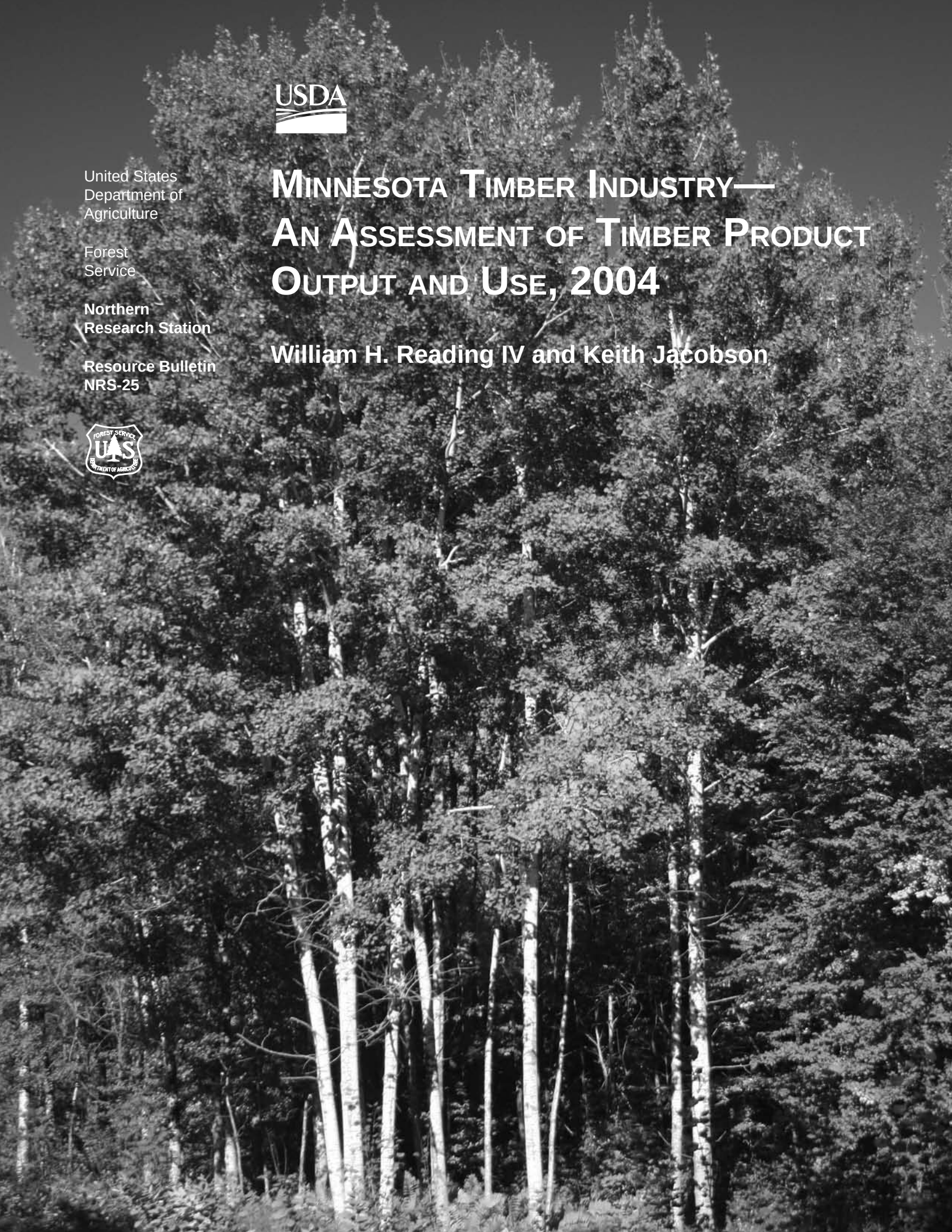

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**Resource Bulletin
NRS-25**

Minnesota Timber Industry—An Assessment of Timber Product Output and Use, 2004

William H. Reading IV and Keith Jacobson

Manuscript received for publication June 2007

Published by:

USDA FOREST SERVICE
11 CAMPUS BLVD., SUITE 200
NEWTOWN SQUARE, PA 19073-3294

July 2008

For additional copies:

USDA Forest Service
Publications Distribution
359 Main Road
Delaware, OH 43015-8640
Fax: 740-368-0152

Visit our homepage at: **http://www.nrs.fs.fed.us/**

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Minnesota Timber Industry—An Assessment of Timber Product Output and Use, 2004

William H. Reading IV and Keith Jacobson

INTRODUCTION

This bulletin reports findings of a survey of all primary wood-using mills in Minnesota in 2004 and details the industry's size and composition, use of roundwood, and generation and disposition of wood residues. Such detailed information is necessary for intelligent planning and decisionmaking in wood procurement, forest resource management, forest industry development, and research.

All volumes are reported in product-specific standard units and/or cubic feet. Volumes reported by mills in nonstandard units were converted to standard units using regional conversion factors. Reported trends and changes in the primary wood-using industry in Minnesota are based on comparisons with previous surveys of the state's wood-using industry conducted in 1990, 1992, 1997, 2001, and 2004. Small changes in quantities may appear for previous years when compared to previously published data due to correction of errors and omissions.

About the Authors:

William H. Reading IV, Forester, received a B.S. in forest management in 1988 and an M.S. in forestry/forest mensuration in 1992 from Northern Arizona University. He worked as a consultant forester from 1992 to September 2000. He has worked for the Forest Inventory and Analysis Unit at the Northern Research Station (NRS-FIA) since that time.

Keith Jacobson, Forest Product Utilization & Marketing Program Leader, Minnesota Department of Natural Resources, received a B.S. in forest management in 1980 from the University of Minnesota. He worked as a field forester for the MNDNR forestry division from 1985 to May 2001. He joined the Wood Utilization and Marketing program in June 2001 and is now the Program Leader.

STUDY METHODS

This study was a cooperative effort of the Minnesota Department of Natural Resources (MNDNR) and the Northern Research Station (NRS). Using mail questionnaires supplied by the MNDNR and designed to determine the size and composition of Minnesota's primary wood-using industry, its use of roundwood, and its generation and disposition of wood residues, the MNDNR canvassed mills within the state. The MNDNR then followed up with non-responding mills through additional mailings, telephone calls, and personal contacts until it achieved a 100-percent response. NRS conducts annual surveys of pulp mills within the Great Lakes region to determine the size and composition of the regional pulpwood industry.

As part of data editing and processing, all industrial roundwood volumes reported on the questionnaires were converted to standard units of measure using regional conversion factors. Timber removals by source of material and harvest residues generated during logging were estimated from standard product volumes using factors developed from logging utilization studies conducted by NRS. Final data on Minnesota's industrial roundwood receipts were loaded into a regional timber removals database and supplemented with data on out-of-state uses of Minnesota's roundwood to provide a complete assessment of Minnesota's timber product output.

PRIMARY TIMBER INDUSTRY IN MINNESOTA

- Between 2001 and 2004, Minnesota's primary timber industry expanded, as measured by the total number of mills, from 367 to 412 mills (Table 1, Fig. 1). The overall expansion was due to an increase in small sawmills, from 291 to 333. The number of small sawmills is highly variable due to the inherent volatility of this segment of the industry.

- The number of medium and large sawmills decreased between 2001 and 2004 (Table 1, Fig. 1). The number of medium mills fell from 34 to 25 mills while the number of large mills fell from 12 to 9 mills.

- Pulp mills process the vast majority of roundwood in Minnesota. The number of pulp mills (pulp mills, particle board mills, paper mills, oriented strand board plants, wafer board plants) remained constant at 14.

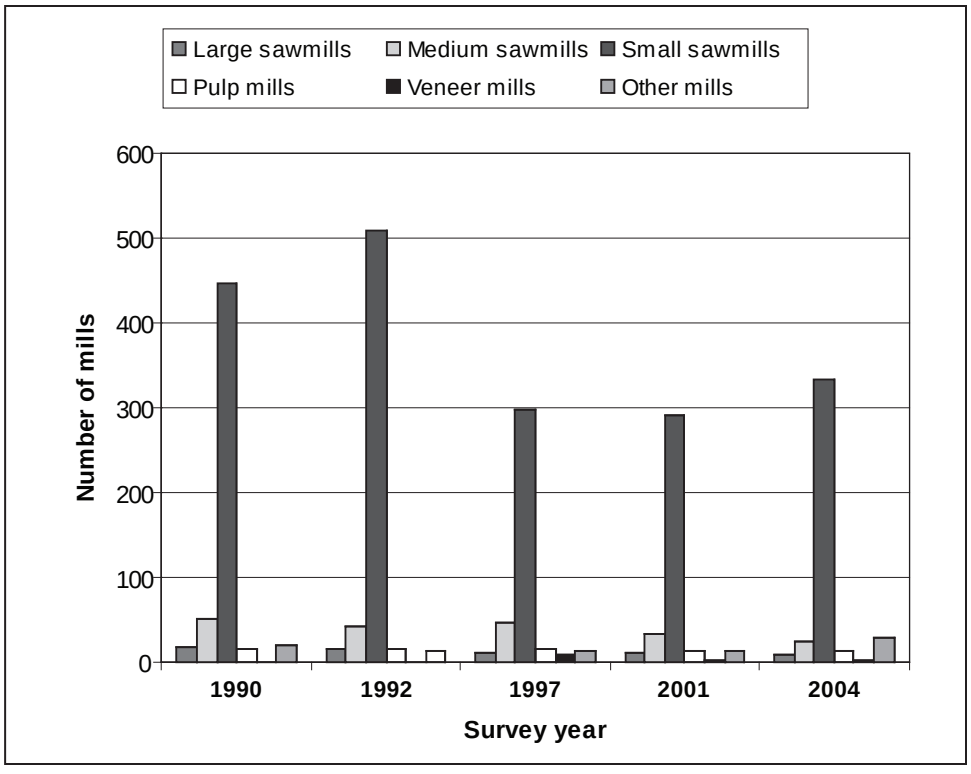

Figure 1.—Number of mills by mill class and survey year, Minnesota, 1990, 1992, 1997, 2001, and 2004.

- The number of mills classified as other mills, which includes mills producing posts, poles, pilings, cooperage, shavings, mine timbers, and commercial firewood, increased from 13 to 29 mills (Table 1, Fig. 1).

- Most mills that require large inputs of roundwood, such as pulp mills and medium to large sawmills, are located in areas with high levels of growing-stock inventory (Miles 2006) (Fig. 2).

INDUSTRIAL ROUNDWOOD RECEIPTS

- Total industrial roundwood receipts increased from 299 million cubic feet (MMCF) to 318 MMCF between 2001 and 2004 (Table 2).

- Pulp receipts increased between 2001 and 2004 from 244 MMCF to 267 MMCF (Table 2). Overall pulpwood production increased in every survey year between 1990 and 2004 (Fig. 3). Hardwood pulp makes up 83 percent of pulp production (Table 2).

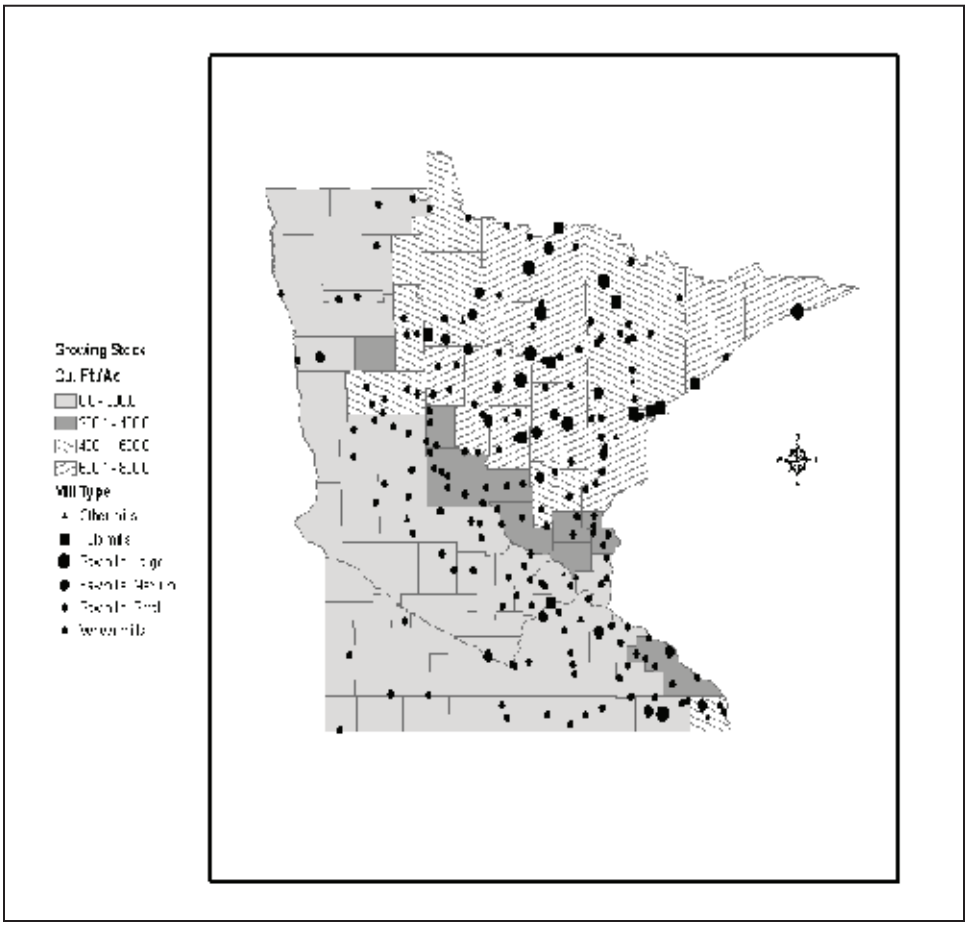

Figure 2.—Distribution of Minnesota primary timber product mills by type and capacity and growing-stock inventory levels by county, Minnesota, 2004.

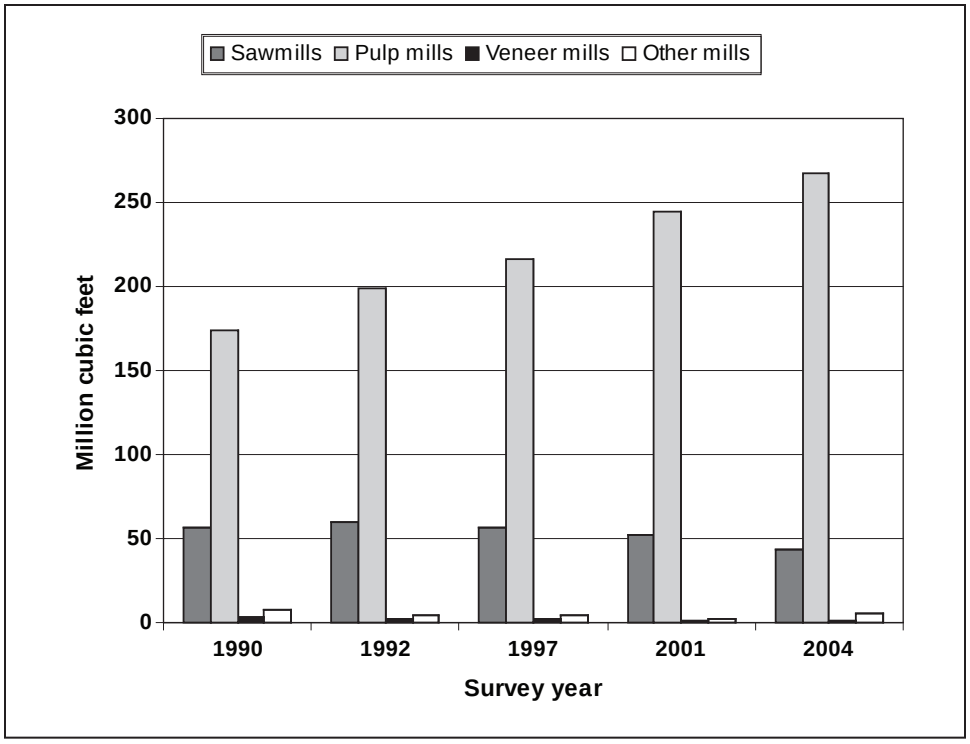

Figure 3.—Industrial roundwood receipts by mill type and survey year, Minnesota, 1990, 1992, 1997, 2001, and 2004.

- Overall sawmill receipts fell 15 percent between 2001 and 2004 (Table 2, Fig. 3). This was due to a sharp decrease in hardwood saw log receipts of 34 percent. Softwood saw log receipts increased slightly by 4 percent.

- Roundwood receipts to mills classified as "other mills" increased by 117 percent from 2.9 MMCF to 6.3 MMCF between 2001 and 2004 (Table 2, Fig. 3).

- The ratio of hardwood roundwood to softwood roundwood processed has decreased from 3.5 to 3.1 since 2001.

INDUSTRIAL ROUNDWOOD PRODUCTION

- Total industrial roundwood production decreased by 5 percent from 288 MMCF to 275 MMCF between 2001 and 2004 (Table 3, Fig. 4). Total softwood production increased by 10 percent while hardwood production decreased by 11 percent.

- Total saw log production fell by 16 percent due to a 45-percent reduction in hardwood saw log production, which was partially offset by a 4-percent increase in softwood saw log production (Table 3, Fig. 4). Saw log production represents 17 percent of the total roundwood production from Minnesota's forests.

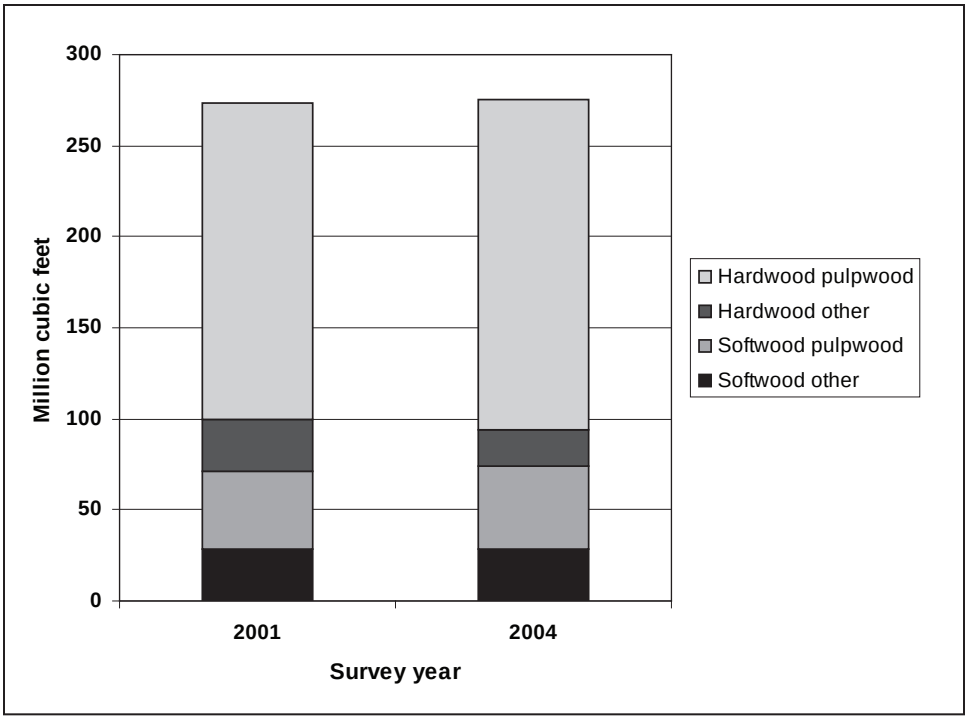

Figure 4.—Industrial roundwood production by survey year, major species group, and type, Minnesota, 2001, 2004.

- Total pulpwood production increased by 4 percent from 2001 due to increases in both hardwood and softwood pulpwood production (Table 3, Fig. 4). Pulp represents 82 percent of the total roundwood production of Minnesota forests.

- Total veneer log production decreased by 25 percent from 2001 to 2004 (Table 3). This was due in part to the shutdown of one of the state's three remaining veneer mills.

- Two species with production volumes of at least 15 MMCF in year 2001 or 2004 saw production shifts of at least 15 percent. These species were jack pine (+18 percent) and paper birch (+30 percent) (Fig. 5). Aspen production dropped by over 31 MMCF due in part to a large decrease in pulpwood production.

PULPWOOD

- Minnesota produced 2.9 million cords of roundwood pulpwood in 2004 (Table 4, Fig. 6). Of this total, almost 95 percent went to Minnesota mills while 5 percent went to Wisconsin mills.

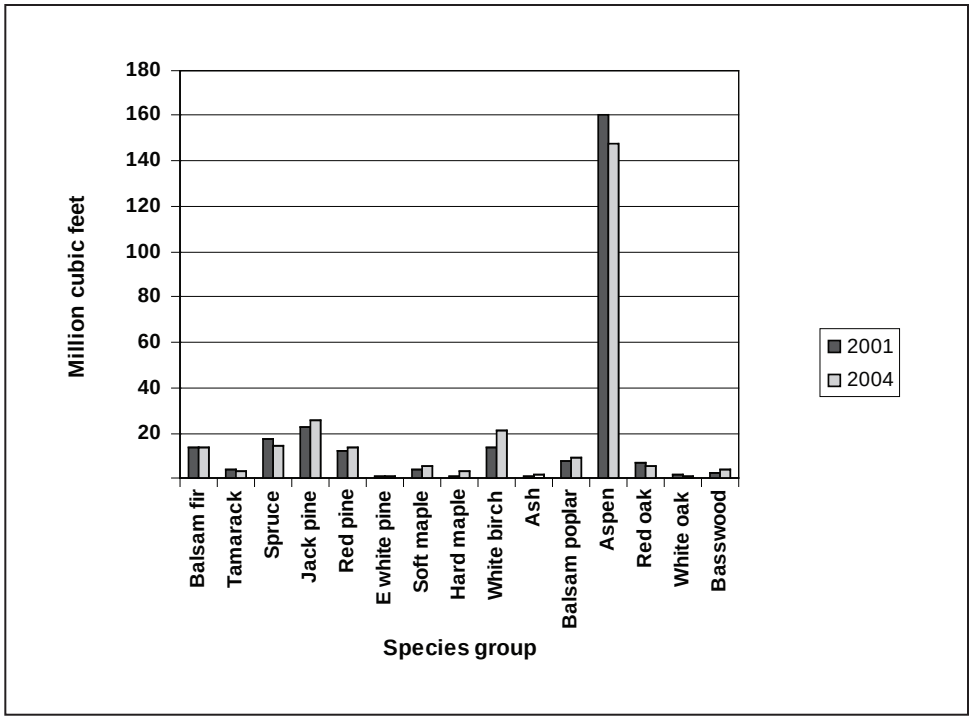

Figure 5.—Industrial roundwood production by species group and survey year, Minnesota, 2001, 2004.

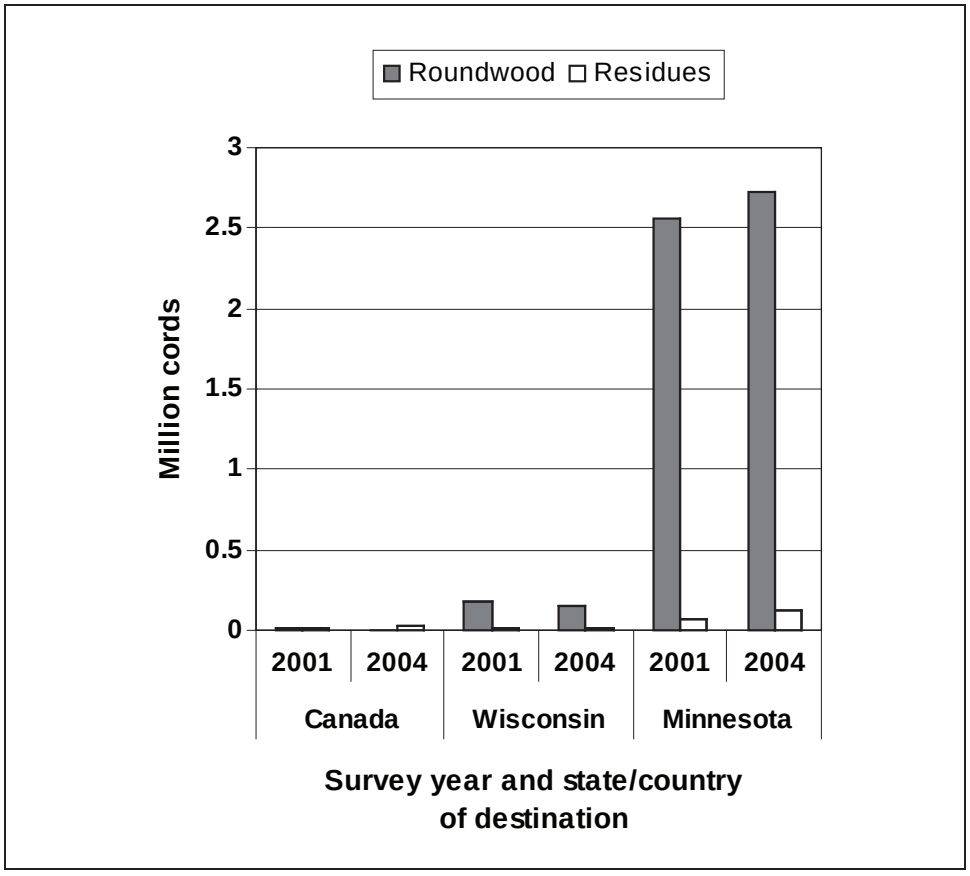

Figure 6.—Pulpwood production by state/country of destination, survey year, and source type, Minnesota, 2001, 2004.

