2	6	—	4
All uses	79	79	100	100	30	100	100	100	100	100	88
Not used	21	21	—	—	70	—	—	—	—	—	12
Fine:^c											
Fiber products	—	28	—	—	—	—	11	—	22	—	19
Industrial fuel	77	21	90	100	30	100	45	95	38	100	42
Domestic fuel	—	—	—	—	—	—	22	—	—	—	1
Agricultural ^d	—	4	10	—	—	—	22	5	40	—	12
All uses	77	53	100	100	30	100	100	100	100	100	74
Not used	23	47	—	—	70	—	—	—	—	—	26
Bark:											
Industrial fuel	58	71	90	90	30	100	78	35	53	75	68
Agricultural	4	2	10	10	—	—	11	65	41	—	13
All uses	62	73	100	100	30	100	89	100	94	75	81
Not used	38	27	—	—	70	—	11	—	6	25	19

^a Core and trimmings considered suitable for chipping.

^b Includes small dimension and specialty items.

^c Clipping and rounding waste considered unsuitable for chipping.

^d Includes chicken litter, livestock bedding, and mulch.

Headquarters of the Northeastern Forest Experiment Station are in Broomall, Pa. Field laboratories and research units are maintained at:

- **Beltsville, Maryland.**
- **Berea, Kentucky, in cooperation with Berea College.**
- **Burlington, Vermont, in cooperation with the University of Vermont.**
- **Delaware, Ohio.**
- **Durham, New Hampshire, in cooperation with the University of New Hampshire.**
- **Hamden, Connecticut, in cooperation with Yale University.**
- **Kingston, Pennsylvania.**
- **Morgantown, West Virginia, in cooperation with West Virginia University, Morgantown.**
- **Orono, Maine, in cooperation with the University of Maine, Orono.**
- **Parsons, West Virginia.**
- **Pennington, New Jersey.**
- **Princeton, West Virginia.**
- **Syracuse, New York, in cooperation with the State University of New York College of Environmental Sciences and Forestry at Syracuse University, Syracuse.**
- **Warren, Pennsylvania.**