- Minnesota pulp mills received 3.4 million cords of roundwood pulpwood in 2004 (Table 5, Fig. 7). Of this total, 80 percent came from Minnesota forests, 10 percent came from Wisconsin forests, 2 percent from Michigan forests, 8 percent from Canadian forests, and less than 1 percent from North Dakota forests.

- Almost 91 percent of all pulpwood produced in the state is harvested from the two northern units, the Aspen-Birch and Northern Pine units (Table 6).

- The species-specific volumes of pulpwood production changed substantially in some cases. The most significant changes (of 15 percent or more) for major species making up at least 100,000 cords in 2001 or 2004 were spruce (–18 percent), jack pine (+75 percent), white birch (+63 percent), and balsam poplar (+22 percent) (Table 7).

- The species-specific volumes of pulpwood receipts also changed substantially in some cases. The most significant changes (of 15 percent or more) for major species with at least 100,000 cords in 2001 or 2004 were jack pine (+91 percent), soft maple (+67 percent), hard maple (+1,581 percent), white birch (+76 percent), and balsam poplar (+21 percent) (Table 8).

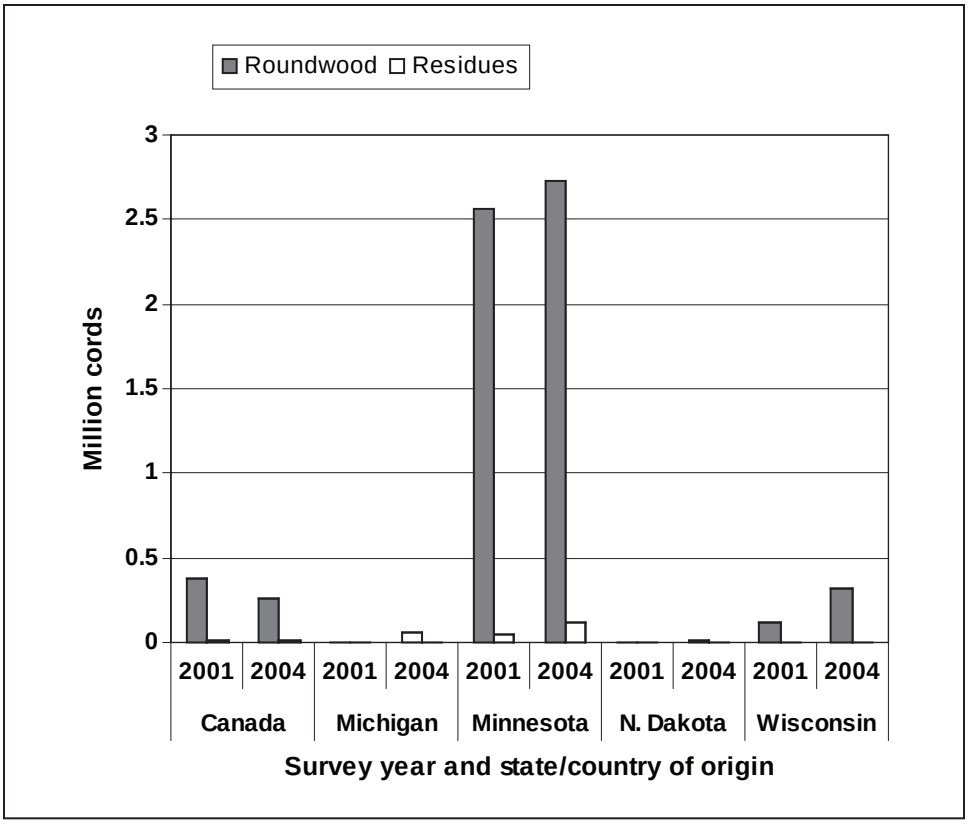

Figure 7.—Pulpwood receipts by state/country of origin, survey year, and source type, Minnesota, 2001, 2004.

SAW LOGS

- Two major sawtimber species with at least 25 million board feet, International 1/4-inch rule (MMBF), had significant production volume changes since the last survey. Aspen saw log production dropped by 41 percent whiles the red oak group dropped by 19 percent (Table 9A).

- Aspen saw log receipts declined by 42 percent between the 2001 and 2004 surveys (Table 9B).

- Minnesota produced 257 MMBF of saw logs in 2004 (Table 10). Of this total, 94 percent went to Minnesota mills, 3 percent went to Wisconsin mills, and 1 percent each went to Iowa, Michigan, and Canada (Fig. 8).

- Nearly 56 percent of Minnesota's saw log production came from the Northern Pine unit in 2004 (Table 11).

- The foremost saw log species harvested in 2004 included jack pine (69 million board feet), red pine (54 million board feet), aspen (34 million board feet), and white birch (11 million board feet).

- Minnesota sawmills received 269 MMBF of saw logs in 2004 (Table 12). Of this total, 90 percent came from Minnesota forests, 6 percent came from Wisconsin, and 3 percent came from Canada (Fig. 9). While 95 percent of hardwood saw logs came from Minnesota forests, only 87 percent of softwood saw logs came from Minnesota forests.

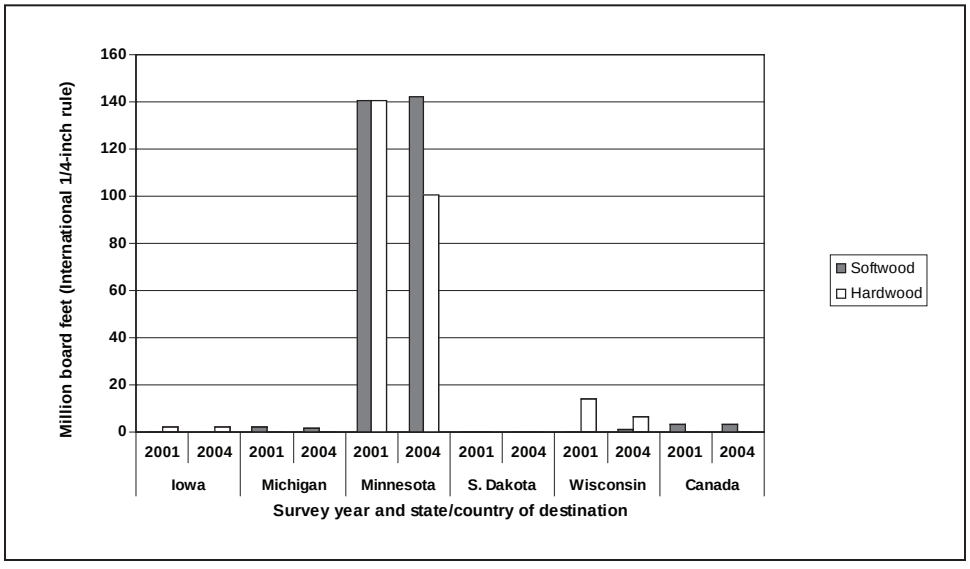

Figure 8.—Saw log production by state/country of destination and survey year, Minnesota, 2001, 2004.

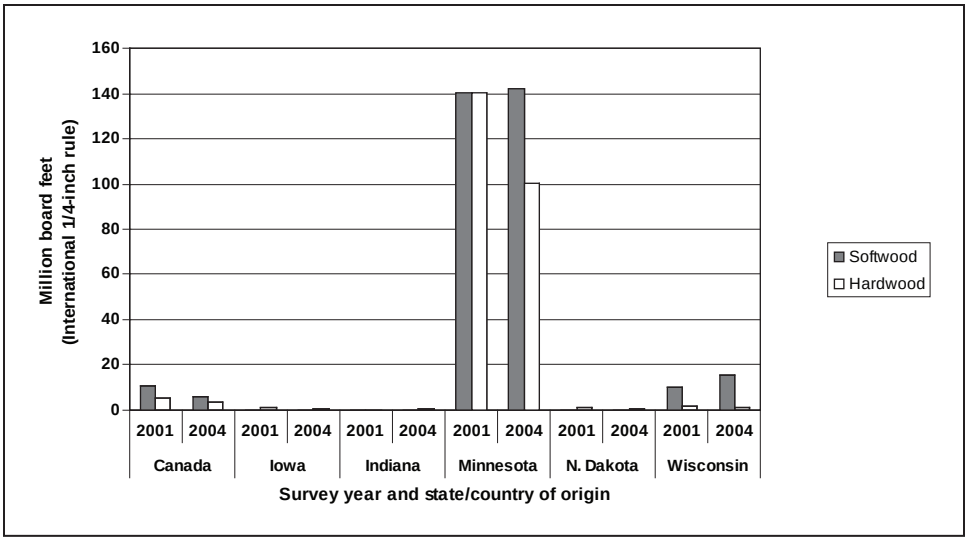

Figure 9.—Saw log receipts by state/country of origin and survey year, Minnesota, 2001, 2004.

OTHER PRODUCTS

- Veneer log production decreased by 25 percent between 2001 and 2004 (Table 13). This was due in part to the closing of a veneer mill in the state. Over 46 percent of all veneer log production left the state (Table 14); Wisconsin was the largest exporter of veneer quality logs.

TIMBER REMOVALS

- In the process of harvesting industrial roundwood in 2004, 276 million cubic feet of the state's growing-stock volume was removed from timberland. Of this volume, 261 million cubic feet, or 95 percent, was used for products. The remaining 15 million cubic feet was left on the ground as logging residue (Table 15).

- Over 129 million cubic feet of growing stock were removed from timberlands of the Northern Pine unit, with aspen accounting for 56 percent of those removals (Table 16).

- In 2004, industrial roundwood harvesting also removed over 792 million board feet of wood from the sawtimber portion of growing-stock inventory (Table 17).

- Jack pine and red pine together made up more than 64 percent of the total sawtimber removals for softwoods in 2004.

HARVEST RESIDUES

- Harvesting of industrial roundwood products left over 140 million cubic feet of harvest residues on the ground in 2004 (Table 18).

- Aspen accounted for over 49 percent of all harvest residues produced in Minnesota. Jack pine accounted for 40 percent of all softwood harvest residue produced.

PRIMARY MILL RESIDUES

- During 2004, Minnesota primary wood-using mills generated a total of 1.9 million green tons of mill residues (Table 19). Industrial fuel was the largest use of these residues accounting for 68 percent of the use (Fig. 10).

REGIONAL TRENDS

- Roundwood production by Forest Inventory Unit is proportional to both total growing-stock volume and aspen growing-stock volume on timberlands for each unit. Aspen growing-stock volume is more highly correlated than total

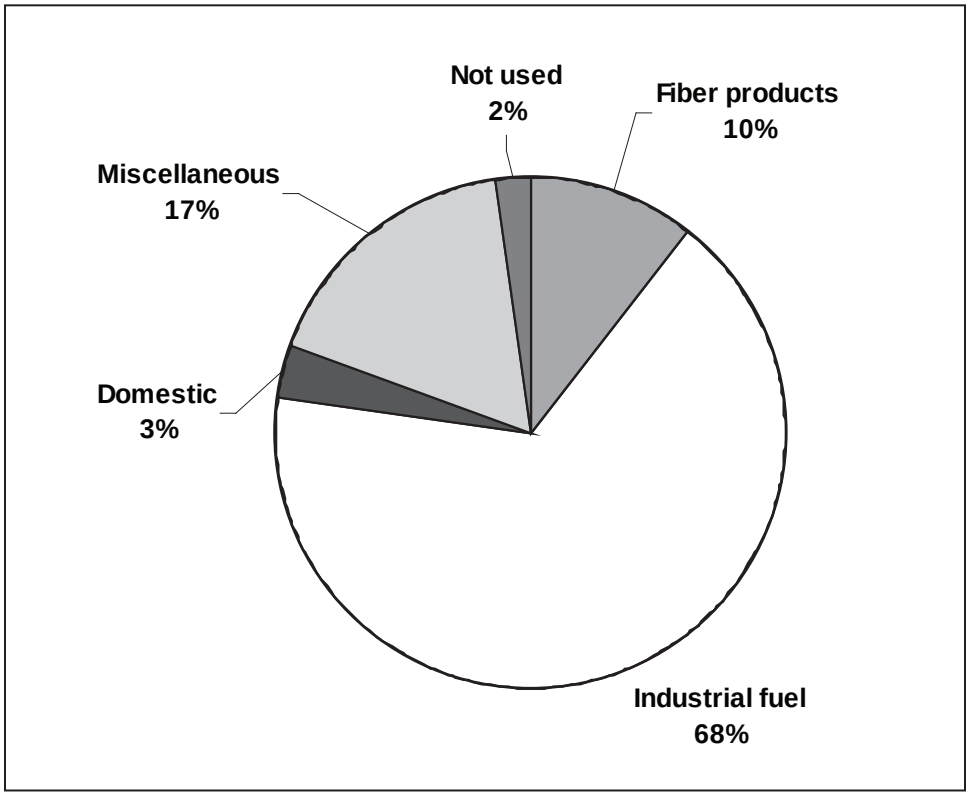

Figure 10.—Final disposition of mill residues by end use, Minnesota, 2004.

growing stock volume because of the disproportionately large harvest of aspen for pulpwood compared to any other species, and the large proportion of roundwood production going toward pulpwood production (Fig. 11).

- Pulpwood production increased by 12 percent in the Aspen-Birch unit and 16 percent in the Central Hardwood unit between 2001 and 2004 (Fig. 12). During the same period, pulpwood production declined by 34 percent in the Prairie unit.

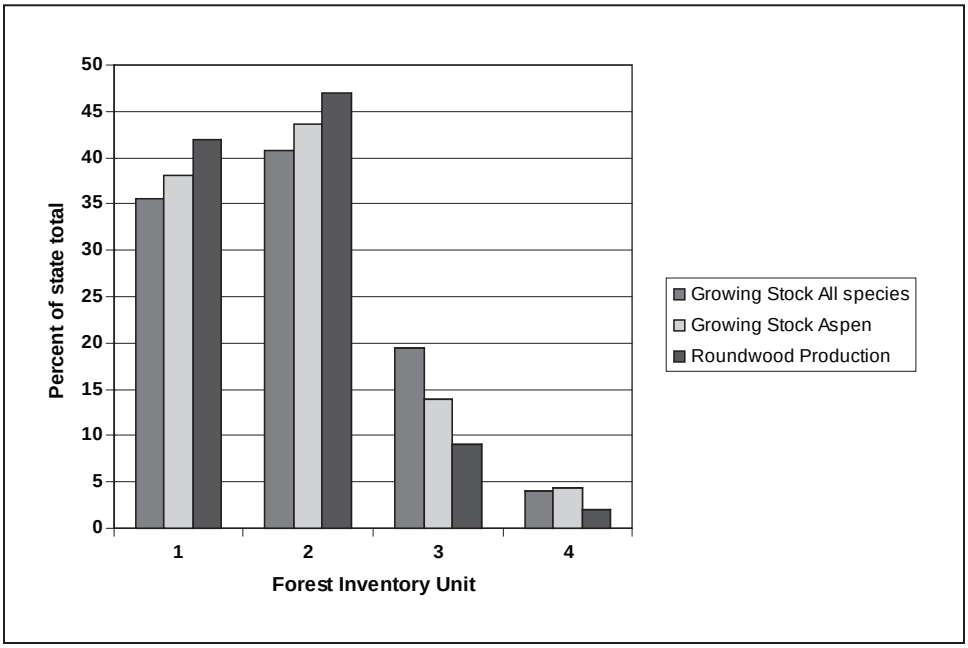

Figure 11.—Comparison of Forest Inventory Unit roundwood production distribution to total growing-stock distribution and aspen growing stock distribution, Minnesota, 2004.

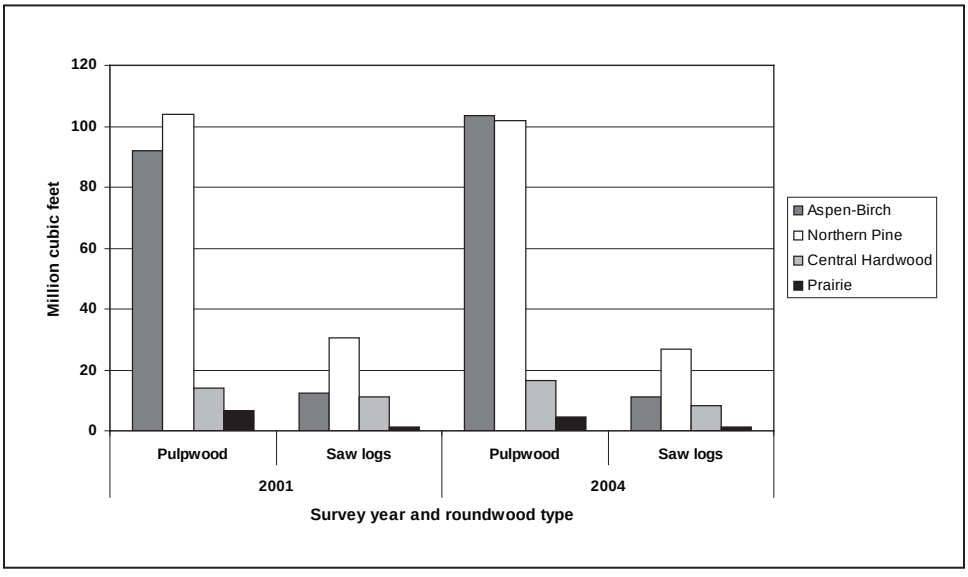

Figure 12.—Pulpwood and saw log production by year and Forest Inventory Unit, Minnesota, 2001, 2004.

ACKNOWLEDGMENTS

This study was a cooperative effort of the Minnesota Department of Natural Resources (MNDNR) and the U.S. Forest Service's Northern Research Station (NRS).

Special thanks are given to the primary wood-using firms that responded to the survey and to the MNDNR for canvassing the respondents. Their cooperation is greatly appreciated.

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APPENDIX

DEFINITION OF TERMS

Board foot—Unit of measure applied to roundwood. It relates to lumber that is 1 foot long, 1 foot wide, and 1 inch thick (or its volume equivalent).

Central stem—The portion of a tree between a 1-foot stump and the minimum 4.0-inch top diameter outside bark or the point where the central stem breaks into limbs.

Coarse mill residue—Wood residue suitable for chipping such as slabs, edgings, and veneer cores.

Commercial species—Tree species presently or prospectively suitable for industrial wood products. (Note: Excludes species of typically small size, poor form, or inferior quality such as hophornbeam, Osage-orange, and redbud.)

Cull removals—Net volume of rough and rotten trees, plus the net volume in sections of the central stem of growing-stock trees that do not meet regional merchantability standards, harvested for industrial roundwood products.

Dead removals—Net volume of dead trees harvested for industrial roundwood products.

Diameter at breast height (d.b.h.)—The outside bark diameter at 4.5 feet above the forest floor on the uphill side of the tree. For determining breast height, the forest floor includes the duff layer that may be present, but does not include unincorporated woody debris that may rise above the ground line.

Fine mill residue—Wood residue not suitable for chipping, such as sawdust and veneer clippings.

Forest land—Land at least 10 percent stocked by forest trees of any size, or formerly having had such tree cover, and not currently developed for nonforest use. (Note: Stocking is measured by comparing specified standards with basal area and/or number of trees, age or size, and spacing.) The minimum area for classification of forest land is 1 acre. Roadside, streamside, and shelterbelt strips of timber must have a crown width of at least 120 feet to qualify as forest land. Unimproved roads and trails or clearings in forest areas shall be classed as forest if less than 120 feet wide. Streams and other bodies of water are classed as forest if less than 30 feet wide.

Growing-stock removals—The growing-stock volume removed from the timberland inventory by harvesting industrial roundwood products. (Note: Includes sawtimber removals, poletimber removals, and logging residues.)

Growing-stock tree—A tree of commercial species that contains at least one 12-foot section or two 8-foot sections meeting minimum log/tree grade requirements, now or prospectively, and that meets specified standards of size, quality, and merchantability. At least one-third of the gross board-foot volume must be merchantable material and at least 50 percent sound at any point. (Note: Excludes rough, rotten, and dead trees.)

Growing-stock volume—Net volume of growing-stock trees 5.0 inches d.b.h. and larger, from 1 foot above the ground to a minimum 4.0-inch top diameter outside bark of the central stem or to the point where the central stem breaks into limbs.

Hardwoods—Dicotyledonous trees, usually broad-leaved and deciduous.

Harvest residues—The total net volume of unused portions of trees cut or killed by logging. (Note: Includes both logging residues and logging slash.)

Industrial roundwood production—The quantity of industrial roundwood harvested in a geographic area.

Industrial roundwood products—Saw logs, pulpwood, veneer logs, poles, commercial posts, piling, cooperage logs, particleboard bolts, shaving bolts, lath bolts, charcoal bolts, and chips from roundwood used for fuel, pulp, or board products.

Industrial roundwood receipts—The quantity of industrial roundwood received by commercial mills in a geographic area.

International 1/4-inch rule—A log rule or formula for estimating the board-foot volume of logs, allowing 1/2 inch of taper for each 4-foot length and assuming 1/4 inch of kerf. This rule is used as the U.S. Forest Service standard log rule in the Eastern United States.

Limbwood removals—Net volume of all portions of a tree other than the central stem (including forks, large limbs, tops, and stumps) harvested for industrial roundwood products.

Logging residue—Net volume of unused portions of the merchantable central stem of growing-stock trees cut or killed by logging.

Logging slash—Net volume of unused portions of the unmerchantable (non-growing-stock) sections of trees cut or killed by logging.

Merchantable sections—Sections of the central stem of growing-stock trees that meet either pulpwood or saw log specifications.

Net volume—Gross volume less deductions for rot, sweep, or other defects affecting use for roundwood products.

Noncommercial species—Trees species of typically small size, poor form, or inferior quality that normally do not develop into trees suitable for industrial roundwood products. Classified in volume tables as rough trees.

Nonforest land—Land that has never supported forests, and land formerly forested where use for timber management is precluded by development for other uses. Nonforest land includes areas used for crops, improved pasture, residential areas, city parks, improved roads of any width and adjoining clearings, power line clearings of any width, and areas of water from 1 to 39.9 acres classified by the Bureau of the Census as land. If intermingled in forest areas, improved roads and nonforest strips must be more than 120 feet wide and more than 1 acre to qualify as nonforest land.

Nonforest land removals—Net volume of trees on nonforest lands harvested for industrial roundwood products.

Other mills—Mills that process roundwood but do not fit into the categories of sawmill, pulp mill, and veneer mill.

Poletimber—A growing-stock tree at least 5.0 inches d.b.h. but smaller than sawtimber size (9.0 inches d.b.h. for softwoods, 11.0 inches d.b.h. for hardwoods).

Poletimber removals—Net volume in the merchantable central stem of poletimber trees harvested for industrial roundwood products.

Primary wood-using mills—Mills receiving roundwood or chips from roundwood for processing into products.

Primary wood-using mill residue—Wood materials (coarse and fine) and bark generated at manufacturing plants from roundwood processed into principal products. These residues include wood products and byproducts obtained incidental to production of principal products and wood materials not utilized for some byproduct.

Production—Quantity of a roundwood harvested from an administrative unit such as a county or state. This is usually classified according to the size, species, quality, and inherent productivity of the land upon which the tree is growing.

Pulpwood receipts—Net volume of roundwood, or chips, shavings, wafers, flakes, strands, and sawdust from roundwood, received by mills for such products as wood pulp, particle board, and engineered wood products.

Receipts—Quantity of roundwood received by mills. Usually classified by size, species, and quality.

Rotten tree—A tree that does not meet regional merchantability standards because of excessive unsound cull.

Rough tree—A tree that does not meet regional merchantability standards because of excessive sound cull. Includes noncommercial tree species.

Roundwood—Logs, bolts, or other round sections cut from trees (including chips from roundwood).

Sapling—A live tree between 1.0 and 5.0 inches d.b.h.

Sapling removals—Net volume in saplings harvested for industrial roundwood products.

Saw log—A log meeting minimum standards of diameter, length, and defect, that is sound and straight with a minimum diameter outside bark of 7.0 inches for softwoods and 9.0 inches for hardwoods, or other combinations of size and defect specified by regional standards.

Saw log portion—That portion of the central stem of sawtimber trees between the stump and the saw log top.

Saw log top—The point on the central stem of sawtimber trees above which a saw log cannot be produced. The minimum saw log top is 7.0 inches d.o.b. for softwoods and 9.0 inches d.o.b. for hardwoods.

Sawmill receipts—Net volume of roundwood received by mills that produce sawn lumber products.

Sawtimber removals—The net volume in the merchantable central stem of sawtimber trees harvested for industrial roundwood products. This includes the saw log and upper stem portions of sawtimber trees. In the case of sawtimber volume removed from timberland inventory (as in Table 17), sawtimber removals refers to the net volume in the saw log portion of sawtimber trees harvested for roundwood products or left on the ground as harvest residue, and is usually expressed in thousands of board feet (International 1/4-inch rule).

Sawtimber tree—A growing-stock tree containing at least a 12-foot saw log or two noncontiguous saw logs 8 feet or longer, and meeting regional specifications for freedom from defect. Softwoods must be at least 9.0 inches d.b.h. and hardwoods must be at least 11.0 inches d.b.h.

Softwoods—Coniferous trees, usually evergreen, having needles or scale-like leaves.

Timberland—Forest land that is producing, or is capable of producing, in excess of 20 cubic feet per acre per year of industrial roundwood products under natural conditions, is not withdrawn from timber utilization by statute or administrative regulation, and is not associated with urban or rural development.

Timber product output—The volume of roundwood products produced from an area's forests.

Timber removals—The total net volume of trees removed for industrial roundwood products or left on the ground as harvest residues.

Tree—A woody perennial plant, typically large, with a single well-defined stem carrying a more or less definite crown; sometimes defined as attaining a minimum diameter of 3 inches (7.6 cm) and a minimum height of 15 feet (4.6 m) at maturity.

Upper stem portion—That portion of the central stem of sawtimber trees between the saw log top and the minimum top diameter of 4.0 inches outside bark or to the point where the central stem breaks into limbs.

Veneer log—Logs to be used in the production of plywood, finished panels, or veneer sheets, both rotary cut and sliced.

Veneer mill—A mill that processes roundwood for the production of plywood, finished panels, or veneer sheets.

COMMON AND SCIENTIFIC NAMES OF TREE SPECIES MENTIONED IN THIS REPORT

Softwoods

Pine	
Jack pine	*Pinus banksiana*
Red pine	*Pinus resinosa*
Eastern white pine	*Pinus strobus*
Spruce	
White spruce	*Picea glauca*
Black spruce	*Picea mariana*
Balsam fir	*Abies balsamea*
Eastern hemlock	*Tsuga canadensis*
Tamarack	*Larix laricina*
Northern white-cedar	*Thuja occidentalis*
Eastern redcedar	*Juniperis virginiana*

Hardwoods

White oak group	
White oak	*Quercus alba*
Bur oak	*Quercus macrocarpa*
Chinkapin oak	*Quercus muehlenbergii*
Swamp white oak	*Quercus bicolor*
Red oak group	
Northern red oak	*Quercus rubra*
Black oak	*Quercus velutina*
Northern pin oak	*Quercus ellipsoidalis*
Hickory	
Bitternut hickory	*Carya cordiformis*
Pignut hickory	*Carya glabra*
Shagbark hickory	*Carya ovata*
Birch	
River birch	*Betula nigra*
White birch	*Betula papyrifera*

Yellow birch	*Betula alleghaniensis*
Hard maple	
Black maple	*Acer nigrum*
Sugar maple	*Acer saccharum*
Soft maple	
Red maple	*Acer rubrum*
Silver maple	*Acer saccharinum*
American beech	*Fagus grandifolia*
Ash	
Black ash	*Fraxinus nigra*
White ash	*Fraxinus americana*
Green ash	*Fraxinus pennsylvanica*
Balsam poplar	*Populus balsamifera*
Aspen	
Big tooth aspen	*Populus grandidentata*
Quaking aspen	*Populus tremuloides*
Eastern cottonwood	*Populus deltoides*
American basswood	*Tilia americana*
Black walnut	*Juglans nigra*
Elm	
American elm	*Ulmus americana*
Rock elm	*Ulmus thomasii*
Slippery elm	*Ulmus rubra*
Other hardwoods	
Northern catalpa	*Catalpa speciosa*
Black cherry	*Prunus serotina*
River birch	*Betula nigra*
Black locust	*Robinia pseudoacacia*
Honey locust	*Gleditsia triacanthos*
Red mulberry	*Morus rubra*
Butternut	*Juglans cinerea*
Black willow	*Salix nigra*
Box elder	*Acer negundo*
Hackberry	*Celtis occidentalis*

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TABLES

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Kind of mill	1990	1992	1997	2001	2004
Sawmills					
Large[1]	17	15	12	12	9
Medium[2]	52	43	46	34	25
Small[3]	447	508	298	291	333
Total	516	566	356	337	367
Pulp mills[4]	15	16	16	14	14
Veneer mills	1	1	8	3	2
Other mills	19	13	13	13	29
Total	35	30	37	30	45
Total mills	551	596	393	367	412

[1] Annual lumber production in excess of 5 million board feet.

[2] Annual lumber production from 1 million to 5 million board feet.

[3] Annual lumber production less than 1 million board feet.

[4] Includes flake board plants after 1977, formerly reported in "other mills" category.

Table 2.—Industrial roundwood receipts by mill type in Minnesota, 1990, 1992, 1997, 2001, and 2004

(In million cubic feet)

All species

Kind of mill	1990	1992	1997	2001	2004
Pulp mills[1]	173.4	198.8	216.1	244.1	266.6
Sawmills	56.7	59.6	56.3	52.2	45.5
Other mills[2]	11.0	5.9	5.5	2.9	6.3
Total	241.2	264.3	277.9	299.2	318.2

Softwoods

Pulp mills[1]	37.8	34.1	30.9	38.3	45.9
Sawmills	18.3	27.5	27.6	28.1	29.4
Other mills[2]	5	1.5	2.2	1.0	2.3
Total	61.1	63.1	60.7	67.4	77.6

Hardwoods

Pulp mills[1]	135.6	164.7	185.2	205.8	220.7
Sawmills	38.5	32.1	28.7	24.1	16.0
Other mills[2]	6.1	4.4	3.2	1.9	4.0
Total	180.1	201.2	217.3	238.8	240.7

[1] Includes particleboard plants, OSB plants, waferboard plants, etc.

[2] Does not include treating plants or fuelwood receipts.

Rows and columns may not sum due to rounding

Table 3.—Industrial roundwood production by Forest Inventory Unit, species group, and type of product, Minnesota, 2004[1]

All Units

Species group	Saw logs MBF [2/]	Saw logs MCF [3/]	Veneer logs MBF [2/]	Veneer logs MCF [3/]	Pulpwood Cords [4/]	Pulpwood MCF [3/]	Cabin logs MCF 3/	Cooperage MBF 2/	Cooperage MCF 3/	Poles Pieces	Poles MCF [3/]	All products
Softwoods												
Fir	4,198	848	--	--	167,063	13,099	--	--	--	--	--	13,947
Redcedar	48	10	--	--	--	--	--	--	--	--	--	10
Tamarack	825	167	--	--	39,659	3,109	--	--	--	--	--	3,276
Spruce	9,505	1,920	--	--	164,547	12,901	0	--	--	--	--	14,821
Jack pine	69,564	14,052	--	--	155,884	12,221	--	--	--	--	--	26,273
Red pine	54,690	9,429	--	--	46,446	3,660	149	--	--	49125	295	13,533
White pine	4290	740	--	--	2,402	189	9	--	--	2025	12	950
Other/unknown pine	--	--	--	--	80	6	--	--	--	--	--	6
Northern white-cedar	3202	647	--	--	214	17	10	--	--	--	--	673
Total	146,322	27,813	--	--	576,295	45,202	168	--	--	51,150	307	73,489
Hardwoods												
Soft maple	1,171	192	59	10	67,183	5,295	--	--	--	--	--	5,496
Hard maple	4,664	764	939	153	31,762	2,504	--	--	--	--	--	3,421
White birch	11,330	1,856	2,328	379	240,185	18,929	--	--	--	--	--	21,164
River birch	0	0	--	--	--	--	--	--	--	--	--	0
Yellow birch	5	1	267	44	--	--	--	--	--	--	--	44
Hickory	414	68	12	2	--	--	--	--	--	--	--	70
Hackberry	7	1	--	--	--	--	--	--	--	--	--	1
Beech	87	14	--	--	--	--	--	--	--	--	--	14
Ash	4,100	672	10	2	17,433	1,374	--	--	--	--	--	2,047
Butternut	64	11	--	--	--	--	--	--	--	--	--	11
Black walnut	878	144	207	34	--	--	--	--	--	--	--	178
Cottonwood	5,705	934	--	--	577	45	--	--	--	--	--	980
Balsam poplar	33	5	--	--	119,225	9,395	--	--	--	--	--	9,400
Aspen	34,384	6,192	2,104	342	1,794,411	141,226	--	--	--	--	--	147,761
Black cherry	254	42	145	24	--	--	--	--	--	--	--	65
Other/unknown cherry	--	--	--	--	1,670	132	--	--	--	--	--	132
Red oak group	29,752	5,498	1,595	260	453	36	--	--	--	--	--	5,794
White oak group	5,681	1,050	12	2	339	27	--	1,250	173	--	--	1,251
Willow	49	8	--	--	--	--	--	--	--	--	--	8
Basswood	11,235	1,840	35	6	24,655	1,943	--	--	--	--	--	3,790
Elm	892	146	--	--	1,405	111	--	--	--	--	--	257
Other/unknown hwds	71	12	--	--	--	--	--	--	--	--	--	12
Total	110,776	19,450	7,713	1,258	2,299,298	181,017	--	1,250	173	--	--	201,896
All species	257,098	47,263	7,713	1,258	2,875,593	226,219	--	1,250	173	51,150	307	275,385

(Table 3 continued on next page)

(Table 3 continued)

Aspen-Birch

Species group	Saw logs MBF [2/]	Saw logs MCF [3/]	Veneer logs MBF [2/]	Veneer logs MCF [3/]	Pulpwood Cords [4/]	Pulpwood MCF [3/]	Cabin logs MCF 3/	Cooperage MBF 2/	Cooperage MCF 3/	Poles Pieces	Poles MCF [3/]	All products
Softwoods												
Fir	1,953	394	--	--	116,968	9,171	--	--	--	--	--	9,565
Tamarack	643	130	--	--	22,271	1,746	--	--	--	--	--	1,876
Spruce	6,815	1,377	--	--	123,550	9,686	--	--	--	--	--	11,063
Jack pine	9,759	1,971	--	--	57,350	4,496	--	--	--	--	--	6,468
Red pine	18,420	3,176	--	--	15,452	1,218	69	--	--	11,650	70	4,532
White pine	2,393	413	--	--	1,383	109	--	--	--	675	4	526
Northern white-cedar	2,942	594	--	--	214	17	1	--	--	--	--	612
Total	42,925	8,055	--	--	337,188	26,443	70	--	--	12,325	74	34,642
Hardwoods												
Soft maple	83	14	--	--	31,803	2,506	--	--	--	--	--	2,520
Hard maple	365	60	21	3	17,526	1,382	--	--	--	--	--	1,445
White birch	5,351	876	1,836	299	123,095	9,701	--	--	--	--	--	10,877
Yellow birch	2	0	--	--	--	--	--	--	--	--	--	0
Ash	713	117	0	0	7,353	579	--	--	--	--	--	696
Balsam poplar	20	3	--	--	66,312	5,225	--	--	--	--	--	5,229
Aspen	8,588	1,547	1,715	279	722,533	56,865	--	--	--	--	--	58,691
Other/unknown cherry	--	--	--	--	744	59	--	--	--	--	--	59
Red oak group	823	152	--	--	91	7	--	--	--	--	--	159
White oak group	61	11	--	--	36	3	--	--	--	--	--	14
Basswood	1,220	200	--	--	8,309	655	--	--	--	--	--	855
Elm	--	--	--	--	626	49	--	--	--	--	--	49
Other/unknown hwds	20	3	--	--	--	--	--	--	--	--	--	3
Total	17,246	2,983	3,572	581	978,428	77,031	--	--	--	--	--	80,597
All species	60,171	11,038	3,572	581	1,315,616	103,474	70	--	--	12,325	74	115,239

Central Hardwoods

Species group	Saw logs MBF [2/]	Saw logs MCF [3/]	Veneer logs MBF [2/]	Veneer logs MCF [3/]	Pulpwood Cords [4/]	Pulpwood MCF [3/]	Cabin logs MCF 3/	Cooperage MBF 2/	Cooperage MCF 3/	Poles Pieces	Poles MCF [3/]	All products
Softwoods												
Fir	15	3	--	--	2,355	185	--	--	--	--	--	188
Redcedar	11	2	--	--	--	--	--	--	--	--	--	2
Tamarack	12	2	--	--	608	48	--	--	--	--	--	50
Spruce	36	7	--	--	1,224	96	0	--	--	--	--	103
Jack pine	3,798	767	--	--	5,536	434	--	--	--	--	--	1,201
Red pine	5,319	917	--	--	6,189	488	3	--	--	--	--	1,407
White pine	572	99	--	--	351	28	6	--	--	--	--	132
Other/unknown pine	--	--	--	--	6	0	--	--	--	--	--	0
Total	9,763	1,797	--	--	16,269	1,279	9	--	--	--	--	3,083
Hardwoods												
Soft maple	700	115	38	6	10,560	833	--	--	--	--	--	953
Hard maple	2,415	396	588	96	6,544	516	--	--	--	--	--	1,008
White birch	189	31	151	25	22,215	1,751	--	--	--	--	--	1,807
Yellow birch	--	--	174	28	--	--	--	--	--	--	--	28
Hickory	366	60	8	1	--	--	--	--	--	--	--	61
Hackberry	7	1	--	--	--	--	--	--	--	--	--	1
Beech	87	14	--	--	--	--	--	--	--	--	--	14
Ash	974	160	5	1	1,419	112	--	--	--	--	--	272
Butternut	58	10	--	--	--	--	--	--	--	--	--	10
Black walnut	598	98	140	23	--	--	--	--	--	--	--	121
Cottonwood	2,124	348	--	--	--	--	--	--	--	--	--	348
Balsam poplar	--	--	--	--	1,366	108	--	--	--	--	--	108
Aspen	6,799	1,225	83	13	146,069	11,499	--	--	--	--	--	12,737
Black cherry	242	40	124	20	--	--	--	--	--	--	--	60
Other/unknown cherry	--	--	--	--	269	21	--	--	--	--	--	21
Red oak group	14,178	2,620	1,036	169	288	23	--	--	--	--	--	2,811
White oak group	4,155	768	8	1	222	18	--	1,250	173	--	--	959
Willow	39	6	--	--	--	--	--	--	--	--	--	6
Basswood	2,996	491	35	6	3,424	270	--	--	--	--	--	767
Elm	814	133	--	--	226	18	--	--	--	--	--	151
Total	36,741	6,516	2,390	389	192,602	15,169	--	1,250	173	--	--	22,243
All species	46,504	8,313	2,390	389	208,871	16,448	9	1,250	173	--	--	25,326

(Table 3 continued on next page)

(Table 3 continued)

Northern Pine

Species group	Saw logs MBF [2/]	Saw logs MCF [3/]	Veneer logs MBF [2/]	Veneer logs MCF [3/]	Pulpwood Cords [4/]	Pulpwood MCF [3/]	Cabin logs MCF 3/	Cooperage MBF 2/	Cooperage MCF 3/	Poles Pieces	Poles MCF [3/]	All products
Softwoods												
Fir	2,207	446	--	--	47,698	3,740	--	--	--	--	--	4,185
Tamarack	170	34	--	--	16,636	1,304	--	--	--	--	--	1,339
Spruce	2,649	535	--	--	39,580	3,103	0	--	--	--	--	3,639
Jack pine	56,007	11,313	--	--	92,419	7,246	--	--	--	--	--	18,559
Red pine	30,809	5,312	--	--	24,792	1,954	78	--	--	37,475	225	7,568
White pine	1,325	228	--	--	668	53	3	--	--	1,350	8	292
Other/unknown pine	--	--	--	--	74	6	--	--	--	--	--	6
Northern white-cedar	260	53	--	--	--	--	9	--	--	--	--	61
Total	93,427	17,921	--	--	221,867	17,406	90	--	--	38,825	233	35,649
Hardwoods												
Soft maple	298	49	21	3	24,820	1,956	--	--	--	--	--	2,008
Hard maple	1,547	253	306	50	7,634	602	--	--	--	--	--	905
White birch	5,767	945	341	56	94,189	7,422	--	--	--	--	--	8,422
Yellow birch	2	0	94	15	--	--	--	--	--	--	--	16
Hickory	0	0	4	1	--	--	--	--	--	--	--	1
Ash	2,254	369	5	1	8,628	680	--	--	--	--	--	1,050
Butternut	6	1	--	--	--	--	--	--	--	--	--	1
Black walnut	--	--	58	9	--	--	--	--	--	--	--	9
Cottonwood	273	45	--	--	--	--	--	--	--	--	--	45
Balsam poplar	13	2	--	--	49,329	3,887	--	--	--	--	--	3,889
Aspen	18,960	3,415	306	50	874,083	68,791	--	--	--	--	--	72,256
Black cherry	0	0	21	3	--	--	--	--	--	--	--	3
Other/unknown cherry	--	--	--	--	657	52	--	--	--	--	--	52
Red oak group	13,800	2,550	560	91	75	6	--	--	--	--	--	2,647
White oak group	941	174	4	1	80	6	--	--	--	--	--	181
Basswood	5,641	924	--	--	12,865	1,014	--	--	--	--	--	1,938
Elm	0	0	--	--	553	44	--	--	--	--	--	44
Other/unknown hwds	50	8	--	--	--	--	--	--	--	--	--	8
Total	49,552	8,735	1,720	280	1,072,913	84,460	--	--	--	--	--	93,475
All species	142,979	26,656	1,720	280	1,294,780	101,866	90	--	--	38,825	233	129,124

Prairie

Species group	Saw logs MBF [2/]	Saw logs MCF [3/]	Veneer logs MBF [2/]	Veneer logs MCF [3/]	Pulpwood Cords [4/]	Pulpwood MCF [3/]	Cabin logs MCF 3/	Cooperage MBF 2/	Cooperage MCF 3/	Poles Pieces	Poles MCF [3/]	All products
Softwoods												
Fir	23	5	--	--	42	3	--	--	--	--	--	8
Redcedar	37	7	--	--	--	--	--	--	--	--	--	7
Tamarack	--	--	--	--	144	11	--	--	--	--	--	11
Spruce	5	1	--	--	193	15	--	--	--	--	--	16
Jack pine	--	--	--	--	580	45	--	--	--	--	--	45
Red pine	143	25	--	--	14	1	--	--	--	--	--	26
White pine	0	0	--	--	--	--	--	--	--	--	--	0
Total	208	38	--	--	973	75	--	--	--	--	--	113
Hardwoods												
Soft maple	90	15	--	--	--	--	--	--	--	--	--	15
Hard maple	337	55	25	4	56	4	--	--	--	--	--	64
White birch	23	4	--	--	686	54	--	--	--	--	--	58
River birch	0	0	--	--	--	--	--	--	--	--	--	0
Yellow birch	0	0	--	--	--	--	--	--	--	--	--	0
Hickory	48	8	--	--	--	--	--	--	--	--	--	8
Ash	160	26	0	0	33	3	--	--	--	--	--	29
Black walnut	280	46	9	2	--	--	--	--	--	--	--	47
Cottonwood	3,308	542	--	--	577	45	--	--	--	--	--	587
Balsam poplar	--	--	--	--	2,218	175	--	--	--	--	--	175
Aspen	36	6	--	--	51,726	4,071	--	--	--	--	--	4,077
Black cherry	12	2	--	--	--	--	--	--	--	--	--	2
Red oak group	950	176	--	--	--	--	--	--	--	--	--	176
White oak group	524	97	--	--	--	--	--	--	--	--	--	97
Willow	10	2	--	--	--	--	--	--	--	--	--	2
Basswood	1,379	226	--	--	57	5	--	--	--	--	--	230
Elm	78	13	--	--	--	--	--	--	--	--	--	13
Other/unknown hwds	1	0	--	--	--	--	--	--	--	--	--	0
Total	7,236	1,218	34	6	55,353	4,357	--	--	--	--	--	5,580
All species	7,444	1,256	34	6	56,326	4,432	--	--	--	--	--	5,693

[1] Product volumes converted to standard units of measure using regional conversion factors and to thousand cubic feet using factors from the Minnesota Utilization Study of 1980 and other regional utilization studies.

[2] Thousand board feet, International 1/4-inch rule.

[3] Thousand cubic feet.

[4] Standard cords are 128 cubic feet consisting of 79 cubic feet of wood and 49 cubic feet of bark and air space.

0 = Less than 1/2 unit of measure.

Rows and columns may not sum due to rounding.

Table 4.—Pulpwood production by product form, species group, and state/country of destination, Minnesota, 2004

(In standard cords, unpeeled)

Product form and species group	Total	State/country of destination		
		Minnesota	Wisconsin	Canada
Roundwood				
Softwood				
Fir	167,063	166,882	181	--
Tamarack	39,659	27,455	12,204	--
Spruce	164,547	146,193	18,354	--
Jack pine	155,884	152,915	2,379	590
Red pine	46,446	43,257	2,809	380
White pine	2,402	1,941	81	380
Other pine	80	80	--	--
Northern white-cedar	214	214	--	--
Total	576,294	538,937	36,008	1,349
Hardwood				
Soft maple	67,183	66,603	580	--
Hard maple	31,762	25,864	5,897	--
White maple	240,185	197,337	42,847	--
Ash	17,433	17,382	51	--
Cottonwood	577	577	--	--
Balsam poplar	119,225	119,225	--	--
Aspen	1,794,411	1,728,170	66,241	--
Cherry	1,670	1,670	--	--
Red oak group	453	192	261	--
White oak group	339	233	106	--
Basswood	24,655	24,455	200	--
Elm	1,405	1,405	--	--
Total	2,299,298	2,183,114	116,185	--
Roundwood total	2,875,593	2,722,050	152,193	1,349
Residues[1]				
Softwood	125,281	102,358	1,575	21,348
Hardwood	33,564	26,023	5,820	1,720
Residue total	158,844	128,382	7,395	23,068
State total	3,034,437	2,850,432	159,588	24,417

[1] Chippable mill residues such as slabs, edgings, etc. Chips from roundwood are included in roundwood.

Table may not add due to rounding.

Table 5.—Pulpwood receipts by product form, species group, and state/country of origin, Minnesota, 2004

(In standard cords, unpeeled)

Product form and species group	Total	State/country of origin				
		Michigan	Minnesota	North Dakota	Wisconsin	Canada
Roundwood						
Softwood						
Fir	192,420	148	166,882	--	24,032	1,358
Tamarack	27,817	--	27,455	--	104	258
Spruce	154,449	163	146,193	--	3,280	4,813
Jack pine	159,016	--	152,915	--	5,510	591
Red pine	47,872	--	43,257	--	4,615	--
White pine	2,688	--	1,941	--	295	453
Other pine	129	--	80	--	49	--
Northern white-cedar	214	--	214	--	--	--
Total	584,606	311	538,937	--	37,886	7,473
Hardwood						
Soft maple	151,891	12,494	66,603	--	68,339	4,455
Hard maple	132,254	33,203	25,864	--	61,196	11,991
White maple	222,401	1,514	197,337	--	18,261	5,288
Ash	27,072	1,352	17,382	--	5,968	2,370
Cottonwood	1,212	--	577	626	10	--
Balsam poplar	135,240	165	119,225	54	2,677	13,119
Aspen	2,078,531	6,281	1,728,170	16,114	116,099	211,867
Cherry	6,841	1,299	1,670	--	3,408	463
Red oak group	205	--	192	--	13	--
White oak group	246	--	233	--	14	--
Basswood	40,294	1,951	24,455	--	11,232	2,656
Elm	5,754	1,093	1,405	--	2,866	390
Total	2,801,941	59,352	2,183,114	16,794	290,083	252,599
Roundwood total	3,386,547	59,663	2,722,050	16,794	327,969	260,072
Residues[1]						
Softwood	104,517	--	102,358	--	1,704	455
Hardwood	41,846	38	26,023	--	2,618	13,167
Residue total	146,363	38	128,382	--	4,322	13,622
State total	3,532,910	59,700	2,850,432	16,794	332,290	273,694

[1] Chippable mill residues such as slabs, edgings, etc. Chips from roundwood are included in roundwood.

Table may not add due to rounding.

Table 6.—Pulpwood production from roundwood by Forest Inventory Unit, county, and species group, Minnesota, 2004

(In standard cords, unpeeled)

Forest Survey Unit and county [1]	All species	Species group									
		Northern white-cedar	Balsam fir	Jack pine	Red pine	White pine	Spruce	Tama-rack	Other softwoods	Ash	Aspen
Aspen-Birch											
Carlton	69,535	--	5,902	2,573	1,909	117	1,740	809	--	889	33,149
Cook	31,573	--	1,307	329	387	133	4,988	943	--	49	22,344
Koochiching	373,320	--	24,599	19,355	667	107	44,717	11,057	--	715	208,359
Lake	98,576	214	7,423	4,076	3,858	206	8,759	582	--	1,068	40,520
St. Louis	742,611	--	77,738	31,017	8,631	820	63,346	8,881	--	4,633	418,161
Total	1,315,615	214	116,968	57,350	15,452	1,383	123,550	22,271	--	7,353	722,533
Northern Pine											
Aitkin	142,394	--	6,742	4,603	3,293	290	4,142	2,215	--	1,775	92,408
Becker	49,335	--	324	2,085	601	1	251	568	--	17	41,149
Beltrami	198,338	--	5,080	25,167	976	16	2,746	2,184	--	1,569	136,551
Cass	137,272	--	3,099	8,563	4,111	43	1,316	1,462	--	824	95,384
Clearwater	77,897	--	1,183	3,481	178	1	311	200	--	122	63,621
Crow Wing	95,758	--	659	7,393	2,295	189	299	566	--	1,173	64,946
Hubbard	110,666	--	400	16,512	2,980	3	499	382	--	307	80,099
Itasca	323,081	--	27,352	10,252	8,618	122	22,163	3,895	74	2,534	197,311
Lake of the Woods	84,998	--	2,249	8,736	314	2	5,692	4,459	--	108	48,558
Mahnomen	17,257	--	30	1,132	--	--	62	54	--	--	14,221
Roseau	44,868	--	574	2,166	754	--	2,100	651	--	200	30,161
Wadena	12,917	--	6	2,327	671	--	--	--	--	--	9,674
Total	1,294,781	--	47,698	92,419	24,792	668	39,580	16,636	74	8,628	874,083
Central Hardwood											
Anoka	935	--	--	--	--	--	13	--	--	--	242
Benton	1,792	--	--	7	3	0	--	0	--	2	1,730
Chisago	433	--	15	7	24	0	--	1	--	2	187
Dakota	68	--	--	--	--	--	56	--	--	--	12
Douglas	1,580	--	211	11	--	--	38	--	--	--	1,170
Fillmore	12	--	12	--	--	--	--	--	--	--	--
Goodhue	120	--	10	--	--	--	--	--	--	5	12
Houston	224	--	--	--	--	--	--	--	--	10	--
Isanti	1,773	--	10	98	231	--	--	--	6	--	1,006
Kanabec	14,625	--	9	728	374	33	--	81	--	230	9,951
Mille Lacs	21,892	--	154	400	179	83	144	49	--	132	17,581
Morrison	19,092	--	94	488	282	48	30	31	--	105	15,581
Olmsted	13	--	--	--	--	--	3	--	--	--	9
Otter Tail	11,783	--	--	663	33	--	--	--	--	--	10,648
Pine	125,411	--	1,345	2,941	3,020	184	722	295	--	919	82,864
Sherburne	864	--	11	43	343	0	68	1	--	4	320
Stearns	59	--	--	4	2	--	--	0	--	1	32
Todd	2,897	--	--	101	--	--	--	--	--	--	2,781
Wabasha	1,124	--	--	21	1,103	--	--	--	--	--	--
Washington	3,172	--	482	9	4	0	150	1	--	3	1,806
Winona	776	--	--	--	584	--	--	147	--	--	--
Wright	227	--	--	15	7	0	--	1	--	5	134
Total	208,871	--	2,355	5,536	6,189	351	1,224	608	6	1,419	146,069
Prairie											
Clay	217	--	--	--	--	--	--	--	--	--	154
Kittson	17,979	--	--	449	--	--	101	106	--	--	15,870
Marshall	23,021	--	--	131	--	--	84	38	--	--	21,462
Norman	2,049	--	--	--	--	--	--	--	--	--	1,816
Pennington	7,584	--	10	--	--	--	7	--	--	33	7,291
Polk	4,180	--	5	--	--	--	--	--	--	--	4,035
Red Lake	1,297	--	27	--	14	--	--	--	--	--	1,098
Total	56,326	--	42	580	14	--	193	144	--	33	51,726
State total	2,875,593	214	167,063	155,884	46,446	2,402	164,547	39,659	80	17,433	1,794,411

Forest Survey Unit and county [1]	Species group									
	Balsam poplar	Bass-wood	White birch	Cotton-wood[2]	Elm	Hard maple	Soft maple	Red oak	White oak	Other hardwoods
Aspen-Birch										
Carlton	525	998	13,530	--	133	2,404	4,701	--	--	158
Cook	26	48	697	--	7	71	236	--	--	8
Koochiching	37,903	724	22,945	--	5	1,845	317	--	--	6
Lake	1,042	3,193	20,113	--	85	1,665	5,672	--	--	101
St. Louis	26,816	3,345	65,810	--	396	11,542	20,878	91	36	471
Total	66,312	8,309	123,095	--	626	17,526	31,803	91	36	744
Northern Pine										
Aitkin	2,257	2,530	10,587	--	224	2,582	8,339	67	73	266
Becker	909	289	2,764	--	1	46	327	--	--	1
Beltrami	10,242	2,706	9,914	--	18	228	918	--	--	21
Cass	3,139	1,337	13,948	--	49	544	3,394	--	--	59
Clearwater	1,317	1,461	5,819	--	2	50	151	--	--	2
Crow Wing	697	1,524	7,306	--	180	1,844	6,456	8	8	214
Hubbard	890	366	7,368	--	4	62	790	--	--	5
Itasca	14,733	2,053	27,875	--	72	1,600	4,344	--	--	86
Lake of the Woods	8,890	18	5,399	--	3	476	90	--	--	3
Mahnomen	428	581	728	--	--	22	--	--	--	--
Roseau	5,710	--	2,371	--	--	180	--	--	--	--
Wadena	117	--	111	--	--	--	11	--	--	--
Total	49,329	12,865	94,189	--	553	7,634	24,820	75	80	657
Central Hardwood										
Anoka	--	167	217	--	--	92	204	--	--	--
Benton	21	3	9	--	0	4	12	--	--	0
Chisago	1	28	114	--	0	38	13	--	--	0
Dakota	--	--	--	--	--	--	--	--	--	--
Douglas	22	13	114	--	--	--	--	--	--	--
Fillmore	--	--	--	--	--	--	--	--	--	--
Goodhue	--	--	5	--	--	29	24	24	10	--
Houston	--	--	10	--	--	68	56	56	23	--
Isanti	--	197	32	--	--	50	104	18	19	--
Kanabec	144	264	1,003	--	38	388	1,338	--	--	45
Mille Lacs	103	785	786	--	21	334	1,018	47	51	25
Morrison	93	389	854	--	17	238	746	24	51	21
Olmsted	--	--	--	--	--	--	--	--	--	--
Otter Tail	397	--	42	--	--	--	--	--	--	--
Pine	559	1,397	18,710	--	147	5,178	6,767	120	68	175
Sherburne	6	5	31	--	1	7	23	--	--	1
Stearns	1	2	6	--	0	2	8	--	--	0
Todd	14	--	--	--	--	--	--	--	--	--
Wabasha	--	--	--	--	--	--	--	--	--	--
Washington	2	170	228	--	0	97	220	--	--	0
Winona	--	--	33	--	--	11	--	--	--	--
Wright	3	5	20	--	1	8	27	--	--	1
Total	1,366	3,424	22,215	--	226	6,544	10,560	288	222	269
Prairie										
Clay	45	7	--	11	--	--	--	--	--	--
Kittson	929	--	478	--	--	45	--	--	--	--
Marshall	1,100	4	190	--	--	12	--	--	--	--
Norman	--	13	--	220	--	--	--	--	--	--
Pennington	76	--	1	166	--	--	--	--	--	--
Polk	47	--	11	82	--	--	--	--	--	--
Red Lake	20	34	6	98	--	--	--	--	--	--
Total	2,218	57	686	577	--	56	--	--	--	--
State total	119,225	24,655	240,185	577	1,405	31,762	67,183	453	339	1,670

0 = Less than 1/2 cord.

[1] Includes only those counties that supplied pulpwood in 2004.

Table may not add due to rounding.

Table 7.—Pulpwood production by species group, Minnesota, 2001 and 2004

(In standard cords, unpeeled)

Product form and species group	2001	2004	Percent change
Softwood			
Fir	170,599	167,063	-2%
Tamarack	45,623	39,659	-13%
Spruce	199,627	164,547	-18%
Jack pine	89,195	155,884	75%
Red pine	47,074	46,446	-1%
White pine	1,516	2,402	58%
Other pine	--	80	--
Northern white-cedar	--	214	--
Total	553,635	576,294	4%
Hardwood			
Soft maple	43,339	67,183	55%
Hard maple	6,387	31,762	397%
White birch	147,755	240,185	63%
Ash	810	17,433	2052%
Cottonwood	242	577	138%
Balsam poplar	97,847	119,225	22%
Aspen	1,895,131	1,794,411	-5%
Cherry	--	1,670	--
Red oak group	11	453	4018%
White oak group	7	339	4743%
Basswood	9,651	24,655	155%
Elm	--	1,405	--
Total	2,201,180	2,299,298	4%
All species	2,754,815	2,875,593	4%

[1] Chippable mill residues such as slabs, edgings, etc. Chips from roundwood are included in roundwood.

Table may not add due to rounding.

Table 8.—Pulpwood receipts by species group, Minnesota, 2001 and 2004

(In standard cords, unpeeled)

Product form and species group	2001	2004	Percent change
Softwood			
Fir	190,952	192,420	1%
Tamarack	6,707	27,817	315%
Spruce	154,921	154,449	0%
Jack pine	83,116	159,016	91%
Red pine	47,592	47,872	1%
White pine	1,432	2,688	88%
Other pine	--	129	--
Northern white-cedar	--	214	--
Total	484,719	584,606	21%
Hardwood			
Soft maple	91,011	151,891	67%
Hard maple	7,868	132,254	1581%
White birch	126,491	222,401	76%
Ash	227	27,072	11826%
Cottonwood	1,760	1,212	-31%
Balsam poplar	111,602	135,240	21%
Aspen	2,252,638	2,078,531	-8%
Cherry	--	6,841	--
Red oak group	--	205	--
White oak group	--	246	--
Basswood	13,479	40,294	199%
Elm	--	5,754	--
Total	2,605,076	2,801,941	8%
All species	3,089,795	3,386,547	10%

[1] Chippable mill residues such as slabs, edgings, etc. Chips from roundwood are included in roundwood.

Table may not add due to rounding.

Table 9A.—Saw log production by species group, Minnesota, 2001 and 2004

(In thousand board feet)

Species group	2001	2004	Change
Softwood			
Fir	3,816	4,198	10%
Redcedar	182	48	-74%
Tamarack	880	825	-6%
Spruce	6,948	9,505	37%
Jack pine	74,941	69,564	-7%
Red Pine	44,176	54,690	24%
White pine	6,489	4,290	-34%
Northern white-cedar	--	3,202	--
Other pines	43	--	--
Other softwoods	2,359	--	--
Total	139,834	146,322	5%
Hardwood			
Soft maple	2,275	1,171	-49%
Hard maple	4,918	4,664	-5%
White birch	12,592	11,330	-10%
River birch	4	0	-100%
Yellow birch	66	5	-92%
Hickory	399	414	4%
Hackberry	26	7	-73%
Beech	--	87	--
Ash	6,778	4,100	-40%
Butternut	131	64	-51%
Black walnut	296	878	197%
Cottonwood	3,908	5,705	46%
Balsam poplar	434	33	-92%
Aspen	58,358	34,384	-41%
Black cherry	771	254	-67%
Red oak group	36,606	29,752	-19%
White oak group	11,856	5,681	-52%
Black locust	1	--	--
Willow	49	49	0%
Basswood	13,265	11,235	-15%
Elm	777	892	15%
Other hardwoods	6,717	71	-99%
Total	160,227	110,776	-31%
All species	300,061	257,098	-14%

Table 9B.—Saw log receipts by species group, Minnesota, 2001 and 2004

(In thousand board feet)

Species group	2001	2004	Change
Softwood			
Fir	4,611	5,058	10%
Redcedar	182	49	-73%
Tamarack	882	827	-6%
Spruce	9,214	12,062	31%
Jack pine	81,513	74,116	-9%
Red pine	53,277	62,724	18%
White pine	7,168	4,929	-31%
Other pines	--	9	--
Northern white-cedar	--	3,212	--
Total	156,847	162,984	4%
Hardwood			
Soft maple	1,875	964	-49%
Hard maple	4,391	4,164	-5%
White birch	12,562	11,399	-9%
River birch	4	0	-100%
Yellow birch	66	5	-92%
Hickory	264	273	3%
Hackberry	--	1	--
Ash	6,651	3,958	-40%
Butternut	127	60	-53%
Black walnut	294	778	165%
Cottonwood	3,263	4,616	41%
Balsam poplar	434	33	-92%
Aspen	64,408	37,584	-42%
Black cherry	640	205	-68%
Red oak group	28,998	25,253	-13%
White oak group	13,048	4,666	-64%
Basswood	12,830	10,921	-15%
Elm	637	813	28%
Other hardwoods	6,748	71	-99%
Total	157,240	105,766	-33%
All species	314,087	268,750	-14%

Table 10.—Saw log production by Forest Inventory Unit, species group, and state/country of destination, Minnesota 2004

(In thousand board feet) [1]

All Units

Species	Total	Destination					
		Iowa	Michigan	Minnesota	South Dakota	Wisconsin	Canada
Softwoods							
Fir	4,198	--	--	4,094	--	--	103
Redcedar	48	--	--	48	--	--	--
Tamarack	825	--	--	825	--	--	--
Spruce	9,505	--	--	9,156	--	--	349
Jack pine	69,564	--	738	67,989	--	--	837
Red pine	54,690	--	874	52,586	--	855	375
White pine	4,290	--	--	4,290	--	--	--
Northern white-cedar	3,202	--	--	3,202	--	--	--
Total	146,322	--	1,612	142,190	--	855	1,664
Hardwoods							
Soft maple	1,171	11	--	964	--	195	--
Hard maple	4,664	15	--	3,923	--	727	--
White birch	11,330	--	--	11,317	--	13	--
River birch	0	--	--	0	--	--	--
Yellow birch	5	--	--	5	--	--	--
Hickory	414	21	--	218	--	175	--
Hackberry	7	--	--	1	--	6	--
Beech	87	--	--	--	--	87	--
Ash	4,100	3	--	3,899	3	195	--
Butternut	64	--	--	60	--	4	--
Black walnut	878	--	--	710	4	164	--
Cottonwood	5,705	1,353	--	4,328	23	1	--
Balsam poplar	33	--	--	33	--	--	--
Aspen	34,384	36	--	34,163	--	185	--
Black cherry	254	--	--	178	--	77	--
Red oak group	29,752	530	--	24,530	--	4,692	--
White oak group	5,681	145	--	4,506	--	1,030	--
Willow	49	49	--	--	--	--	--
Basswood	11,235	225	--	10,752	--	258	--
Elm	892	6	--	813	0	72	--
Other hardwoods	71	--	--	71	--	--	--
Total	110,776	2,394	--	100,471	30	7,881	--
All species	257,098	2,394	1,612	242,661	30	8,736	1,664

Aspen-Birch

Species	Total	Destination					
		Iowa	Michigan	Minnesota	South Dakota	Wisconsin	Canada
Softwoods							
Fir	1,953	--	--	1,849	--	--	103
Tamarack	643	--	--	643	--	--	--
Spruce	6,815	--	--	6,466	--	--	349
Jack pine	9,759	--	352	8,570	--	--	837
Red pine	18,420	--	525	17,347	--	172	375
White pine	2,393	--	--	2,393	--	--	--
Northern white-cedar	2,942	--	--	2,942	--	--	--
Total	42,925	--	877	40,210	--	172	1,664
Hardwoods							
Soft maple	83	--	--	83	--	--	--
Hard maple	365	--	--	365	--	--	--
White birch	5,351	--	--	5,351	--	--	--
Yellow birch	2	--	--	2	--	--	--
Ash	713	--	--	713	--	--	--
Balsam poplar	20	--	--	20	--	--	--
Aspen	8,588	--	--	8,588	--	--	--
Red oak group	823	--	--	823	--	--	--
White oak group	61	--	--	61	--	--	--
Basswood	1,220	--	--	1,220	--	--	--
Other hardwoods	20	--	--	20	--	--	--
Total	17,246	--	--	17,246	--	--	--
All species	60,171	--	877	57,456	--	172	1,664

(Table 10 continued on next page)

(Table 10 continued)

Central Hardwood

Species	Total	Destination: Iowa	Michigan	Minnesota	South Dakota	Wisconsin	Canada
Softwoods							
Fir	15	--	--	15	--	--	--
Redcedar	11	--	--	11	--	--	--
Tamarack	12	--	--	12	--	--	--
Spruce	36	--	--	36	--	--	--
Jack pine	3,798	--	23	3,775	--	--	--
Red pine	5,319	--	37	4,904	--	378	--
White pine	572	--	--	572	--	--	--
Total	9,763	--	60	9,325	--	378	--
Hardwoods							
Soft maple	700	6	--	498	--	195	--
Hard maple	2,415	8	--	1,680	--	727	--
White birch	189	--	--	176	--	13	--
Hickory	366	11	--	180	--	175	--
Hackberry	7	--	--	1	--	6	--
Beech	87	--	--	--	--	87	--
Ash	974	2	--	777	--	195	--
Butternut	58	--	--	54	--	4	--
Black walnut	598	--	--	434	--	164	--
Cottonwood	2,124	1142	--	980	--	1	--
Aspen	6,799	18	--	6,597	--	185	--
Black cherry	242	--	--	166	--	77	--
Red oak group	14,178	515	--	8,971	--	4,692	--
White oak group	4,155	112	--	3,012	--	1,030	--
Willow	39	39	--	--	--	--	--
Basswood	2,996	161	--	2,577	--	258	--
Elm	814	3	--	739	--	72	--
Total	36,741	2017	--	26,842	--	7,881	--
All species	46,504	2017	60	36,167	--	8,259	--

Northern Pine

Species	Total	Destination Iowa	Michigan	Minnesota	South Dakota	Wisconsin	Canada
Softwoods							
Fir	2,207	--	--	2,207	--	--	--
Tamarack	170	--	--	170	--	--	--
Spruce	2,649	--	--	2,649	--	--	--
Jack pine	56,007	--	364	55,644	--	--	--
Red pine	30,809	--	312	30,192	--	305	--
White pine	1,325	--	--	1,325	--	--	--
Northern white-cedar	260	--	--	260	--	--	--
Total	93,427	--	676	92,447	--	305	--
Hardwoods							
Soft maple	298	--	--	298	--	--	--
Hard maple	1,547	--	--	1,547	--	--	--
White birch	5,767	--	--	5,767	--	--	--
Yellow birch	2	--	--	2	--	--	--
Hickory	0	--	--	0	--	--	--
Ash	2,254	--	--	2,254	--	--	--
Butternut	6	--	--	6	--	--	--
Cottonwood	273	--	--	273	--	--	--
Balsam poplar	13	--	--	13	--	--	--
Aspen	18,960	--	--	18,960	--	--	--
Black cherry	0	--	--	0	--	--	--
Red oak group	13,800	--	--	13,800	--	--	--
White oak group	941	--	--	941	--	--	--
Basswood	5,641	--	--	5,641	--	--	--
Elm	0	--	--	0	--	--	--
Other hardwoods	50	--	--	50	--	--	--
Total	49,552	--	--	49,552	--	--	--
All species	142,979	--	676	141,999	--	305	--

(Table 10 continued on next page)

(Table 10 continued)

Prairie

Species	Total	Destination: Iowa	Michigan	Minnesota	South Dakota	Wisconsin	Canada
Softwoods							
Fir	23	--	--	23	--	--	--
Redcedar	37	--	--	37	--	--	--
Spruce	5	--	--	5	--	--	--
Red pine	143	--	--	143	--	--	--
White pine	0	--	--	0	--	--	--
Total	208	--	--	208	--	--	--
Hardwoods							
Soft maple	90	5	--	85	--	--	--
Hard maple	337	7	--	330	--	--	--
White birch	23	--	--	23	--	--	--
River birch	0	--	--	0	--	--	--
Yellow birch	0	--	--	0	--	--	--
Hickory	48	10	--	38	--	--	--
Ash	160	1	--	156	3	--	--
Black walnut	280	--	--	276	4	--	--
Cottonwood	3,308	211	--	3,074	23	--	--
Aspen	36	18	--	18	--	--	--
Black cherry	12	--	--	12	--	--	--
Red oak group	950	15	--	935	--	--	--
White oak group	524	33	--	491	--	--	--
Willow	10	10	--	--	--	--	--
Basswood	1,379	64	--	1,315	--	--	--
Elm	78	3	--	74	0	--	--
Other Hardwoods	1	--	--	1	--	--	--
Total	7,236	377	--	6,828	30	--	--
All species	150,215	377	--	7,036	30	--	--

[1]International 1/4-inch rule.

Table 11.—Saw log production by Forest Inventory Unit, county, and species group, Minnesota, 2004

(In thousand board feet) [1]

Unit and county	Fir	Red-cedar	Tama-rack	Spruce	Jack pine	Red pine	White pine	N. white cedar	Total swds.	Soft maple	Hard maple	White birch	River birch	Yellow birch	Hickory	Hack-berry
Aspen-Birch																
Carlton	41	--	--	97	90	1,147	52	6	1,433	1	5	8	--	1	--	--
Cook	628	--	3	1,066	782	1,510	162	1	4,151	--	--	1,234	--	--	--	--
Koochiching	788	--	560	971	1,657	2,472	249	1,571	8,268	0	33	423	--	--	--	--
Lake	86	--	3	1,762	1,235	3,717	172	46	7,021	1	--	1,761	--	1	--	--
St Louis	409	--	78	2,918	5,995	9,574	1,758	1,318	22,050	81	327	1,925	--	--	--	--
Total	1,953	--	643	6,815	9,759	18,420	2,393	2,942	42,924	83	365	5,351	--	2	--	--
Central Hardwood																
Anoka	--	--	--	1	139	38	65	--	242	--	4	0	--	--	--	--
Benton	--	--	--	0	81	713	1	--	796	--	0	3	--	--	--	--
Carver	--	1	--	--	4	1	12	--	19	--	19	1	--	--	--	--
Chisago	--	--	--	0	--	95	50	--	145	--	112	--	--	--	22	--
Dakota	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--	--
Douglas	--	--	--	1	1	3	--	--	5	5	8	--	--	--	--	--
Fillmore	--	--	--	--	--	--	11	--	11	0	545	5	--	--	45	--
Goodhue	--	--	--	3	--	--	2	--	5	128	311	4	--	--	28	--
Hennepin	--	1	--	1	209	2	1	--	213	--	15	0	--	--	--	--
Houston	--	--	--	--	--	--	4	--	4	110	390	6	--	--	111	2
Isanti	--	--	--	--	80	602	119	--	801	--	2	--	--	--	--	--
Kanabec	--	--	--	--	24	59	36	--	119	20	27	22	--	--	--	--
Le Sueur	--	1	--	1	--	0	--	--	2	9	10	2	--	--	9	--
Mille Lacs	--	1	--	5	25	35	55	--	120	30	111	88	--	--	--	--
Morrison	--	--	3	8	1,021	926	10	--	1,966	--	--	8	--	--	0	--
Olmsted	--	--	--	--	--	--	--	--	--	3	70	7	--	--	19	--
Otter Tail	--	--	--	3	9	8	11	--	31	17	37	10	--	--	--	--
Pine	11	--	--	6	984	1,332	164	--	2,497	--	339	3	--	--	65	--
Ramsey	--	--	--	--	116	2	2	--	120	--	--	--	--	--	--	--
Rice	--	1	--	2	--	6	--	--	9	1	18	4	--	--	10	--
Scott	--	2	--	0	4	1	6	--	14	7	42	--	--	--	--	--
Sherburne	--	--	--	0	921	1,123	0	--	2,045	--	--	6	--	--	--	--
Stearns	--	1	--	--	0	128	1	--	130	--	--	--	--	--	--	--
Todd	4	4	9	4	178	129	9	--	337	9	9	10	--	--	--	--
Wabasha	--	--	--	0	--	5	7	--	12	256	206	2	--	--	24	2
Washington	--	--	--	--	--	5	0	--	5	0	0	--	--	--	0	1
Winona	--	--	--	--	--	5	6	--	12	54	116	6	--	--	32	2
Wright	--	--	1	--	--	100	0	--	101	50	25	--	--	--	--	--
Total	15	11	12	36	3,798	5,319	572	--	9,763	700	2,415	189	--	--	366	7
Northern Pine																
Aitkin	67	--	--	87	358	1,878	91	0	2,480	154	461	1,030	--	0	--	--
Becker	279	--	--	262	1,535	691	7	--	2,774	5	--	5	--	--	--	--
Beltrami	286	--	53	414	15,795	2,967	251	47	19,815	--	--	362	--	--	--	--
Cass	221	--	--	162	5,958	5,108	171	5	11,623	--	5	962	--	1	--	--
Clearwater	341	--	46	211	1,673	774	137	--	3,182	--	--	195	--	--	--	--

(Table 11 continued on next page)

(Table 11 continued)

Crow Wing	66	--	2	108	4,363	3,015	154	--	7,707	20	62	140	--	--	0	--
Hubbard	193	--	3	260	15,504	6,021	179	--	22,159	--	1	147	--	--	--	--
Itasca	591	--	5	673	3,904	7,401	314	77	12,964	119	1,018	2,922	--	1	--	--
Lake of the Woods	87	--	0	221	1,451	800	1	129	2,689	--	--	1	--	--	--	--
Mahnomen	--	--	--	0	32	--	--	--	32	--	--	--	--	--	--	--
Roseau	75	--	1	249	1,737	598	13	2	2,674	1	--	1	--	--	--	--
Wadena	--	--	60	2	3,698	1,558	8	--	5,327	--	--	1	--	--	--	--
Total	2,207	--	170	2,649	56,007	30,809	1,325	260	93,427	298	1,547	5,767	--	2	0	--
Prairie																
Blue Earth	--	1	--	--	--	0	0	--	1	9	68	3	--	--	1	--
Brown	--	0	--	--	--	--	0	--	1	15	38	--	--	--	7	--
Chippewa	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Clay	--	--	--	--	--	--	--	--	--	--	--	7	--	--	--	--
Cottonwood	--	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--
Dodge	--	--	--	--	--	--	--	--	--	--	7	4	--	--	--	--
Faribault	--	1	--	--	--	--	--	--	1	5	82	--	--	--	25	--
Freeborn	--	--	--	--	--	9	--	--	9	--	--	--	--	--	--	--
Grant	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Jackson	--	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--
Kandiyohi	--	--	--	--	--	3	--	--	3	--	1	--	--	--	--	--
Kittson	--	--	--	--	--	--	--	--	--	--	3	--	--	--	--	--
Lac Qui Parle	--	0	--	--	--	--	--	--	0	--	--	--	--	--	--	--
Lincoln	--	8	--	--	--	--	--	--	8	--	--	--	--	--	1	--
Lyon	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Marshall	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--
Martin	--	--	--	--	--	--	--	--	--	3	--	--	--	--	--	--
McLeod	--	0	--	--	--	--	--	--	0	8	5	--	--	--	--	--
Meeker	--	1	--	--	--	2	--	--	3	--	1	--	--	--	--	--
Mower	--	--	--	0	--	10	--	--	10	--	--	--	--	--	--	--
Murray	--	--	--	--	--	--	--	--	--	2	0	--	--	--	--	--
Nicollet	--	0	--	--	--	--	--	--	0	15	65	--	--	--	14	--
Nobles	--	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--
Norman	--	--	--	--	--	--	--	--	--	--	--	--	0	0	--	--
Pennington	--	--	--	0	--	--	--	--	0	--	--	--	--	--	--	--
Pipestone	--	8	--	--	--	100	--	--	108	--	--	--	--	--	--	--
Polk	23	2	--	2	--	--	--	--	26	--	--	1	--	--	--	--
Pope	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--	--
Red Lake	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Redwood	--	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--
Renville	--	1	--	--	--	--	--	--	1	0	--	--	--	--	--	--
Rock	--	6	--	--	--	6	--	--	11	--	6	--	--	--	--	--
Sibley	--	--	--	--	--	--	--	--	--	--	49	--	--	--	--	--
Steele	--	1	--	2	--	11	--	--	13	--	0	--	--	--	--	--
Stevens	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Swift	--	--	--	--	--	--	--	--	--	--	--	4	--	--	--	--
Waseca	--	--	--	1	--	1	--	--	2	--	10	2	--	--	--	--
Watonwan	--	--	--	--	--	--	--	--	--	28	--	--	--	--	--	--
Yellow Medicine	--	8	--	--	--	1	--	--	9	--	--	--	--	--	--	--
Total	23	37	--	5	--	143	0	--	208	90	337	23	0	0	48	--
State total	4,198	48	825	9,505	69,564	54,690	4,290	3,202	146,322	1,171	4,664	11,330	0	5	414	7

Unit and county	Beech	Ash	Butter-nut	Black walnut	Cotton-wood	Balsam poplar	Aspen	Black cherry	Red oak group	White oak group	Willow	Bass-wood	Elm	Other hwds.	Total hwds.	All species
Aspen-Birch																
Carlton	--	29	--	--	--	--	662	--	760	1	--	316	--	--	1,784	3,217
Cook	--	--	--	--	--	--	896	--	--	--	--	--	--	--	2,130	6,281
Koochiching	--	221	--	--	--	--	4,807	--	14	52	--	511	--	--	6,061	14,330
Lake	--	34	--	--	--	--	108	--	3	--	--	13	--	--	1,920	8,942
St Louis	--	429	--	--	--	20	2,116	--	47	8	--	380	--	20	5,352	27,402
Total	--	713	--	--	--	20	8,588	--	823	61	--	1,220	--	20	17,247	60,171
Central Hardwood																
Anoka	--	20	--	--	120	--	798	--	113	34	--	1	--	--	1,090	1,332
Benton	--	4	--	--	0	--	34	--	27	23	--	0	0	--	92	887
Carver	--	0	--	1	112	--	5	4	26	43	--	19	1	--	231	250
Chisago	22	47	0	2	--	--	3	--	586	40	--	22	2	--	857	1,002
Dakota	--	7	--	4	13	--	--	6	21	54	--	--	8	--	115	115
Douglas	--	17	--	--	--	--	8	--	21	40	--	106	--	--	205	210
Fillmore	--	115	5	115	136	--	--	28	1,499	795	--	502	100	--	3,890	3,901
Goodhue	--	126	22	73	20	--	7	54	1,320	406	--	416	62	--	2,978	2,983
Hennepin	--	4	--	7	30	--	1,180	4	31	20	--	2	448	--	1,740	1,954
Houston	--	115	4	202	189	--	97	63	2,797	817	11	374	69	--	5,357	5,362
Isanti	--	8	--	--	91	--	9	--	86	3	--	2	--	--	201	1,002
Kanabec	--	52	1	--	--	--	146	--	485	11	--	54	--	--	817	936
Le Sueur	--	6	3	42	104	--	--	2	55	43	28	75	1	--	389	390
Mille Lacs	--	106	3	--	--	--	170	--	1,625	106	--	149	1	--	2,389	2,509
Morrison	--	2	--	--	--	--	410	0	184	124	--	11	--	--	738	2,704
Olmsted	--	33	6	46	2	--	1	9	545	147	--	195	26	--	1,109	1,109
Otter Tail	--	66	--	--	--	--	1,974	--	197	98	--	264	4	--	2,666	2,697
Pine	66	76	0	--	--	--	537	--	1,600	71	--	154	--	--	2,911	5,409
Ramsey	--	1	--	2	47	--	657	9	32	1	--	--	2	--	750	870
Rice	--	10	9	5	1	--	1	8	91	30	--	38	5	--	231	240
Scott	--	2	--	6	248	--	5	4	34	38	--	28	6	--	419	432
Sherburne	--	--	--	--	--	--	12	--	24	0	--	--	--	--	43	2,088
Stearns	--	1	--	8	--	--	21	--	126	102	--	38	--	--	296	426
Todd	--	24	--	--	4	--	614	--	178	136	--	71	4	--	1,061	1,398
Wabasha	--	48	4	24	792	--	33	22	1,072	502	--	245	32	--	3,265	3,277
Washington	--	22	--	3	12	--	--	2	27	2	--	--	--	--	69	75
Winona	--	55	1	60	139	--	76	28	1,273	384	--	175	41	--	2,442	2,454
Wright	--	8	--	--	64	--	--	--	104	85	--	53	2	--	391	492
Total	87	974	58	598	2,124	--	6,799	242	14,178	4,155	39	2,996	814	--	36,741	46,503
Northern Pine																
Aitkin	--	628	6	--	--	7	2,135	--	6,282	167	--	1,153	--	--	12,023	14,503
Becker	--	30	--	--	113	--	186	--	193	21	--	104	0	--	658	3,432
Beltrami	--	282	--	--	63	--	4,161	--	430	124	--	1,018	--	--	6,441	26,256
Cass	--	389	--	--	--	--	2,267	--	2,869	236	--	1,226	--	--	7,954	19,577
Clearwater	--	67	--	--	31	--	805	--	39	56	--	367	--	50	1,611	4,793

(Table 11 continued on next page)

(Table 11 continued)

Crow Wing	--	90	--	--	2	--	317	0	1,078	117	--	129	--	--	1,955	9,662
Hubbard	--	25	--	--	--	--	125	--	335	12	--	85	--	--	730	22,889
Itasca	--	670	--	--	--	7	6,286	--	2,476	104	--	1,556	--	--	15,159	28,122
Lake of the Woods	--	38	--	--	--	--	232	--	2	5	--	--	--	--	277	2,967
Mahnomen	--	6	--	--	64	--	66	--	--	2	--	0	--	--	139	171
Roseau	--	15	--	--	1	--	19	--	1	2	--	0	--	--	40	2,715
Wadena	--	13	--	--	--	--	2,361	--	95	95	--	2	--	--	2,568	7,895
Total	--	2,254	6	--	273	13	18,960	0	13,800	941	--	5,641	0	50	49,554	142,981
Prairie																
Blue Earth	--	5	--	29	68	--	2	--	44	56	--	48	1	1	335	336
Brown	--	5	--	42	20	--	--	--	27	38	--	84	9	--	285	286
Chippewa	--	--	--	4	--	--	--	--	1	0	--	--	--	--	5	5
Clay	--	--	--	--	--	--	--	--	--	--	--	30	--	--	37	37
Cottonwood	--	1	--	--	8	--	0	--	--	--	--	--	--	--	11	11
Dodge	--	3	--	15	19	--	--	1	61	54	--	70	0	--	236	236
Faribault	--	41	--	43	111	--	19	3	404	127	10	93	42	--	1,005	1,006
Freeborn	--	14	--	--	140	--	3	4	55	93	--	--	--	--	308	317
Grant	--	--	--	--	--	--	1	--	--	--	--	3	--	--	4	4
Jackson	--	1	--	--	3	--	--	--	--	--	--	--	--	--	5	5
Kandiyohi	--	11	--	5	--	--	2	--	2	17	--	28	--	--	65	68
Kittson	--	--	--	--	--	--	--	--	44	12	--	46	--	--	105	105
Lac Qui Parle	--	1	--	0	8	--	--	--	--	--	--	--	1	--	10	10
Lincoln	--	4	--	2	24	--	--	--	--	--	--	3	--	1	34	42
Lyon	--	1	--	1	--	--	--	--	--	0	--	--	--	--	2	2
Marshall	--	--	--	--	--	--	--	--	44	--	--	--	--	--	45	45
Martin	--	2	--	4	--	--	--	--	0	--	--	--	0	--	8	8
McLeod	--	--	--	--	54	--	--	--	4	7	--	58	0	--	137	137
Meeker	--	9	--	3	--	--	--	0	3	11	--	31	--	--	57	61
Mower	--	6	--	1	238	--	--	1	37	20	--	46	--	--	350	360
Murray	--	2	--	--	8	--	--	--	--	--	--	--	--	--	12	12
Nicollet	--	2	--	64	104	--	--	3	44	17	--	93	12	--	434	434
Nobles	--	1	--	--	8	--	--	--	--	--	--	--	--	--	11	11
Norman	--	--	--	--	--	--	--	--	15	--	--	77	--	--	92	92
Pennington	--	0	--	--	--	--	2	--	3	2	--	0	--	--	7	8
Pipestone	--	5	--	3	23	--	--	--	--	--	--	--	--	--	31	139
Polk	--	--	--	--	--	--	6	--	77	1	--	46	--	--	132	158
Pope	--	4	--	--	679	--	--	--	10	4	--	304	--	--	1,001	1,001
Red Lake	--	3	--	--	6	--	--	--	8	7	--	19	--	--	42	42
Redwood	--	1	--	--	44	--	--	--	--	--	--	--	--	--	47	47
Renville	--	2	--	1	--	--	--	--	1	1	--	1	1	--	8	9
Rock	--	25	--	7	36	--	--	--	--	--	--	--	0	--	75	86
Sibley	--	--	--	18	--	--	--	--	7	--	--	282	11	--	368	368
Steele	--	7	--	7	103	--	--	--	59	25	--	12	--	--	214	227
Stevens	--	--	--	--	900	--	--	--	--	--	--	--	--	--	900	900
Swift	--	0	--	--	676	--	--	--	1	1	--	4	--	--	685	685
Waseca	--	--	--	24	--	--	--	--	1	29	--	--	--	--	66	68
Watonwan	--	1	--	5	3	--	--	--	--	--	--	--	--	--	37	37
Yellow Medicine	--	4	--	2	23	--	--	--	--	--	--	--	--	--	29	38
Total	--	160	--	280	3,308	--	36	12	950	524	10	1,379	78	1	7,235	7,443
State total	87	4,100	64	878	5,705	33	34,384	254	29,752	5,681	49	11,235	892	71	110,777	257,099

[1] International 1/4-inch rule.

Table 12.—Saw log receipts by Forest Inventory Unit, species group, and state/country of origin, Minnesota, 2004

(In thousand board feet)[1]

Species group	Total	State/country of origin					
		Iowa	Michigan	Minnesota	North Dakota	Wisconsin	Canada
				All Units			
Softwood							
Fir	5,058	--	--	4,094	--	23	940
Redcedar	49	0	--	48	--	0	--
Tamarack	827	--	--	825	--	3	--
Spruce	12,062	--	--	9,156	--	74	2,832
Jack pine	74,116	--	--	67,989	--	4,539	1,588
Red pine	62,724	0	--	52,586	--	10,097	40
White pine	4,929	--	--	4,290	--	325	313
Other pine	9	--	--	--	--	--	9
Northern white-cedar	3,212	--	10	3,202	--	--	--
Total	162,984	1	10	142,190	--	15,062	5,722
Hardwood							
Soft maple	964	--	--	964	--	--	--
Hard maple	4,164	172	--	3,923	--	70	--
White birch	11,399	--	--	11,317	--	7	75
River birch	0	--	--	0	--	--	--
Yellow birch	5	--	--	5	--	--	--
Hickory	273	20	--	218	--	35	--
Hackberry	1	--	--	1	--	--	--
Ash	3,958	13	--	3,899	--	41	5
Butternut	60	--	--	60	--	--	--
Black walnut	778	37	--	710	--	31	--
Cottonwood	4,616	1	--	4,328	31	257	--
Balsam poplar	33	--	--	33	--	--	--
Aspen	37,584	--	--	34,163	48	4	3,369
Black cherry	205	13	--	178	--	15	--
Red oak group	25,253	303	--	24,530	--	416	4
White oak group	4,666	83	--	4,506	5	73	--
Basswood	10,921	60	--	10,752	--	109	--
Elm	813	--	--	813	--	0	--
Other hardwoods	71	--	--	71	--	--	--
Total	105,766	701	--	100,471	85	1,056	3,454
State total	268,750	702	10	242,660	85	16,118	9,176
				Aspen-Birch			
Softwood							
Fir	1,970	--	--	1,075	--	--	896
Redcedar	0	--	--	--	--	0	--
Tamarack	645	--	--	642	--	3	--
Spruce	6,089	--	--	3,680	--	6	2,404
Jack pine	3,047	--	--	2,301	--	--	746
Red pine	16,682	--	--	11,304	--	5,378	--
White pine	3,093	--	--	2,462	--	318	313
Northern white cedar	3,029	--	--	3,029	--	--	--
Total	34,557	--	--	24,493	--	5,705	4,359
Hardwood							
Soft maple	30	--	--	30	--	--	--
Hard maple	48	--	--	48	--	--	--
White birch	5,365	--	--	5,288	--	3	75
Yellow birch	2	--	--	2	--	--	--
Ash	631	--	--	623	--	2	5
Butternut	0	--	--	0	--	--	--
Balsam poplar	33	--	--	33	--	--	--
Aspen	10,060	--	--	6,690	--	1	3,369
Red oak group	133	--	--	104	--	29	--
White oak group	56	--	--	56	--	--	--
Basswood	520	--	--	520	--	--	--
Other hardwoods	20	--	--	20	--	--	--
Total	16,899	--	--	13,415	--	35	3,449
Unit total	51,456	--	--	37,908	--	5,740	7,808

(Table 12 continued on next page)

(Table 12 continued)

Species group	Total	State of origin					
		Iowa	Michigan	Minnesota	North Dakota	Wisconsin	Canada
Central Hardwood							
Softwood							
Fir	6	--	--	6	--	--	--
Redcedar	10	--	--	10	--	--	--
Tamarack	14	--	--	14	--	--	--
Spruce	39	--	--	39	--	--	--
Jack pine	2,521	--	--	2,512	--	9	--
Red pine	2,796	--	--	2,780	--	16	--
White pine	675	--	--	668	--	8	--
Other pine	9	--	--	--	--	--	9
Northern white-cedar	27	--	10	17	--	--	--
Total	6,097	--	10	6,046	--	32	9
Hardwood							
Soft maple	560	--	--	560	--	--	--
Hard maple	1,934	171	--	1,692	--	70	--
White birch	243	--	--	239	--	4	--
Hickory	224	20	--	169	--	35	--
Hackberry	1	--	--	1	--	--	--
Ash	900	12	--	850	--	38	--
Butternut	38	--	--	38	--	--	--
Black walnut	376	21	--	323	--	31	--
Cottonwood	1,026	--	--	1,026	--	1	--
Aspen	6,334	--	--	6,331	--	3	--
Black cherry	189	8	--	166	--	15	--
Red oak group	10,024	303	--	9,330	--	387	4
White oak group	3,137	83	--	2,982	--	73	--
Basswood	2,722	60	--	2,553	--	109	--
Elm	777	--	--	776	--	0	--
Other hardwoods	50	--	--	50	--	--	--
Total	28,535	678	--	27,087	--	765	4
Unit total	34,632	678	10	33,133	--	797	13
Northern Pine							
Softwood							
Fir	3,082	--	--	3,014	--	23	45
Tamarack	169	--	--	169	--	--	--
Spruce	5,926	--	--	5,430	--	68	428
Jack pine	66,951	--	--	61,580	--	4,530	841
Red pine	42,806	--	--	38,062	--	4,703	40
White pine	862	--	--	862	--	--	--
Northern white-cedar	155	--	--	155	--	--	--
Total	119,952	--	--	109,273	--	9,325	1,354
Hardwood							
Soft maple	274	--	--	274	--	--	--
Hard maple	1,844	--	--	1,844	--	--	--
White birch	5,765	--	--	5,765	--	--	--
Yellow birch	2	--	--	2	--	--	--
Hickory	1	--	--	1	--	--	--
Ash	2,243	--	--	2,243	--	--	--
Butternut	6	--	--	6	--	--	--
Cottonwood	496	--	--	209	31	256	--
Aspen	17,558	--	--	17,509	48	--	--
Black cherry	1	--	--	1	--	--	--
Red oak group	14,391	--	--	14,391	--	--	--
White oak group	969	--	--	964	5	--	--
Basswood	5,710	--	--	5,710	--	--	--
Total	49,259	--	--	48,919	85	256	--
Unit total	169,212	--	--	158,192	85	9,581	1,354

Species group	Total	State of origin					
		Iowa	Michigan	Minnesota	North Dakota	Wisconsin	Canada
			Prairie				
Softwood							
Redcedar	38	0	--	38	--	--	--
Spruce	7	--	--	7	--	--	--
Jack pine	1,596	--	--	1,596	--	--	--
Red pine	440	0	--	440	--	--	--
White pine	298	--	--	298	--	--	--
Total	2,379	1	--	2,378	--	--	--
Hardwood							
Soft maple	100	--	--	100	--	--	--
Hard maple	339	0	--	339	--	--	--
White birch	26	--	--	26	--	--	--
River birch	0	--	--	0	--	--	--
Yellow birch	0	--	--	0	--	--	--
Hickory	49	--	--	49	--	--	--
Ash	184	1	--	183	--	--	--
Butternut	16	--	--	16	--	--	--
Black walnut	402	16	--	386	--	--	--
Cottonwood	3,094	1	--	3,094	--	--	--
Aspen	3,632	--	--	3,632	--	--	--
Black cherry	16	5	--	11	--	--	--
Red oak group	705	--	--	705	--	--	--
White oak group	504	--	--	504	--	--	--
Basswood	1,968	--	--	1,968	--	--	--
Elm	37	--	--	37	--	--	--
Other hardwoods	1	--	--	1	--	--	--
Total	11,072	23	--	11,049	--	--	--
Unit total	13,451	24	--	13,428	--	--	--

0 = Less than 500 board feet.

[1] International 1/4-inch rule.

Table may not sum due to rounding.

Table 13.—Veneer log production by species group, Minnesota, 2001 and 2004

(In thousand board feet)[1]

Species group	2001	2004	Percent change
Soft maple	--	59	--
Hard maple	184	939	410%
River birch	11	--	--
White birch	4,494	2,328	-48%
Yellow birch	13	267	1954%
Hickory	--	12	--
Ash	8	10	25%
Black walnut	40	207	418%
Cottonwood	4		-100%
Aspen	4,328	2,104	-51%
Black cherry	86	145	69%
Red oak group	57	1,595	2698%
White oak group	21	12	-43%
Basswood	573	35	-94%
Other hardwoods	500		--
Total	10,319	7,716	-25%

[1] International 1/4-inch rule.

Table may not sum due to rounding.

Table 14.—Veneer log production by Forest Inventory Unit, species group, and state of destination, Minnesota, 2004

(In thousand board feet)[1]

Forest Inventory Unit and species group	Total	State of destination			
		Michigan	Minnesota	Ohio	Wisconsin
All Units					
Soft maple	59	--	--	--	59
Hard maple	939	--	--	184	755
White birch	2,328	--	2,170	--	158
Yellow birch	267	--	--	--	267
Hickory	12	--	--	--	12
Ash	10	--	--	1	9
Black walnut	207	--	--	40	167
Aspen	2,104	200	1,904	--	--
Black cherry	145	--	--	86	59
Red oak group	1,595	--	--	--	1,595
White oak group	12	--	--	--	12
Basswood	35	--	35	--	--
Total	7,716	200	4,109	311	3,096
Aspen-Birch					
Hard maple	21	--	--	21	--
White birch	1,836	--	1,836	--	--
Ash	0	--	--	0	--
Aspen	1,715	129	1,586	--	--
Total	3,572	129	3,423	21	--
Central Hardwood					
Soft maple	38	--	--	--	38
Hard maple	588	--	--	97	491
White birch	151	--	48	--	103
Yellow birch	174	--	--	--	174
Hickory	8	--	--	--	8
Ash	5	--	--	0	5
Black walnut	140	--	--	31	109
Aspen	83	41	42	--	--
Black cherry	124	--	--	86	38
Red oak group	1,036	--	--	--	1,036
White oak group	8	--	--	--	8
Basswood	35	--	35	--	--
Total	2,391	41	125	214	2,011

(Table 14 continued on next page)

(Table 14 continued)

Northern Pine					
Soft maple	21	--	--	--	21
Hard maple	306	--	--	42	264
White birch	341	--	286	--	55
Yellow birch	94	--	--	--	94
Hickory	4	--	--	--	4
Ash	5	--	--	1	4
Black walnut	58	--	--	--	58
Aspen	306	31	275	--	--
Black cherry	21	--	--	--	21
Red oak group	560	--	--	--	560
White oak group	4	--	--	--	4
Total	1,719	31	561	43	1,085
Prairie					
Hard maple	25	--	--	25	--
Ash	0	--	--	0	--
Black walnut	9	--	--	9	--
Total	34	--	--	34	--

0 = Less than 500 board feet.

[1] International 1/4-inch rule.

Table may not sum due to rounding.

Table 15.—Wood material harvested for industrial roundwood by Forest Inventory Unit, source of material, and species group, Minnesota, 2004

(In thousand cubic feet)

All Units

Species group	Growing Stock				Non growing stock									
	Used for product				Used for product									
	Sawtimber	Pole-timber	Logging residue (not used)	Total growing stock	Limbwood	Saplings	Cull trees	Dead trees	Nonforest trees	Logging slash (not used)	Total non growing stock	Total used	Total not used	Total harvested
Softwoods														
Fir	8,923.3	4,494.8	336.4	13,754.5	502.0	--	9.2	17.2	--	6,768.3	7,296.7	13,946.5	7,104.7	21,051.2
Redcedar	8.6	0.8	0.8	10.1	0.1	--	0.1	0.2	--	5.5	5.9	9.7	6.4	16.1
Tamarack	2,086.3	1,072.0	77.5	3,235.7	113.1	--	1.8	2.6	--	1,598.2	1,715.8	3,275.8	1,675.7	4,951.5
Spruce	9,741.4	4,539.9	424.6	14,705.8	487.9	--	20.9	31.0	--	7,326.6	7,866.4	14,821.1	7,751.1	22,572.2
Jack pine	20,019.1	5,268.2	1,432.0	26,719.3	610.4	--	153.0	222.6	--	13,935.7	14,921.7	26,273.3	15,367.7	41,641.0
Red pine	12,162.3	887.6	380.2	13,430.1	191.7	--	188.7	102.4	--	5,217.1	5,699.9	13,532.6	5,597.3	19,130.0
White pine	874.9	42.4	26.1	943.4	16.6	--	10.6	5.4	--	362.4	395.0	949.9	388.6	1,338.4
Other/unknown pine	3.9	2.1	0.1	6.2	0.2	--	--	--	--	3.0	3.2	6.3	3.2	9.4
Northern white-cedar	589.4	57.4	55.6	702.4	8.7	--	7.1	10.4	--	383.0	409.3	673.1	438.6	1,111.7
Total	54,409.2	16,365.2	2,733.3	73,507.5	1,930.7	--	391.4	391.8	--	35,599.8	38,313.9	73,488.3	38,333.3	111,821.5
Hardwoods														
Soft maple	2,131.4	2,928.5	220.7	5,280.6	177.0	15.3	239.2	5.0	--	2,662.9	3,099.3	5,496.3	2,883.6	8,379.9
Hard maple	1,643.5	1,481.2	268.2	3,392.9	126.7	24.3	137.6	7.9	--	1,502.4	1,798.8	3,421.1	1,770.6	5,191.8
White birch	9,039.0	10,530.2	1,124.6	20,693.8	607.8	40.4	933.4	13.1	--	10,407.5	12,002.2	21,163.8	11,532.1	32,695.9
River birch	0.0	0.0	0.0	0.0	0.0	--	0.0	--	--	0.0	0.0	0.0	0.0	0.0
Yellow birch	39.9	0.1	7.5	47.4	0.1	--	4.3	--	--	13.6	18.0	44.3	21.1	65.4
Hickory	61.7	5.6	15.8	83.0	0.4	--	2.3	--	--	37.7	40.4	69.9	53.5	123.4
Hackberry	1.0	0.1	0.3	1.4	0.0	--	0.0	--	--	0.6	0.7	1.2	0.9	2.1
Beech	12.6	1.2	3.3	17.1	0.1	--	0.4	--	--	7.8	8.4	14.3	11.1	25.4
Ash	1,117.8	802.9	201.0	2,121.7	42.4	0.8	83.0	0.2	--	1,062.5	1,188.9	2,047.1	1,263.5	3,310.6
Butternut	9.3	0.9	2.4	12.6	0.1	--	0.3	--	--	5.8	6.2	10.6	8.2	18.7
Black walnut	157.2	11.8	38.3	207.3	0.9	--	7.7	--	--	88.8	97.5	177.6	127.2	304.7
Cottonwood	841.3	101.1	213.8	1,156.3	6.9	--	30.6	--	--	533.8	571.4	979.9	747.7	1,727.6
Balsam poplar	3,615.9	5,104.0	334.8	9,054.7	251.0	0.3	429.2	0.1	--	4,805.0	5,485.6	9,400.4	5,139.9	14,540.3
Aspen	102,143.2	39,322.2	7,851.7	149,317.1	1,518.3	22.1	4,737.3	18.0	--	61,501.0	67,796.7	147,761.1	69,352.7	217,113.8
Black cherry	58.0	3.4	13.4	74.9	0.3	--	3.6	--	--	30.0	33.8	65.3	43.4	108.7
Other/unknown cherry	--	--	--	--	3.5	--	128.1	--	--	384.1	515.7	131.6	384.1	515.7
Red oak group	3,960.1	47.8	1,234.5	5,242.4	101.1	0.7	1,660.0	24.0	--	3,839.5	5,625.2	5,793.6	5,074.0	10,867.5
White oak group	866.7	21.6	249.9	1,138.1	30.9	0.8	326.4	4.8	--	762.0	1,124.9	1,251.1	1,011.8	2,262.9
Willow	7.0	0.7	1.8	9.5	0.0	--	0.2	--	--	4.3	4.6	8.0	6.2	14.1
Basswood	2,319.1	1,231.1	479.4	4,029.7	86.5	10.4	139.1	3.4	--	1,898.0	2,137.2	3,789.5	2,377.4	6,166.9
Elm	171.4	72.1	37.1	280.6	3.8	--	9.5	--	--	136.4	149.8	256.8	173.6	430.4
Other/unknown hwds	10.3	1.0	2.6	13.8	0.1	--	0.4	--	--	6.4	6.8	11.6	9.0	20.6
Total	128,206.4	61,667.5	12,301.1	202,174.9	2,957.9	115.1	8,872.6	76.5	--	89,690.1	101,712.1	201,895.1	101,991.6	303,886.4
All species	182,615.6	78,032.7	15,034.4	275,682.4	4,888.6	115.1	9,264.0	468.3	--	125,289.9	140,026.0	275,383.4	140,324.9	415,707.9

(Table 15 continued on next page)

(Table 15 continued)

Aspen-Birch

Species group	Growing Stock				Non growing stock									
	Used for product					Used for product								
	Sawtimber	Pole-timber	Logging residue (not used)	Total growing stock	Limbwood	Saplings	Cull trees	Dead trees	Nonforest trees	Logging slash (not used)	Total non growing stock	Total used	Total not used	Total harvested
Softwoods														
Fir	6,070.1	3,140.9	219.4	9,430.4	342.0	--	4.3	7.8	--	4,639.0	4,993.1	9,565.1	4,858.4	14,423.6
Tamarack	1,203.6	604.9	46.6	1,855.1	64.0	--	1.4	2.1	--	918.3	985.7	1,875.9	964.8	2,840.8
Spruce	7,256.9	3,402.5	313.2	10,972.6	366.4	--	15.0	22.3	--	5,462.1	5,865.9	11,063.2	5,775.4	16,838.5
Jack pine	4,543.5	1,686.4	257.7	6,487.6	185.0	--	21.5	31.2	--	3,299.8	3,537.4	6,467.6	3,557.4	10,025.0
Red pine	4,077.2	291.8	124.2	4,493.3	66.3	--	62.3	34.1	--	1,753.9	1,916.7	4,531.8	1,878.1	6,409.9
White pine	483.0	26.4	14.3	523.8	6.8	--	6.3	3.0	--	205.4	221.5	525.6	219.7	745.3
Northern white-cedar	535.2	52.5	50.4	638.1	8.0	--	6.5	9.4	--	347.9	371.8	611.6	398.3	1,009.9
Total	24,169.5	9,205.4	1,025.8	34,400.9	1,038.5	--	117.3	109.9	--	16,626.4	17,892.1	34,640.8	17,652.1	52,293.0
Hardwoods														
Soft maple	942.7	1,377.3	87.1	2,407.0	80.8	6.2	111.1	2.0	--	1,227.9	1,428.0	2,520.0	1,315.0	3,835.0
Hard maple	524.9	783.3	53.7	1,361.8	63.4	11.6	58.1	3.7	--	625.0	761.8	1,444.9	678.7	2,123.6
White birch	4,636.9	5,401.7	573.3	10,611.8	321.4	25.2	483.5	8.1	--	5,280.2	6,118.5	10,876.9	5,853.5	16,730.3
Yellow birch	0.3	0.0	0.1	0.4	0.0	--	0.0	--	--	0.2	0.2	0.4	0.3	0.7
Ash	322.1	325.9	46.5	694.6	17.7	0.7	29.6	0.2	--	353.4	401.6	696.2	400.0	1,096.2
Balsam poplar	2,011.1	2,838.9	186.3	5,036.2	139.7	0.2	238.7	0.1	--	2,672.2	3,050.9	5,228.7	2,858.4	8,087.1
Aspen	40,642.7	15,541.7	3,115.1	59,299.5	580.3	6.4	1,914.6	5.3	--	24,392.5	26,899.0	58,691.0	27,507.5	86,198.5
Other/unknown cherry	--	--	--	--	1.6	--	57.0	--	--	171.1	229.7	58.6	171.1	229.7
Red oak group	105.6	4.6	33.2	143.4	2.9	--	45.5	0.7	--	107.4	156.5	159.3	140.6	299.9
White oak group	8.7	1.6	2.5	12.9	0.3	--	3.5	0.0	--	9.2	13.0	14.2	11.7	25.9
Basswood	418.4	376.3	67.2	861.9	22.7	1.8	34.9	0.6	--	426.3	486.3	854.6	493.5	1,348.2
Elm	19.0	26.8	1.8	47.5	1.3	--	2.3	--	--	25.2	28.8	49.3	27.0	76.3
Other/unknown hwds	2.9	0.3	0.7	3.9	0.0	--	0.1	--	--	1.8	1.9	3.3	2.5	5.8
Total	49,635.3	26,678.4	4,167.5	80,480.9	1,232.1	52.1	2,978.9	20.7	--	35,292.4	39,576.2	80,597.4	39,459.8	120,057.2
All species	73,804.8	35,883.8	5,193.3	114,881.8	2,270.6	52.1	3,096.2	130.6	--	51,918.8	57,468.3	115,238.2	57,111.9	172,350.2

Central Hardwood

Species group	Growing Stock				Non growing stock									
	Used for product				Used for product									
	Sawtimber	Pole-timber	Logging residue (not used)	Total growing stock	Limbwood	Saplings	Cull trees	Dead trees	Nonforest trees	Logging slash (not used)	Total non growing stock	Total used	Total not used	Total harvested
Softwoods														
Fir	120.9	46.1	2.8	169.8	19.1	--	0.0	2.0	--	66.0	87.0	188.1	68.8	256.8
Redcedar	2.0	0.2	0.2	2.4	0.0	--	0.0	0.0	--	1.3	1.4	2.3	1.5	3.8
Tamarack	31.9	16.4	1.2	49.5	1.7	--	0.0	0.0	--	24.4	26.2	50.1	25.6	75.7
Spruce	66.3	33.2	2.6	102.1	3.5	--	0.1	0.1	--	50.6	54.3	103.3	53.1	156.4
Jack pine	947.5	208.2	73.4	1,229.1	25.0	--	8.4	12.2	--	648.1	693.6	1,201.2	721.5	1,922.7
Red pine	1,233.9	112.0	34.9	1,380.8	26.0	--	21.7	13.7	--	547.3	608.7	1,407.4	582.2	1,989.5
White pine	121.5	4.6	3.3	129.3	4.2	--	1.2	0.8	--	48.2	54.4	132.3	51.5	183.8
Other/unknown pine	0.3	0.2	0.0	0.5	0.0	--	--	--	--	0.2	0.3	0.5	0.3	0.7
Total	2,524.3	420.9	118.4	3,063.5	79.5	--	31.4	28.8	--	1,386.1	1,525.9	3,085.2	1,504.5	4,589.4
Hardwoods														
Soft maple	385.7	480.0	50.3	916.1	40.2	7.7	37.4	2.5	--	414.0	501.7	953.5	464.3	1,417.8
Hard maple	568.7	341.9	114.3	1,024.9	43.6	12.1	37.5	3.9	--	389.1	486.3	1,007.7	503.5	1,511.2
White birch	643.1	989.5	61.1	1,693.7	80.5	14.8	74.2	4.8	--	772.2	946.5	1,806.8	833.4	2,640.2
Yellow birch	25.5	--	4.8	30.2	0.1	--	2.8	--	--	8.6	11.4	28.3	13.4	41.6
Hickory	54.1	4.9	13.8	72.8	0.4	--	2.0	--	--	33.2	35.5	61.3	47.0	108.3
Hackberry	1.0	0.1	0.3	1.4	0.0	--	0.0	--	--	0.6	0.7	1.2	0.9	2.1
Beech	12.6	1.2	3.3	17.1	0.1	--	0.4	--	--	7.8	8.4	14.3	11.1	25.4
Ash	184.3	73.8	40.3	298.5	4.0	0.0	10.0	0.0	--	144.4	158.5	272.2	184.7	456.9
Butternut	8.4	0.8	2.2	11.4	0.1	--	0.3	--	--	5.2	5.6	9.6	7.4	17.0
Black walnut	106.8	8.0	26.1	140.9	0.6	--	5.2	--	--	60.4	66.3	120.7	86.5	207.2
Cottonwood	306.7	28.5	79.0	414.1	2.1	--	10.6	--	--	190.1	202.8	347.9	269.1	616.9
Balsam poplar	41.3	58.5	3.8	103.6	2.9	0.0	4.9	0.0	--	54.8	62.7	107.7	58.6	166.3
Aspen	8,563.3	3,546.0	659.6	12,768.8	224.2	11.9	381.9	9.7	--	5,086.7	5,714.4	12,736.9	5,746.3	18,483.3
Black cherry	53.3	3.2	12.4	68.9	0.3	--	3.2	--	--	27.9	31.3	60.0	40.3	100.3
Other/unknown cherry	--	--	--	--	0.6	--	20.6	--	--	61.9	83.1	21.2	61.9	83.1
Red oak group	1,929.3	26.1	596.0	2,551.3	48.6	0.4	795.6	11.5	--	1,845.3	2,701.4	2,811.4	2,441.3	5,252.7
White oak group	673.3	14.5	188.6	876.5	25.0	0.5	242.3	3.5	--	567.4	838.8	959.2	756.1	1,715.2
Willow	5.6	0.5	1.4	7.5	0.0	--	0.2	--	--	3.5	3.7	6.3	4.9	11.2
Basswood	511.2	200.5	117.3	829.0	23.0	5.7	24.4	1.8	--	351.6	406.5	766.5	468.9	1,235.4
Elm	124.4	20.6	30.9	176.0	1.3	--	4.9	--	--	82.0	88.2	151.2	112.9	264.1
Total	14,198.6	5,798.6	2,005.5	22,002.7	497.6	53.1	1,658.4	37.7	--	10,106.7	12,353.8	22,243.9	12,112.5	34,356.2
All species	16,722.90	6,219.50	2,123.90	25,066.20	577.10	53.10	1,689.80	66.50	--	11,492.80	13,879.70	25,329.10	13,617.00	38,945.60

(Table 15 continued on next page)

(Table 15 continued)

Northern Pine

Species group	Growing Stock					Non growing stock								
	Used for product					Used for product								
	Sawtimber	Pole-timber	Logging residue (not used)	Total growing stock	Limbwood	Saplings	Cull trees	Dead trees	Nonforest trees	Logging slash (not used)	Total non growing stock	Total used	Total not used	Total harvested
Softwoods														
Fir	2,726.1	1,306.3	113.7	4,146.1	140.8	--	4.9	7.3	--	2,059.0	2,212.0	4,185.3	2,172.7	6,358.0
Tamarack	843.7	446.9	29.5	1,320.1	47.0	--	0.4	0.5	--	650.1	698.0	1,338.5	679.6	2,018.1
Spruce	2,407.8	1,098.9	108.4	3,615.2	117.5	--	5.8	8.5	--	1,806.0	1,937.8	3,638.5	1,914.4	5,552.9
Jack pine	14,499.8	3,358.1	1,100.0	18,957.8	398.8	--	123.2	179.2	--	9,965.9	10,667.1	18,559.1	11,065.9	29,625.0
Red pine	6,826.2	483.6	220.3	7,530.1	99.1	--	104.4	54.5	--	2,906.0	3,164.0	7,567.8	3,126.3	10,694.1
White pine	270.3	11.5	8.5	290.2	5.7	--	3.0	1.5	--	108.8	119.0	292.0	117.3	409.2
Other/unknown pine	3.6	2.0	0.1	5.7	0.2	--	--	--	--	2.8	3.0	5.8	2.9	8.7
Northern white-cedar	54.2	4.8	5.2	64.3	0.8	--	0.7	1.0	--	35.1	37.5	61.5	40.3	101.8
Total	27,631.7	6,712.1	1,585.7	35,929.5	809.9	--	242.4	252.5	--	17,533.7	18,838.4	35,648.5	19,119.4	54,767.8
Hardwoods														
Soft maple	790.1	1,070.0	79.9	1,940.0	55.8	1.5	90.2	0.5	--	1,013.0	1,161.1	2,008.2	1,092.9	3,101.1
Hard maple	496.1	349.1	86.8	932.0	19.2	0.7	39.7	0.2	--	454.7	514.4	904.9	541.5	1,446.4
White birch	3,734.9	4,109.4	487.3	8,331.7	204.5	0.3	373.1	0.1	--	4,325.4	4,903.5	8,422.4	4,812.8	13,235.2
Yellow birch	14.1	0.0	2.7	16.8	0.0	--	1.5	--	--	4.8	6.4	15.6	7.5	23.1
Hickory	0.7	0.0	0.1	0.8	0.0	--	0.1	--	--	0.2	0.3	0.7	0.4	1.1
Ash	587.3	399.6	108.1	1,095.0	20.5	0.1	42.4	0.0	--	549.1	612.0	1,049.9	657.2	1,707.0
Butternut	0.9	0.1	0.2	1.2	0.0	--	0.0	--	--	0.5	0.6	1.0	0.8	1.8
Black walnut	8.5	--	1.6	10.1	0.0	--	0.9	--	--	2.9	3.8	9.5	4.5	14.0
Cottonwood	39.5	3.7	10.2	53.3	0.3	--	1.4	--	--	24.5	26.1	44.8	34.6	79.4
Balsam poplar	1,496.3	2,111.6	138.6	3,746.5	103.7	0.1	177.6	0.0	--	1,988.6	2,270.0	3,889.3	2,127.2	6,016.5
Aspen	50,108.4	19,156.9	3,864.4	73,129.7	677.5	3.8	2,306.3	3.1	--	30,321.9	33,312.5	72,255.9	34,186.3	106,442.2
Black cherry	3.1	0.0	0.6	3.7	0.0	--	0.3	--	--	1.1	1.4	3.4	1.6	5.1
Other/unknown cherry	--	--	--	--	1.4	--	50.4	--	--	151.2	203.0	51.8	151.2	203.0
Red oak group	1,806.5	16.2	567.3	2,390.1	46.4	0.3	766.6	11.1	--	1,767.0	2,591.4	2,647.2	2,334.3	4,981.5
White oak group	119.1	5.0	37.8	161.8	3.9	0.3	51.8	0.8	--	119.3	176.1	180.9	157.0	338.0
Basswood	1,188.7	633.4	243.5	2,065.5	39.3	2.9	72.7	0.9	--	994.3	1,110.1	1,937.9	1,237.7	3,175.6
Elm	16.8	23.7	1.5	42.0	1.2	--	2.0	--	--	22.3	25.4	43.6	23.8	67.4
Other/unknown hwds	7.2	0.7	1.9	9.8	0.1	--	0.3	--	--	4.5	4.8	8.2	6.3	14.5
Total	60,418.2	27,879.4	5,632.5	93,930.0	1,173.8	10.0	3,977.3	16.7	--	41,745.3	46,922.9	93,475.2	47,377.6	140,852.9
All species	88,049.9	34,591.5	7,218.2	129,859.5	1,983.7	10.0	4,219.7	269.2	--	59,279.0	65,761.3	129,123.7	66,497.0	195,620.7

Prairie

Species group	Growing Stock						Non growing stock							
	Used for product						Used for product							
	Sawtimber	Pole-timber	Logging residue (not used)	Total growing stock	Limbwood	Saplings	Cull trees	Dead trees	Nonforest trees	Logging slash (not used)	Total non growing stock	Total used	Total not used	Total harvested
Softwoods														
Fir	6.20	1.5	0.5	8.20	0.2	--	0.1	0.1	--	4.30	4.60	8.00	4.80	12.80
Redcedar	6.5	0.6	0.6	7.7	0.1	--	0.1	0.1	--	4.2	4.5	7.4	4.8	12.2
Tamarack	7.10	3.8	0.2	11.10	0.4	--	--	--	--	5.50	5.90	11.30	5.70	17.00
Spruce	10.30	5.2	0.4	15.90	0.6	--	0	0	--	7.90	8.50	16.10	8.30	24.40
Jack pine	28.40	15.5	0.9	44.80	1.6	--	--	--	--	22	23.6	45.50	22.9	68.40
Red pine	24.9	0.3	0.7	25.90	0.3	--	0.2	0	--	10	10.5	25.70	10.8	36.40
White pine	0.1	--	0	0.1	0	--	0	--	--	0	0	0.1	0	0.10
Total	83.5	26.9	3.3	113.7	3.2	--	0.4	0.2	--	53.9	57.6	114.1	57.3	171.3
Hardwoods														
Soft maple	12.9	1.2	3.3	17.5	0.1	--	0.4	--	--	8.0	8.6	14.7	11.3	26.0
Hard maple	53.9	6.9	13.4	74.2	0.5	--	2.3	--	--	33.6	36.4	63.6	47.0	110.6
White birch	24.1	29.6	2.8	56.5	1.5	--	2.6	--	--	29.7	33.7	57.8	32.4	90.2
River birch	0.0	0.0	0.0	0.0	0.0	--	0.0	--	--	0.0	0.0	0.0	0.0	0.0
Yellow birch	0.0	0.0	0.0	0.0	0.0	--	0.0	--	--	0.0	0.0	0.0	0.0	0.0
Hickory	6.9	0.6	1.8	9.4	0.0	--	0.2	--	--	4.3	4.6	7.9	6.1	14.0
Ash	24.1	3.6	6.0	33.7	0.2	--	0.9	--	--	15.7	16.8	28.8	21.7	50.5
Black walnut	41.8	3.8	10.7	56.2	0.3	--	1.5	--	--	25.5	27.3	47.4	36.2	83.6
Cottonwood	495.2	69.0	124.7	688.9	4.5	--	18.6	--	--	319.3	342.5	587.3	444.0	1,031.3
Balsam poplar	67.2	94.9	6.2	168.4	4.7	--	8.0	--	--	89.4	102.0	174.8	95.6	270.4
Aspen	2,828.8	1,077.6	212.6	4,119.1	36.3	--	134.5	--	--	1,699.9	1,870.7	4,077.3	1,912.5	5,989.8
Black cherry	1.7	0.2	0.4	2.3	0.0	--	0.1	--	--	1.0	1.1	1.9	1.5	3.4
Red oak group	118.7	0.9	38.0	157.6	3.1	--	52.2	0.8	--	119.7	175.8	175.6	157.8	333.4
White oak group	65.5	0.5	21.0	86.9	1.7	--	28.8	0.4	--	66.0	97.0	96.9	87.0	183.9
Willow	1.4	0.1	0.4	2.0	0.0	--	0.1	--	--	0.9	1.0	1.6	1.3	2.9
Basswood	200.9	20.9	51.5	273.3	1.5	--	7.1	--	--	125.8	134.4	230.4	177.2	407.7
Elm	11.2	1.0	2.9	15.2	0.1	--	0.4	--	--	7.0	7.4	12.7	9.8	22.6
Other/unknown hwds	0.1	0.0	0.0	0.2	0.0	--	0.0	--	--	0.1	0.1	0.2	0.1	0.3
Total	3,954.4	1,310.8	495.7	5,761.4	54.5	--	257.7	1.2	--	2,545.9	2,859.4	5,578.9	3,041.5	8,620.6
All species	4,037.9	1,337.7	499.0	5,875.1	57.7	--	258.1	1.4	--	2,599.8	2,917.0	5,693.0	3,098.8	8,791.9

Value of"0" indicates value greater than 0 but less than 500.
Rows and columns may not sum due to rounding.

Table 16.—Growing-stock removals from timberland for industrial roundwood by Forest Inventory Unit, county, and species group, Minnesota, 2004

(In thousand cubic feet)

Forest Inventory Unit and county	All species	Species group											
		Fir	Redcedar	Tamarack	Spruce	Jack pine	Red pine	White pine	Other pine	Northern white cedar	Soft maple	Hard maple	White birch
Aspen-Birch													
Carlton	6,037	462	--	62	155	218	335	18	--	1	355	183	1,080
Cook	3,759	234	--	73	610	190	308	38	--	0	18	5	306
Koochiching	32,042	2,065	--	972	3,657	1,844	507	51	--	332	24	146	1,824
Lake	9,488	591	--	46	1,048	575	953	45	--	26	431	126	1,932
St. Louis	63,556	6,078	--	702	5,502	3,660	2,391	372	--	278	1,579	901	5,470
Total	114,882	9,430	--	1,855	10,973	6,488	4,493	524	--	638	2,407	1,362	10,612
Central Hardwood													
Anoka	314	--	--	--	1	29	7	12	--	--	13	7	14
Benton	300	--	--	0	0	18	125	0	--	--	1	0	1
Carver	46	--	0	--	--	1	0	2	--	--	--	4	0
Chisago	208	1	--	0	0	1	18	9	--	--	1	25	9
Dakota	27	--	--	--	4	--	1	0	--	--	--	0	--
Douglas	164	16	--	--	3	1	0	0	--	--	1	1	9
Fillmore	732	1	--	--	--	--	0	2	--	--	0	106	1
Goodhue	547	1	--	--	1	--	--	0	--	--	27	67	1
Hennepin	379	--	0	--	0	44	0	0	--	--	--	3	0
Houston	1,030	--	--	--	--	--	--	1	--	--	26	84	2
Isanti	310	1	--	--	--	24	122	21	0	--	7	4	6
Kanabec	1,442	1	--	6	--	61	38	9	--	--	108	70	87
Le Sueur	73	--	0	--	0	--	0	--	--	--	2	2	0
Mille Lacs	2,123	11	0	4	12	36	19	15	--	--	80	45	76
Morrison	1,996	7	--	3	4	253	182	5	--	--	55	17	66
Olmsted	201	--	--	--	0	--	0	0	--	--	1	14	1
Otter Tail	1,445	--	--	--	1	53	4	2	--	--	3	7	5
Pine	10,579	92	--	23	57	435	449	42	--	--	497	424	1,376
Ramsey	169	--	--	--	0	24	0	1	--	--	--	--	--
Rice	94	--	0	--	0	--	1	--	--	--	0	24	5
Scott	82	--	0	--	0	1	0	1	--	--	1	8	--
Sherburne	464	1	--	0	5	198	221	0	--	--	2	1	4
Stearns	115	--	0	0	--	0	22	0	--	--	2	3	0
Todd	625	1	1	2	1	45	22	2	--	--	4	34	9
Wabasha	713	--	--	--	0	2	82	1	--	--	50	40	0
Washington	250	37	--	0	12	1	1	0	--	--	14	6	15
Winona	527	--	--	11	--	--	44	1	--	--	11	23	4
Wright	109	--	--	0	--	1	18	3	--	--	12	5	2
Total	25,066	170	2	49	102	1,229	1,381	129	0	--	916	1,025	1,694
Northern Pine													
Aitkin	13,715	533	--	171	338	431	572	36	--	0	658	289	1,016
Becker	4,673	84	--	44	75	485	167	1	--	--	28	26	216
Beltrami	20,964	453	--	180	299	5,277	674	45	--	10	70	17	823
Cass	14,671	286	--	113	136	1,919	1,266	38	--	1	259	67	1,259
Clearwater	7,095	163	--	25	69	622	148	24	--	--	11	4	480
Crow Wing	9,373	65	--	44	46	1,492	730	41	--	--	493	152	582

Hubbard	13,351	72	--	30	94	4,548	1,323	32	--	9	60	5	588
Itasca	30,723	2,236	--	302	1,853	1,616	1,991	68	6	16	353	320	2,715
Lake of the Woods	7,258	192	--	344	486	981	176	0	--	27	7	36	410
Mahnomen	1,396	2	--	4	5	94	--	--	--	--	--	2	55
Roseau	4,069	60	--	50	215	534	160	2	--	0	0	14	180
Wadena	2,572	0	--	13	0	960	321	1	--	--	1	--	9
Total	129,859	4,146	--	1,320	3,615	18,958	7,530	290	6	64	1,940	932	8,332
Prairie													
Blue Earth	63	--	0	--	--	--	0	0	--	--	2	13	1
Brown	54	--	0	--	--	--	--	0	--	--	3	7	--
Chippewa	1	--	--	--	--	--	--	--	--	--	--	--	--
Clay	24	--	--	--	--	--	--	--	--	--	--	--	1
Cottonwood	2	--	--	--	--	--	--	--	--	--	0	--	--
Dodge	43	--	--	--	--	--	--	--	--	--	--	1	1
Faribault	181	--	0	--	--	--	--	--	--	--	1	16	--
Freeborn	57	--	--	--	--	--	2	--	--	--	--	--	--
Grant	1	--	--	--	--	--	--	--	--	--	--	--	--
Jackson	1	--	--	--	--	--	--	--	--	--	0	--	--
Kandiyohi	13	--	--	--	--	--	1	--	--	--	--	0	--
Kittson	1,443	--	--	8	8	35	--	--	--	--	--	6	36
Lac Qui Parle	2	--	0	--	--	--	--	--	--	--	--	--	--
Lincoln	8	--	2	--	--	--	--	--	--	--	--	--	--
Lyon	0	--	--	--	--	--	--	--	--	--	--	--	--
Marshall	1,832	--	--	3	7	10	--	--	--	--	--	1	15
Martin	2	--	--	--	--	--	--	--	--	--	1	--	--
McLeod	26	--	0	--	--	--	--	--	--	--	2	1	--
Meeker	11	--	0	--	--	--	0	--	--	--	--	0	--
Mower	68	--	--	--	0	--	2	--	--	--	--	--	--
Murray	2	--	--	--	--	--	--	--	--	--	0	0	--
Nicollet	83	--	0	--	--	--	--	--	--	--	3	13	--
Nobles	2	--	--	--	--	--	--	--	--	--	0	--	--
Norman	180	--	--	--	--	--	--	--	--	--	--	--	--
Pennington	603	1	--	--	1	--	--	--	--	--	--	--	0
Pipestone	25	--	2	--	--	--	17	--	--	--	--	--	--
Polk	361	5	0	--	0	--	--	--	--	--	--	--	1
Pope	195	--	--	--	--	--	--	--	--	--	--	0	--
Red Lake	110	2	--	--	--	--	1	--	--	--	--	--	0
Redwood	9	--	--	--	--	--	--	--	--	--	0	--	--
Renville	2	--	0	--	--	--	--	--	--	--	0	--	--
Rock	17	--	1	--	--	--	1	--	--	--	--	1	--
Sibley	74	--	--	--	--	--	--	--	--	--	--	12	--
Steele	42	--	0	--	0	--	2	--	--	--	--	0	--
Stevens	176	--	--	--	--	--	--	--	--	--	--	--	--
Swift	134	--	--	--	--	--	--	--	--	--	--	--	1
Waseca	12	--	--	--	0	--	0	--	--	--	--	2	0
Watonwan	7	--	--	--	--	--	--	--	--	--	5	--	--
Yellow Medicine	7	--	2	--	--	--	0	--	--	--	--	--	--
Total	5,875	8	8	11	16	45	26	0	--	--	17	74	56
State total	275,682	13,755	10	3,236	14,706	26,719	13,430	943	6	702	5,281	3,393	20,694

(Table 16 continued on next page)

(Table 16 continued)

Forest Inventory Unit and county	Species group												
	Yellow birch	Hickory	Ash	Black walnut	Cotton-wood	Balsam poplar	Aspen	Black cherry	Red oak group	White oak group	Basswood	Elm	Other hardwoods
Aspen-Birch													
Carlton	0	--	73	--	--	40	2,781	--	126	0	137	10	0
Cook	--	--	4	--	--	2	1,966	--	--	--	4	1	0
Koochiching	--	--	97	--	--	2,876	17,483	--	2	9	150	0	0
Lake	0	--	88	--	--	79	3,296	--	1	--	245	6	0
St. Louis	--	--	433	--	--	2,039	33,773	--	15	4	326	30	4
Total	0	--	695	--	--	5,036	59,299	--	143	13	862	47	4
Central Hardwood													
Anoka	--	--	4	--	23	--	169	--	19	6	11	--	--
Benton	--	--	1	--	0	2	144	--	4	4	0	0	0
Carver	--	--	0	0	22	--	1	1	4	7	4	0	--
Chisago	--	4	9	0	--	0	15	--	97	7	7	0	4
Dakota	--	--	1	1	3	--	1	1	4	9	--	2	--
Douglas	--	--	3	--	--	2	95	--	3	7	22	--	--
Fillmore	--	9	22	23	26	--	--	7	249	166	98	20	1
Goodhue	--	6	25	14	4	--	2	13	221	68	81	12	4
Hennepin	--	--	1	1	6	--	227	1	5	3	0	87	--
Houston	--	22	23	40	37	--	19	14	468	206	73	13	3
Isanti	--	--	2	--	18	--	75	--	15	2	13	--	--
Kanabec	11	0	28	7	--	11	818	3	148	2	30	3	0
Le Sueur	--	2	1	8	20	--	--	0	9	7	15	0	6
Mille Lacs	--	--	31	--	--	8	1,404	--	272	21	88	2	1
Morrison	--	0	8	--	--	7	1,304	0	32	24	28	1	0
Olmsted	--	4	6	9	0	--	1	5	90	24	38	5	1
Otter Tail	--	--	13	--	--	30	1,225	--	33	16	51	1	--
Pine	--	13	84	--	--	42	6,597	--	274	17	132	11	13
Ramsey	--	--	0	0	9	--	126	2	5	0	--	0	--
Rice	7	2	2	2	0	--	0	1	34	5	7	1	2
Scott	--	--	0	1	48	--	1	1	6	6	5	1	--
Sherburne	--	--	0	--	--	0	28	--	4	0	0	0	0
Stearns	0	1	1	6	--	0	7	2	46	17	8	0	0
Todd	12	1	5	7	1	1	339	3	98	23	14	1	--
Wabasha	--	5	9	5	155	--	6	7	178	117	48	6	1
Washington	--	0	5	0	2	0	140	0	4	0	11	0	0
Winona	--	6	11	14	27	--	15	9	211	98	34	8	0
Wright	--	--	2	--	12	0	11	--	17	14	11	0	0
Total	30	73	298	141	414	104	12,769	69	2,551	876	829	176	37
Northern Pine													
Aitkin	0	--	257	--	--	173	7,738	--	1,046	32	407	17	1
Becker	8	0	7	5	22	69	3,307	2	80	4	42	0	0
Beltrami	--	--	174	--	12	777	11,654	--	71	21	404	1	0
Cass	9	0	139	5	--	238	8,025	2	525	40	340	4	0
Clearwater	--	--	22	--	6	100	5,212	--	6	9	183	0	10
Crow Wing	--	0	107	--	0	53	5,217	0	179	20	140	14	0

Hubbard	--	--	28	--	--	68	6,392	--	56	2	44	0	0
Itasca	0	--	323	--	--	1,119	16,913	--	411	17	459	5	0
Lake of the Woods	--	--	16	--	--	675	3,905	--	0	1	1	0	0
Mahnomen	--	--	1	--	12	32	1,143	--	--	0	44	--	--
Roseau	--	--	18	--	0	433	2,402	--	0	0	0	--	--
Wadena	--	--	2	--	--	9	1,222	--	16	16	0	--	--
Total	17	1	1,095	10	53	3,746	73,130	4	2,390	162	2,066	42	11
Prairie													
Blue Earth	--	0	1	6	13	--	0	--	7	9	9	0	0
Brown	--	1	1	8	4	--	--	--	4	6	16	2	--
Chippewa	--	--	--	1	--	--	--	--	0	0	--	--	--
Clay	--	--	--	--	1	3	12	--	--	--	6	--	--
Cottonwood	--	--	0	--	2	--	0	--	--	--	--	--	--
Dodge	--	--	1	3	4	--	--	0	10	9	14	0	--
Faribault	--	5	8	9	22	--	4	1	67	21	18	8	2
Freeborn	--	--	3	--	27	--	1	1	9	15	--	--	--
Grant	--	--	--	--	--	--	0	--	--	--	1	--	--
Jackson	--	--	0	--	1	--	--	--	--	--	--	--	--
Kandiyohi	--	--	2	1	--	--	0	--	0	3	6	--	--
Kittson	--	--	--	--	--	71	1,262	--	7	2	9	--	--
Lac Qui Parle	--	--	0	0	2	--	--	--	--	--	--	0	--
Lincoln	--	0	1	0	5	--	--	--	--	--	0	--	0
Lyon	--	--	0	0	--	--	--	--	--	0	--	--	--
Marshall	--	--	--	--	--	84	1,706	--	7	--	0	--	--
Martin	--	--	0	1	--	--	--	--	0	--	--	0	--
McLeod	--	--	--	--	11	--	--	--	1	1	11	0	--
Meeker	--	--	2	1	--	--	--	0	0	2	6	--	--
Mower	--	--	1	0	46	--	--	0	6	3	9	--	--
Murray	--	--	0	--	2	--	--	--	--	--	--	--	--
Nicollet	--	3	0	13	20	--	--	1	7	3	18	2	--
Nobles	--	--	0	--	2	--	--	--	--	--	--	--	--
Norman	0	--	--	--	17	--	144	--	2	--	16	--	0
Pennington	--	--	3	--	13	6	580	--	0	0	0	--	--
Pipestone	--	--	1	1	5	--	--	--	--	--	--	--	--
Polk	--	--	--	--	6	4	322	--	13	0	9	--	--
Pope	--	--	1	--	132	--	--	--	2	1	59	--	--
Red Lake	--	--	1	--	9	2	87	--	1	1	6	--	--
Redwood	--	--	0	--	9	--	--	--	--	--	--	--	--
Renville	--	--	0	1	--	--	--	--	0	0	0	0	--
Rock	--	--	5	1	7	--	--	--	--	--	--	0	--
Sibley	--	--	--	4	--	--	--	--	1	--	55	2	--
Steele	--	--	1	1	20	--	--	--	10	4	2	--	--
Stevens	--	--	--	--	176	--	--	--	--	--	--	--	--
Swift	--	--	0	--	132	--	--	--	0	0	1	--	--
Waseca	--	--	--	5	--	--	--	--	0	5	--	--	--
Watonwan	--	--	0	1	1	--	--	--	--	--	--	--	--
Yellow Medicine	--	--	1	0	5	--	--	--	--	--	--	--	--
Total	0	9	34	56	689	168	4,119	2	158	87	273	15	2
State total	47	83	2,122	207	1,156	9,055	149,317	75	5,242	1,138	4,030	281	54

0 = Less than 500 cubic feet.
Table may not sum due to rounding.

Table 17.—Sawtimber removals from timberland for industrial roundwood by Forest Inventory Unit, county, and species group, Minnesota, 2004

(In thousand board feet)[1]

Forest Inventory Unit and county	All species	Species group											
		Fir	Redcedar	Tamarack	Spruce	Jack pine	Red pine	White pine	Other pine	Northern white cedar	Soft maple	Hard maple	White birch
Aspen-Birch													
Carlton	15,747	1,104	--	146	403	546	1,538	77	--	5	609	315	2,074
Cook	12,386	812	--	172	1,878	777	1,645	187	--	0	31	9	1,292
Koochiching	84,048	5,156	--	2,506	8,950	5,009	2,640	267	--	1,445	42	273	3,405
Lake	26,983	1,417	--	107	3,196	1,868	4,597	214	--	81	747	219	4,609
St. Louis	169,541	14,394	--	1,672	14,098	11,092	11,606	1,910	--	1,210	2,692	1,585	10,948
Total	308,705	22,883	--	4,603	28,524	19,292	22,026	2,654	--	2,741	4,120	2,401	22,328
Central Hardwood													
Anoka	1,082	--	--	--	3	127	39	65	--	--	11	9	12
Benton	1,220	--	--	0	0	76	695	2	--	--	2	1	4
Carver	214	--	1	--	--	4	1	12	--	--	--	17	1
Chisago	875	3	--	0	0	1	98	48	--	--	2	108	15
Dakota	112	--	--	--	10	--	6	2	--	--	--	1	--
Douglas	501	38	--	--	8	3	3	2	--	--	5	7	15
Fillmore	3,384	2	--	--	--	--	1	12	--	--	0	500	4
Goodhue	2,438	2	--	--	3	--	--	2	--	--	121	314	4
Hennepin	1,501	--	1	--	1	192	2	1	--	--	--	13	0
Houston	4,723	--	--	--	--	--	--	4	--	--	108	381	7
Isanti	1,234	2	--	--	--	91	640	118	1	--	6	5	26
Kanabec	4,328	2	--	15	--	154	141	42	--	--	209	273	190
Le Sueur	338	--	1	--	1	--	0	--	--	--	8	9	1
Mille Lacs	6,132	29	1	9	31	95	74	71	--	--	140	136	179
Morrison	6,143	17	--	8	12	1,025	964	19	--	--	87	26	117
Olmsted	901	--	--	--	1	--	2	2	--	--	3	64	7
Otter Tail	4,442	--	--	--	3	128	16	11	--	--	16	33	15
Pine	27,479	268	--	53	136	1,434	1,968	201	--	--	789	781	2,196
Ramsey	638	--	--	--	0	106	2	5	--	--	--	--	--
Rice	482	--	1	--	2	--	6	--	--	--	1	130	28
Scott	381	--	2	--	0	4	1	6	--	--	6	39	--
Sherburne	2,149	2	--	0	12	853	1,171	0	--	--	3	1	10
Stearns	567	--	1	0	--	1	125	1	--	--	10	15	1
Todd	2,455	4	4	8	3	182	125	9	--	--	22	192	48
Wabasha	3,199	--	--	--	0	4	253	6	--	--	234	188	2
Washington	592	87	--	0	27	2	6	0	--	--	14	6	14
Winona	2,345	--	--	26	--	--	138	8	--	--	49	108	10
Wright	478	--	--	1	--	3	99	18	--	--	49	24	3
Total	80,335	455	11	121	254	4,484	6,576	666	1	--	1,896	3,380	2,911
Northern Pine													
Aitkin	39,247	1,279	--	399	826	1,158	2,579	152	--	0	1,207	780	2,399
Becker	13,870	315	--	102	286	1,785	822	8	--	--	58	134	395
Beltrami	63,033	1,178	--	443	875	19,034	3,385	250	--	43	121	30	1,635
Cass	45,285	761	--	263	386	7,012	6,139	195	--	4	456	217	2,789
Clearwater	20,201	527	--	78	250	2,163	793	133	--	--	20	7	944
Crow Wing	27,594	179	--	104	153	5,337	3,584	194	--	--	864	298	1,088

Hubbard	44,144	249	--	71	330	17,206	6,813	180	--	41	104	9	1,104
Itasca	88,017	5,471	--	706	4,611	5,431	9,359	347	13	71	680	1,143	6,506
Lake of the Woods	19,149	485	--	804	1,228	2,906	891	2	--	119	12	63	711
Mahnomen	3,691	5	--	10	11	233	--	--	--	--	--	3	96
Roseau	11,343	172	--	118	607	1,984	751	13	--	2	1	24	313
Wadena	9,435	1	--	55	2	3,814	1,668	8	--	--	2	--	16
Total	385,009	10,623	--	3,153	9,565	68,063	36,785	1,481	13	279	3,524	2,707	17,995
Prairie													
Blue Earth	290	--	1	--	--	--	0	0	--	--	8	63	3
Brown	249	--	0	--	--	--	--	0	--	--	13	35	--
Chippewa	4	--	--	--	--	--	--	--	--	--	--	--	--
Clay	76	--	--	--	--	--	--	--	--	--	--	--	7
Cottonwood	10	--	--	--	--	--	--	--	--	--	1	--	--
Dodge	193	--	--	--	--	--	--	--	--	--	--	7	4
Faribault	812	--	1	--	--	--	--	--	--	--	5	75	--
Freeborn	261	--	--	--	--	--	9	--	--	--	--	--	--
Grant	3	--	--	--	--	--	--	--	--	--	--	--	--
Jackson	4	--	--	--	--	--	--	--	--	--	1	--	--
Kandiyohi	58	--	--	--	--	--	3	--	--	--	--	0	--
Kittson	3,852	--	--	19	18	81	--	--	--	--	--	20	63
Lac Qui Parle	9	--	0	--	--	--	--	--	--	--	--	--	--
Lincoln	38	--	7	--	--	--	--	--	--	--	--	--	--
Lyon	2	--	--	--	--	--	--	--	--	--	--	--	--
Marshall	4,911	--	--	7	15	24	--	--	--	--	--	2	26
Martin	8	--	--	--	--	--	--	--	--	--	3	--	--
McLeod	123	--	0	--	--	--	--	--	--	--	7	4	--
Meeker	53	--	1	--	--	--	2	--	--	--	--	0	--
Mower	319	--	--	--	0	--	10	--	--	--	--	--	--
Murray	11	--	--	--	--	--	--	--	--	--	2	0	--
Nicollet	387	--	0	--	--	--	--	--	--	--	14	60	--
Nobles	10	--	--	--	--	--	--	--	--	--	1	--	--
Norman	507	--	--	--	--	--	--	--	--	--	--	--	--
Pennington	1,629	2	--	--	2	--	--	--	--	--	--	--	0
Pipestone	133	--	7	--	--	--	97	--	--	--	--	--	--
Polk	1,023	22	1	--	1	--	--	--	--	--	--	--	3
Pope	914	--	--	--	--	--	--	--	--	--	--	1	--
Red Lake	303	5	--	--	--	--	3	--	--	--	--	--	1
Redwood	43	--	--	--	--	--	--	--	--	--	1	--	--
Renville	11	--	1	--	--	--	--	--	--	--	0	--	--
Rock	79	--	5	--	--	--	6	--	--	--	--	5	--
Sibley	349	--	--	--	--	--	--	--	--	--	--	58	--
Steele	192	--	1	--	1	--	10	--	--	--	--	0	--
Stevens	824	--	--	--	--	--	--	--	--	--	--	--	--
Swift	627	--	--	--	--	--	--	--	--	--	--	--	4
Waseca	57	--	--	--	1	--	1	--	--	--	--	9	1
Watonwan	34	--	--	--	--	--	--	--	--	--	26	--	--
Yellow Medicine	35	--	7	--	--	--	1	--	--	--	--	--	--
Total	18,440	29	34	26	39	104	142	0	--	--	82	340	111
State total	792,489	33,991	44	7,903	38,383	91,943	65,530	4,802	14	3,021	9,623	8,828	43,345

(Table 17 continued on next page)

(Table 17 continued)

Forest Inventory Unit and county	Species group												
	Yellow birch	Hickory	Ash	Black walnut	Cotton-wood	Balsam poplar	Aspen	Black cherry	Red oak group	White oak group	Basswood	Elm	Other hardwoods
Aspen-Birch													
Carlton	1	--	143	--	--	69	7,735	--	542	1	421	17	--
Cook	--	--	6	--	--	3	5,565	--	--	--	6	1	--
Koochiching	--	--	297	--	--	4,981	48,497	--	10	37	534	1	--
Lake	1	--	171	--	--	137	9,176	--	2	--	431	11	--
St. Louis	--	--	987	--	--	3,544	92,897	--	45	10	778	52	18
Total	2	--	1,605	--	--	8,734	163,870	--	600	48	2,170	82	18
Central Hardwood													
Anoka	--	--	18	--	110	--	572	--	81	24	10	--	--
Benton	--	--	4	--	0	3	399	--	19	16	1	0	--
Carver	--	--	0	1	102	--	3	3	19	30	17	1	--
Chisago	--	20	43	2	--	0	42	--	418	29	24	1	20
Dakota	--	--	6	4	12	--	3	6	15	38	--	8	--
Douglas	--	--	16	--	--	3	260	--	15	28	99	--	--
Fillmore	--	41	105	111	124	--	--	35	1,070	821	460	92	4
Goodhue	--	26	116	68	18	--	7	62	945	291	381	57	20
Hennepin	--	--	3	7	27	--	802	4	22	14	2	410	--
Houston	--	102	107	190	173	--	66	68	2,004	1,093	343	63	16
Isanti	--	--	7	--	83	--	176	--	63	3	13	--	--
Kanabec	63	2	80	41	--	19	2,256	14	729	11	84	5	1
Le Sueur	--	9	5	38	96	--	--	2	39	31	69	1	28
Mille Lacs	--	--	114	--	--	14	3,758	--	1,163	78	234	3	3
Morrison	--	0	15	--	--	12	3,572	0	133	91	40	2	--
Olmsted	--	18	30	43	1	--	3	28	389	105	179	24	6
Otter Tail	--	--	60	--	--	52	3,654	--	141	70	241	3	--
Pine	--	59	190	--	--	73	17,739	--	1,155	57	300	19	60
Ramsey	--	--	1	1	43	--	446	8	23	1	--	1	--
Rice	41	9	10	8	1	--	1	7	169	21	35	5	8
Scott	--	--	1	5	227	--	3	3	24	27	26	5	--
Sherburne	--	--	1	--	--	1	78	--	17	0	1	0	--
Stearns	1	3	3	32	--	0	22	9	234	75	35	0	--
Todd	65	3	24	41	4	2	1,021	14	513	100	65	4	--
Wabasha	--	22	44	25	726	--	23	35	766	611	224	30	4
Washington	--	0	21	2	11	0	369	1	19	1	10	0	--
Winona	--	30	50	66	128	--	51	44	908	527	160	38	1
Wright	--	--	8	--	58	0	29	--	74	61	50	2	--
Total	171	343	1,083	685	1,945	179	35,354	344	11,166	4,258	3,102	776	174
Northern Pine													
Aitkin	0	--	809	--	--	302	21,380	--	4,488	123	1,330	29	6
Becker	45	2	31	29	104	120	9,064	10	410	17	134	0	--
Beltrami	--	--	465	--	57	1,347	32,484	--	307	88	1,288	2	--
Cass	48	2	467	29	--	413	22,293	10	2,324	171	1,298	6	--
Clearwater	--	--	77	--	29	173	14,365	--	28	40	529	0	46
Crow Wing	--	0	237	--	2	91	14,274	0	770	84	312	24	--

Hubbard	--	--	64	--	--	117	17,482	--	239	8	126	1	--
Itasca	1	--	947	--	--	1,943	47,242	--	1,767	74	1,694	9	--
Lake of the Woods	--	--	49	--	--	1,169	10,704	--	1	4	2	0	--
Mahnomen	--	--	6	--	59	56	3,134	--	--	1	77	--	--
Roseau	--	--	40	--	1	751	6,564	--	1	1	0	--	--
Wadena	--	--	12	--	--	15	3,705	--	68	68	2	--	--
Total	94	4	3,202	57	250	6,498	202,691	21	10,404	680	6,793	73	52
Prairie													
Blue Earth	--	1	5	29	63	--	2	--	31	40	44	1	0
Brown	--	6	4	39	18	--	--	--	19	27	77	9	--
Chippewa	--	--	--	3	--	--	--	--	1	0	--	--	--
Clay	--	--	--	--	1	6	33	--	--	--	28	--	--
Cottonwood	--	--	1	--	7	--	0	--	--	--	--	--	--
Dodge	--	--	3	13	18	--	--	1	44	39	64	0	--
Faribault	--	23	37	42	102	--	13	2	289	91	85	38	9
Freeborn	--	--	13	--	128	--	2	3	39	66	--	--	--
Grant	--	--	--	--	--	--	1	--	--	--	3	--	--
Jackson	--	--	1	--	3	--	--	--	--	--	--	--	--
Kandiyohi	--	--	10	4	--	--	1	--	1	12	26	--	--
Kittson	--	--	--	--	--	122	3,447	--	31	9	42	--	--
Lac Qui Parle	--	--	1	0	7	--	--	--	--	--	--	1	--
Lincoln	--	1	4	2	22	--	--	--	--	--	2	--	0
Lyon	--	--	1	1	--	--	--	--	--	0	--	--	--
Marshall	--	--	--	--	--	145	4,662	--	31	--	0	--	--
Martin	--	--	1	3	--	--	--	--	0	--	--	0	--
McLeod	--	--	--	--	50	--	--	--	3	5	54	0	--
Meeker	--	--	8	3	--	--	--	0	2	8	29	--	--
Mower	--	--	6	1	218	--	--	1	27	14	43	--	--
Murray	--	--	2	--	8	--	--	--	--	--	--	--	--
Nicollet	--	13	1	60	95	--	--	3	31	12	85	11	--
Nobles	--	--	1	--	7	--	--	--	--	--	--	--	--
Norman	0	--	--	--	29	--	395	--	10	--	73	--	0
Pennington	--	--	5	--	22	10	1,585	--	2	1	0	--	--
Pipestone	--	--	4	3	21	--	--	--	--	--	--	--	--
Polk	--	--	--	--	11	6	881	--	55	1	42	--	--
Pope	--	--	3	--	622	--	--	--	7	3	278	--	--
Red Lake	--	--	3	--	18	3	238	--	5	5	22	--	--
Redwood	--	--	1	--	40	--	--	--	--	--	--	--	--
Renville	--	--	2	4	--	--	--	--	1	1	1	1	--
Rock	--	--	23	7	33	--	--	--	--	--	--	0	--
Sibley	--	--	--	17	--	--	--	--	5	--	259	10	--
Steele	--	--	7	6	94	--	--	--	42	18	11	--	--
Stevens	--	--	--	--	824	--	--	--	--	--	--	--	--
Swift	--	--	0	--	619	--	--	--	0	0	4	--	--
Waseca	--	--	--	22	--	--	--	--	1	21	--	--	--
Watonwan	--	--	1	5	3	--	--	--	--	--	--	--	--
Yellow Medicine	--	--	4	2	21	--	--	--	--	--	--	--	--
Total	0	44	151	266	3,106	292	11,259	11	678	374	1,271	71	10
State total	267	392	6,041	1,008	5,301	15,703	413,175	376	22,848	5,360	13,336	1,002	255

0 = Less than 500 board feet.

[1] International 1/4-inch rule.

Table may not sum due to rounding.

Table 18.—Harvest residues generated by industrial roundwood harvested by Forest Inventory Unit, county, and species group, Minnesota, 2004

(In thousand cubic feet)

Forest Inventory Unit and county	All species	Species group											
		Fir	Redcedar	Tamarack	Spruce	Jack pine	Red pine	White pine	Other pine	Northern white cedar	Soft maple	Hard maple	White birch
Aspen-Birch													
Carlton	3,067	235	--	32	82	114	137	8	--	1	198	93	591
Cook	1,913	135	--	38	338	117	129	16	--	0	10	3	192
Koochiching	16,020	1,076	--	511	1,895	984	205	22	--	208	14	84	1,043
Lake	4,894	305	--	23	579	325	406	19	--	15	245	72	1,117
St. Louis	31,218	3,108	--	361	2,881	2,019	1,002	155	--	175	849	427	2,911
Total	57,112	4,858	--	965	5,775	3,557	1,878	220	--	398	1,315	679	5,853
Central Hardwood													
Anoka	160	--	--	--	1	18	3	5	--	--	1	1	1
Benton	142	--	--	0	0	11	52	0	--	--	1	0	1
Carver	34	--	0	--	--	1	0	1	--	--	--	2	0
Chisago	161	1	--	0	0	0	8	4	--	--	1	16	5
Dakota	21	--	--	--	2	--	0	0	--	--	--	0	--
Douglas	89	8	--	--	2	1	0	0	--	--	1	1	5
Fillmore	598	0	--	--	--	--	0	1	--	--	0	69	1
Goodhue	454	0	--	--	0	--	--	0	--	--	17	43	1
Hennepin	227	--	0	--	0	28	0	0	--	--	--	2	0
Houston	856	--	--	--	--	--	--	0	--	--	16	53	1
Isanti	123	0	--	--	--	14	51	9	0	--	1	1	2
Kanabec	758	0	--	3	--	32	17	4	--	--	61	36	49
Le Sueur	53	--	0	--	0	--	0	--	--	--	1	1	0
Mille Lacs	1,109	4	0	2	6	19	9	5	--	--	38	24	43
Morrison	972	4	--	2	2	154	76	1	--	--	27	8	37
Olmsted	170	--	--	--	0	--	0	0	--	--	0	9	1
Otter Tail	753	--	--	--	0	27	2	1	--	--	2	5	3
Pine	4,954	31	--	12	29	247	187	17	--	--	243	154	669
Ramsey	99	--	--	--	0	15	0	0	--	--	--	--	--
Rice	57	--	0	--	0	--	0	--	--	--	0	11	2
Scott	57	--	0	--	0	1	0	0	--	--	1	5	--
Sherburne	241	0	--	0	3	124	93	0	--	--	1	0	2
Stearns	74	--	0	0	--	0	9	0	--	--	1	1	0
Todd	337	1	1	1	0	28	9	1	--	--	2	16	4
Wabasha	527	--	--	--	0	1	37	0	--	--	32	26	0
Washington	101	19	--	0	6	0	0	0	--	--	2	1	2
Winona	416	--	--	6	--	--	20	1	--	--	7	15	2
Wright	75	--	--	0	--	1	7	1	--	--	7	3	1
Total	13,617	69	2	26	53	722	582	52	0	--	464	503	833
Northern Pine													
Aitkin	7,319	272	--	87	175	229	246	14	--	0	364	166	589
Becker	2,310	50	--	22	45	286	71	1	--	--	16	12	122
Beltrami	10,770	239	--	93	163	3,085	262	19	--	6	40	10	473
Cass	7,612	152	--	58	73	1,127	520	15	--	1	147	35	729
Clearwater	3,501	92	--	14	40	359	62	10	--	--	6	2	275
Crow Wing	4,810	34	--	23	26	870	303	17	--	--	279	87	332

Hubbard	6,872	41	--	15	54	2,705	555	13	--	6	34	3	336
Itasca	15,586	1,159	--	154	965	922	834	27	3	10	202	198	1,584
Lake of the Woods	3,625	100	--	176	254	537	70	0	--	17	4	20	233
Mahnomen	672	1	--	2	2	49	--	--	--	--	--	1	31
Roseau	2,042	33	--	26	116	315	68	1	--	0	0	8	102
Wadena	1,379	0	--	8	0	582	135	1	--	--	0	--	5
Total	66,497	2,173	--	680	1,914	11,066	3,126	117	3	40	1,093	541	4,813
Prairie													
Blue Earth	47	--	0	--	--	--	0	0	--	--	1	9	0
Brown	39	--	0	--	--	--	--	0	--	--	2	5	--
Chippewa	1	--	--	--	--	--	--	--	--	--	--	--	--
Clay	13	--	--	--	--	--	--	--	--	--	--	--	1
Cottonwood	1	--	--	--	--	--	--	--	--	--	0	--	--
Dodge	34	--	--	--	--	--	--	--	--	--	--	1	1
Faribault	148	--	0	--	--	--	--	--	--	--	1	10	--
Freeborn	45	--	--	--	--	--	1	--	--	--	--	--	--
Grant	0	--	--	--	--	--	--	--	--	--	--	--	--
Jackson	1	--	--	--	--	--	--	--	--	--	0	--	--
Kandiyohi	9	--	--	--	--	--	0	--	--	--	--	0	--
Kittson	690	--	--	4	4	18	--	--	--	--	--	3	21
Lac Qui Parle	1	--	0	--	--	--	--	--	--	--	--	--	--
Lincoln	5	--	1	--	--	--	--	--	--	--	--	--	--
Lyon	0	--	--	--	--	--	--	--	--	--	--	--	--
Marshall	866	--	--	2	3	5	--	--	--	--	--	1	8
Martin	1	--	--	--	--	--	--	--	--	--	0	--	--
McLeod	18	--	0	--	--	--	--	--	--	--	1	1	--
Meeker	8	--	0	--	--	--	0	--	--	--	--	0	--
Mower	47	--	--	--	0	--	1	--	--	--	--	--	--
Murray	2	--	--	--	--	--	--	--	--	--	0	0	--
Nicollet	58	--	0	--	--	--	--	--	--	--	2	8	--
Nobles	1	--	--	--	--	--	--	--	--	--	0	--	--
Norman	89	--	--	--	--	--	--	--	--	--	--	--	--
Pennington	283	0	--	--	0	--	--	--	--	--	--	--	0
Pipestone	12	--	1	--	--	--	7	--	--	--	--	--	--
Polk	178	3	0	--	0	--	--	--	--	--	--	--	1
Pope	127	--	--	--	--	--	--	--	--	--	--	0	--
Red Lake	55	1	--	--	--	--	0	--	--	--	--	--	0
Redwood	6	--	--	--	--	--	--	--	--	--	0	--	--
Renville	1	--	0	--	--	--	--	--	--	--	0	--	--
Rock	11	--	1	--	--	--	0	--	--	--	--	1	--
Sibley	48	--	--	--	--	--	--	--	--	--	--	7	--
Steele	31	--	0	--	0	--	1	--	--	--	--	0	--
Stevens	114	--	--	--	--	--	--	--	--	--	--	--	--
Swift	87	--	--	--	--	--	--	--	--	--	--	--	1
Waseca	10	--	--	--	0	--	0	--	--	--	--	1	0
Watonwan	5	--	--	--	--	--	--	--	--	--	4	--	--
Yellow Medicine	5	--	1	--	--	--	0	--	--	--	--	--	--
Total	3,099	5	5	6	8	23	11	0	--	--	11	47	32
State total	140,325	7,105	6	1,676	7,751	15,368	5,597	389	3	439	2,884	1,771	11,532

(Table 18 continued on next page)

(Table 18 continued)

Forest Inventory Unit and county	Species group												
	Yellow birch	Hickory	Ash	Black walnut	Cotton-wood	Balsam poplar	Aspen	Black cherry	Red oak group	White oak group	Basswood	Elm	Other hardwoods
Aspen-Birch													
Carlton	0	--	42	--	--	22	1,262	--	126	0	83	6	36
Cook	--	--	2	--	--	1	928	--	--	--	2	0	2
Koochiching	--	--	59	--	--	1,632	8,194	--	2	9	82	0	1
Lake	0	--	50	--	--	45	1,528	--	1	--	139	4	23
St. Louis	--	--	247	--	--	1,158	15,595	--	12	3	188	17	111
Total	0	--	400	--	--	2,858	27,508	--	141	12	494	27	174
Central Hardwood													
Anoka	--	--	2	--	15	--	86	--	19	6	1	--	--
Benton	--	--	1	--	0	1	67	--	4	4	0	0	0
Carver	--	--	0	0	14	--	1	0	4	7	2	0	--
Chisago	--	3	6	0	--	0	7	--	97	7	4	0	3
Dakota	--	--	1	1	2	--	0	1	4	9	--	1	--
Douglas	--	--	2	--	--	1	44	--	3	7	14	--	--
Fillmore	--	6	15	15	17	--	--	4	249	144	64	13	1
Goodhue	--	4	16	9	3	--	1	8	220	68	53	8	3
Hennepin	--	--	0	1	4	--	126	1	5	3	0	57	--
Houston	--	14	15	26	24	--	10	9	467	161	47	9	2
Isanti	--	--	1	--	11	--	15	--	14	1	2	--	--
Kanabec	5	0	17	3	--	6	381	1	111	2	18	2	10
Le Sueur	--	1	1	5	13	--	--	0	9	7	10	0	3
Mille Lacs	--	--	19	--	--	4	605	--	270	18	36	1	6
Morrison	--	0	5	--	--	4	587	0	31	21	8	1	5
Olmsted	--	2	4	6	0	--	0	3	90	24	25	3	1
Otter Tail	--	--	8	--	--	17	604	--	33	16	33	0	--
Pine	--	8	49	--	--	24	2,879	--	270	14	68	6	48
Ramsey	--	--	0	0	6	--	70	1	5	0	--	0	--
Rice	3	1	1	1	0	--	0	1	23	5	5	1	1
Scott	--	--	0	1	31	--	1	0	6	6	4	1	--
Sherburne	--	--	0	--	--	0	13	--	4	0	0	0	0
Stearns	0	0	0	3	--	0	3	1	32	17	5	0	0
Todd	5	0	3	3	1	1	168	1	60	23	9	1	--
Wabasha	--	3	6	3	100	--	4	4	178	96	31	4	1
Washington	--	0	3	0	2	0	59	0	4	0	1	0	1
Winona	--	4	7	8	18	--	8	5	211	76	22	5	1
Wright	--	--	1	--	8	0	5	--	17	14	7	0	0
Total	13	47	185	87	269	59	5,746	40	2,441	756	469	113	86
Northern Pine													
Aitkin	0	--	156	--	--	98	3,552	--	1,043	28	227	10	61
Becker	4	0	5	2	14	39	1,538	1	53	4	26	0	0
Beltrami	--	--	103	--	8	441	5,483	--	71	21	246	1	5
Cass	4	0	85	2	--	135	3,764	1	498	39	213	2	14
Clearwater	--	--	14	--	4	57	2,434	--	6	9	110	0	6
Crow Wing	--	0	62	--	0	30	2,414	0	179	19	79	8	49

Hubbard	--	--	16	--	--	38	2,969	--	56	2	27	0	1
Itasca	0	--	194	--	--	636	7,960	--	411	17	285	3	20
Lake of the Woods	--	--	9	--	--	383	1,816	--	0	1	1	0	1
Mahnomen	--	--	1	--	8	18	532	--	--	0	25	--	--
Roseau	--	--	11	--	0	246	1,115	--	0	0	0	--	--
Wadena	--	--	2	--	--	5	610	--	16	16	0	--	--
Total	8	0	657	4	35	2,127	34,186	2	2,334	157	1,238	24	158
Prairie													
Blue Earth	--	0	1	4	9	--	0	--	7	9	6	0	0
Brown	--	1	1	5	2	--	--	--	4	6	11	1	--
Chippewa	--	--	--	0	--	--	--	--	0	0	--	--	--
Clay	--	--	--	--	0	2	6	--	--	--	4	--	--
Cottonwood	--	--	0	--	1	--	0	--	--	--	--	--	--
Dodge	--	--	0	2	2	--	--	0	10	9	9	0	--
Faribault	--	3	5	6	14	--	2	0	67	21	12	5	1
Freeborn	--	--	2	--	18	--	0	0	9	15	--	--	--
Grant	--	--	--	--	--	--	0	--	--	--	0	--	--
Jackson	--	--	0	--	0	--	--	--	--	--	--	--	--
Kandiyohi	--	--	1	1	--	--	0	--	0	3	4	--	--
Kittson	--	--	--	--	--	40	586	--	7	2	6	--	--
Lac Qui Parle	--	--	0	0	1	--	--	--	--	--	--	0	--
Lincoln	--	0	0	0	3	--	--	--	--	--	0	--	0
Lyon	--	--	0	0	--	--	--	--	--	0	--	--	--
Marshall	--	--	--	--	--	47	792	--	7	--	0	--	--
Martin	--	--	0	0	--	--	--	--	0	--	--	0	--
McLeod	--	--	--	--	7	--	--	--	1	1	7	0	--
Meeker	--	--	1	0	--	--	--	0	0	2	4	--	--
Mower	--	--	1	0	30	--	--	0	6	3	6	--	--
Murray	--	--	0	--	1	--	--	--	--	--	--	--	--
Nicollet	--	2	0	8	13	--	--	0	7	3	12	2	--
Nobles	--	--	0	--	1	--	--	--	--	--	--	--	--
Norman	0	--	--	--	9	--	67	--	2	--	10	--	0
Pennington	--	--	1	--	7	3	269	--	0	0	0	--	--
Pipestone	--	--	1	0	3	--	--	--	--	--	--	--	--
Polk	--	--	--	--	4	2	150	--	13	0	6	--	--
Pope	--	--	0	--	86	--	--	--	2	1	38	--	--
Red Lake	--	--	0	--	5	1	41	--	1	1	4	--	--
Redwood	--	--	0	--	6	--	--	--	--	--	--	--	--
Renville	--	--	0	0	--	--	--	--	0	0	0	0	--
Rock	--	--	3	1	5	--	--	--	--	--	--	0	--
Sibley	--	--	--	2	--	--	--	--	1	--	36	1	--
Steele	--	--	1	1	13	--	--	--	10	4	2	--	--
Stevens	--	--	--	--	114	--	--	--	--	--	--	--	--
Swift	--	--	0	--	86	--	--	--	0	0	1	--	--
Waseca	--	--	--	3	--	--	--	--	0	5	--	--	--
Watonwan	--	--	0	1	0	--	--	--	--	--	--	--	--
Yellow Medicine	--	--	0	0	3	--	--	--	--	--	--	--	--
Total	0	6	22	36	444	96	1,913	1	158	87	177	10	2
State total	21	53	1,264	127	748	5,140	69,353	43	5,074	1,012	2,377	174	419

0 = Less than 500 cubic feet.
Table may not sum due to rounding.

Table 19.—Residue produced at primary wood-using mills by type of material, type of use, and Forest Inventory Unit, Minnesota, 2004

(In thousand green tons)

Forest Inventory	Bark		Coarse[1]		Fine[2]		Total	
Unit and type of use	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood
All Units								
Fiber products[3]	--	0.07	179.13	41.30	2.74	3.17	181.87	44.54
Industrial fuel-mill	189.50	675.78	15.59	27.11	118.72	297.98	323.81	1,000.87
Industrial fuel-sold	7.29	108.19	--	0.06	3.33	24.87	10.62	133.12
Domestic fuel	0.86	0.44	9.68	47.01	1.03	12.96	11.57	60.41
Miscellaneous[4]	13.85	24.36	6.12	23.37	19.77	36.61	39.74	84.34
Not used	2.93	6.46	11.07	11.05	3.29	9.83	17.29	27.34
Total	214.44	815.30	221.59	149.90	148.88	385.41	584.91	1,350.61
Aspen-Birch								
Fiber products[3]	--	0.07	22.40	7.98	--	0.09	22.40	8.14
Industrial fuel-mill	74.33	403.88	10.97	4.37	42.27	177.70	127.57	585.95
Industrial fuel-sold	1.53	38.95	--	0.00	1.04	8.82	2.57	47.77
Domestic fuel	0.75	0.19	2.52	4.78	0.10	7.06	3.37	12.03
Miscellaneous[4]	2.80	4.01	5.13	6.21	5.90	4.75	13.83	14.97
Not used	2.27	4.10	5.44	2.81	1.98	2.18	9.69	9.09
Total	81.69	451.20	46.47	26.16	51.30	200.59	179.46	677.95
Central Hardwood								
Fiber products[3]	--	--	0.72	10.12	0.16	0	0.88	10.12
Industrial fuel-mill	16.06	26.23	0.71	5.39	11.60	10.41	28.37	42.03
Industrial fuel-sold	0.05	0.27	--	0.01	0.02	0.16	0.07	0.44
Domestic fuel	0.02	0.05	3.20	17.64	0.25	1.52	3.47	19.21
Miscellaneous[4]	3.32	13.96	0.85	7.78	3.71	20.83	7.88	42.57
Not used	0.24	0.57	4.56	1.97	0.31	1.22	5.11	3.76
Total	19.69	41.09	10.05	42.90	16.04	34.15	45.78	118.14
Northern Pine								
Fiber products[3]	--	--	154.40	19.22	2.58	3.07	156.98	22.29
Industrial fuel-mill	98.10	241.95	2.71	14.86	63.07	104.51	163.88	361.32
Industrial fuel-sold	5.63	68.67	--	0.05	2.26	15.88	7.89	84.60
Domestic fuel	0.08	0.15	3.76	20.47	0.67	4.07	4.51	24.69
Miscellaneous[4]	7.59	4.71	0.14	7.22	10.13	9.04	17.86	20.97
Not used	0.32	1.21	0.88	4.19	0.96	6.07	2.16	11.47
Total	111.72	316.70	161.89	66.01	79.68	142.64	353.29	525.35
Prairie								
Fiber products[3]	--	--	1.60	3.98	--	--	1.60	3.98
Industrial fuel-mill	1.01	3.72	1.20	2.49	1.77	5.36	3.98	11.57
Industrial fuel-sold	0.08	0.29	--	0	0	0.01	0.08	0.30
Domestic fuel	0.01	0.05	0.20	4.12	0	0.31	0.21	4.48
Miscellaneous[4]	0.14	1.67	0	2.17	0.03	1.99	0.17	5.83
Not used	0.10	0.58	0.19	2.08	0.04	0.36	0.33	3.02
Total	1.35	6.31	3.19	14.84	1.85	8.03	6.39	29.18

0 = Less than 5 green tons.

[1] Suitable for chipping such as slabs, edgings, veneer cores, etc.

[2] Not suitable for chipping such as sawdust, veneer clippings etc.

[3] Pulpwood, particleboard, oriented strandboard, fiberboard, roofing felt, etc.

[4] Livestock bedding, mulch, small dimension, specialty items, etc.

Table may not sum due to rounding.

Reading, William H., IV; Jacobson, Keith. 2008. **Minnesota timber industry—an assessment of timber product output and use, 2004.** Resour. Bull. NRS-25. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northern Research Station. 74 p.

Discusses recent forest industry trends in Minnesota; reports production and receipts of industrial roundwood by product, species, and county in 2004. Also reports on logging residue, on wood and bark residue generated at primary wood-using mills, and on disposition of mills residue.

KEY WORDS: Industrial roundwood, production residues, saw logs, veneer logs, Minnesota.

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